

1993

## "I Wasn't Aware, Until I was Aware" : Teaching Gender Equity to Second Year Education Students

Lesley Newhouse-Maiden  
*Edith Cowan University*

Susan Cullen  
*Edith Cowan University*

Follow this and additional works at: <https://ro.ecu.edu.au/ajte>



Part of the [Teacher Education and Professional Development Commons](#)

---

### Recommended Citation

Newhouse-Maiden, L., & Cullen, S. (1993). "I Wasn't Aware, Until I was Aware" : Teaching Gender Equity to Second Year Education Students. *Australian Journal of Teacher Education*, 18(1).  
<https://dx.doi.org/10.14221/ajte.1993v18n1.3>

This Journal Article is posted at Research Online.  
<https://ro.ecu.edu.au/ajte/vol18/iss1/3>

2. Reflection should not be restricted to teachers *reflecting individually* upon their teaching; there needs to be a *collective* and *collaborative* dimension to it as well;
3. Reflection is a process that is centrally concerned with *challenging the dominant myths, assumptions and hidden message systems*, implicit in the way teaching and education are currently organised;
4. Reflection is also fundamentally about *creating improvements in educational practice*, and the *social relationships* that underlie those practices;
5. Reflection is founded on the belief that *knowledge about teaching is in a tentative and incomplete state*, and as such, is continually being modified as a consequence of practice;
6. Reflection occurs best when it *begins with the experiences of practitioners* as they are assisted in the process of *describing, informing, confronting* and *re-constructing* their theories of practice (Smyth, 1992).

## REFERENCES

- Beazley, K. (1993). *Teaching Counts*. A Ministerial Statement. Canberra: Australian Government Publishing Service.
- Crowe, K. (1993). Re-defining the profession: the approach of a government policy document to teachers in Australia. *Teaching and Teachers' Work*, 1(2).
- Foucault, M. (1980). *Michel Foucault: Power/Knowledge. Selected Interviews and Other Writings*. C. Gordon (Ed.). New York: Pantheon.
- Halberstam, D. (1986). *The Reckoning*. New York: Avon.
- Holmes Group. (1986). *Tomorrow's Teachers: A Report of the Holmes Group*. East Lansing, MI.
- Lawn, M. & Ozga, J. (1986). Unequal partners: Teachers under indirect rule. *British Journal of Sociology of Education*, 7(2), 225-38.
- Lawn, M. & Ozga, J. (1988). The educational worker? A reassessment of teachers. In Ozga, J. (Ed). *Schoolwork: approaches to the Labour Process of Teaching*. Milton Keynes: Open University Press.

Martinez, K. (September, 1989). Critical Reflection in Teacher Education. Paper to the Teacher Education Practicum Conference, Rockhampton.

Munby, H. & Russell, T. (1989). Educating the reflective teacher: An essay review of two books by Donald Schon. *Journal of Curriculum Studies*, 21, 71-80.

NBEET (Schools Council). (1990). *Australia's Teachers: An Agenda for the Next Decade*. Canberra: Australian Government Publishing Service.

Pollard, A. (1987). Reflective teaching - the sociological contribution. In Woods, P. & Pollard (Eds.). *Sociology and Teaching: A New Challenge for the Sociology of Education*, (pp. 53-73). London: Croom Helm.

Ross, W. & Hannay, L. (1986). Toward a critical theory of reflective inquiry. *Journal of Teacher Education*, 37, 9-15.

Rudduck, J. (1984). *Teaching as an Art, Teacher Research, and Research-based Teacher Education*. Second Annual Lawrence Stenhouse Memorial Lecture. University of East Anglia.

Schon, D. (1991). *The Reflective Turn: Case Studies in and on Educational Practice*. New York: Teachers College Press.

Smyth, J. (27 April 1992). Conflicting Conceptualisations of Teaching and Teachers' Work: Implications for Professional Development. Paper to the Seven Oaks Symposium Series, Manitoba, Canada.

Smyth, J. (1993). *A Socially Critical View of the Self-Managing School*. London: Falmer Press.

Note: Some of the ideas in this paper had their genesis in my "Teachers' work and the politics of reflection" *American Educational Research Journal*, 29(2), 1993, pp. 267-300 that received the Palmer O. Johnson Award for the most distinguished contribution to educational research published by the American Educational Research Association in 1992.

## 'I WASN'T AWARE, UNTIL I WAS AWARE': TEACHING GENDER EQUITY TO SECOND YEAR EDUCATION STUDENTS

Lesley Newhouse-Maiden and Susan Cullen  
Edith Cowan University

### ABSTRACT

The study sought to ascertain the success of a pre-service unit in which one module focussed on developing 'gender fair' attitudes in education students. The subjects of the study were students in their second year of a Bachelor of Education degree studying the 'Social Justice and Equity in Schools' unit. Collaborative action research methods were used to collect data over a three month period. It was found that 85% of students attempted to use gender fair approaches and material when observed on teaching practice. While the outcome of pre-service teacher education was positive, it was acknowledged that there was always the problem of achieving effective change in their future role as practising teachers in a loosely coupled, conservative education system.

### INTRODUCTION

The issue of gender and schooling has received intermittent attention over the past 16 years in Australian schools. Little is known of the success of pre-service courses focussed on the creation of 'gender fair' attitudes and predispositions. In the module 'Gender Equity', we sought to address the issues of girls in purportedly masculine subject areas, the problem of limited career paths and inequalities in the classroom.

The 1990 second year Education Studies unit for pre-service teachers was entitled 'Social Justice and Equity in Schools and Society'. Critical theory was taught alongside specific modules on equity. Issues related to the Aboriginal, multiculturalism and gender were addressed. The text was *Understanding Schooling* by Henry et al. (1988) and eminently suitable for the unit.

The unit was planned on a three modular sequence so that during the course of the semester we taught three distinct groups, each in a four week block of time. This was a fortuitous arrangement from the point of view of conducting collaborative action research. Our research proceeded through the action research spiral of planning the first module run, monitoring and discussing each session,

reflecting, rethinking, evaluating and modifying as appropriate for the two repeats of the module (Kemmis, quoted in Oja and Smulyan, 1989: 19). According to these writers, action research involves

*the application of the tools and methods of social science to immediate practical problems with the goals of contributing to theory and knowledge in the field of education and improving practice in schools.*

We had three general aims in the gender equity action research:

1. Our own professional development as lecturers in the area of gender equity.
2. Improved school practice as a result of educating our students in the module and subsequent practice in the schools.
3. Modifications to and elaboration of theories of teaching and learning in gender inclusive curriculum in university and schools.

Our paper begins with an explanation of the philosophy underlying the unit, and details the issues we address while engaged in action research. Finally we discuss the findings of our data collection.

The compulsory Education Studies unit enabled us to raise issues of sexism and gender inequity. The lectures focussed on cultural limitations faced by girls. The conditions were set for renegotiating knowledge in the classroom with the emphasis placed on 'democratisation' of the curriculum, classroom management, classroom interaction, preferred learning styles, resources and career education. The module was based on Social Feminism, a philosophy defined by Jagger and Struhl (1978: 225) as

*Social Feminist theory of society is characterised by an emphasis on the inextricable interconnectedness of home and work, private and public, personal and political, family and economic system, women's oppression and class society. It attempts to synthesize the important*

*insights of both Traditional Marxism and Radical Feminism while avoiding the inadequacies of both.*

Basically Social Feminists accept the historical materialist approach begun by Marx and Engels, yet they all agree that sexism is at least as fundamental as economic oppression and emphasise how capitalism and sexism reinforce each other. Their aim is to create a theory which demonstrates the inseparability of these two forms of oppression and the need to simultaneously struggle against both (Mitchell quoted in Jagger and Struhl, 1978: 85). As Social Feminists in the 1990's we were dissatisfied with a merely negative struggle, realising that *you cannot mobilise a movement that is only and always against you - you must have a positive alternative, a vision of a better future that can motivate people to sacrifice their time and energy towards its realisation* (Alcoff, 1988: 418).

It was our strong belief that the students - both men and women - pursuing the module would develop both an awareness of the gender issue and a preparedness to counter invidious gender stereotyping in the schools. We intuitively believed that initially they would change their relationships with others both privately and publicly. Secondly, we felt that as their value system changed, they would actively counter the gender stereotype in their own lives. Thirdly, that their own creativity and positivity as teachers would be enhanced as a result of this active process (Clark, 1988). Ultimately, that their 'degendered' expectations and aspirations for girls and boys in their own classrooms would help the next generation reach their potential and be fully productive at school and in their adult lives.

### **The Social Reconstructionist Conception of Curriculum**

The Gender Equity module was part of a unit which adopted the social reconstructionist conception of curriculum. According to Print (1989: 69) *this philosophy should effect social reform and help produce a better society for all. In this perspective the needs and betterment of society are placed above those of the individual.*

Within the module the lectures and workshops attempted to engage the teachers in conscious analysis of education as a system. The lectures aimed to develop in students an awareness of gender inequity through introducing them to intellectual practices that questioned the current

hegemony. Students were encouraged to build a new basis for understanding inequality and hopefully transform their teaching practices in the classroom.

As they actively learned and acquired knowledge of the social processes that acted upon their lives they became involved in problem solving and challenged the status quo. Weiler, summarising Lather (1986: 53) states that

*While male critical education theorists speak of the need for critical teaching they have overlooked the power of the feminine to challenge the status quo through creation of women's study courses, critiques of sexist texts and practices.*

### **Issues Raised in the Gender Equity Module**

The impact of gender stereotyping on the individual's social construct of society was investigated through an autobiographical questionnaire and more particularly through portrayals of women in history. Of particular interest to students was the diminished status of women in maths, physical science and technology. These areas of knowledge hold the key to increasing life chances for girls and their advancement in the workforce (Barnes et al. 1984; Burton, 1986a and 1986b; Issacson, 1986; Towns 1985; Australian Science Teachers' Association, 1989).

As lecturers aiming to reconstruct the attitudes and approaches of students in their role as intending teachers, we focussed on the need for classroom change by examining research on the attention received by boys in the average classroom, as opposed to that received by girls (Stanworth, 1981; Spender, 1982); the disadvantages girls suffer in not being able to get equipment (Whyte, 1986); and discriminating language in school textbooks (Gilbert and Rowe, 1989; Rennie and Mottier, 1989). At this point in the module, we felt that it was imperative to give students a firm basis for curriculum change on the grounds of equity and social justice.

Subsequently we directed their attention towards the National and State policies related to 'gender equity' (Commonwealth Schools Commission 1975, 1985, 1987; Senate Select Committee 1988; Beazley Report 1984; Newhouse 1990: 42-47). Finally, we focussed on ways to counter the invidious effects of gender stereotyping in the school (Evans, 1989) and classroom (Foster, 1989)

particularly as it pertained to preferred learning styles and fairness in evaluation for both boys and girls.

Programmes such as FAMP in Australia (Vasey, 1989) and GIST in U.K. (Whyte, 1986) provided them with templates of innovations. GAMAST (Lewis and Davies, 1988) outlined a model for professional development of teachers and inservicing of parents so vital if programmes in school are to become 'gender-inclusive' (Hildebrand 1989). The student teachers were finally eased into the perception of themselves as career advisers uncluttered by gender stereotyping.

### **The Value of Partnership in Developing the Module, Lecturing, Conducting Workshops and Progressive Evaluation**

We worked closely in developing the module and over the eight sessions set for each of the three groups presented lectures and workshops alternately. We reported to each other after each session, identifying strengths and weaknesses, in the continual challenge of dealing with the gender issue. Mutual support was indeed absolutely crucial, for often the aggression of the men and some women in purportedly 'masculine' disciplines who felt threatened by the 'gender agenda', was so intense that it disrupted the workshops. It was possible to produce a formative evaluation after the first module run, to modify our own presentation, to affirm that our strategies were indeed creating awareness and hopefully active attitude change to the point of perceiving constructive action on the part of the pre-service teachers.

### **A Model for Evaluation of the Gender Equity Module**

According to Print (1989: 160)

*To a significant degree, then, the success of a curriculum's implementation will reflect the willingness and ability of developers to accommodate changes to their curriculum. This may require changes to curriculum intent, content, learning activities or evaluation procedures and, in turn, may require developers to revise their situational analysis.*

It was fortunate, from the point of view of evaluation of the efficacy of the Gender Equity Module, that this unit on 'Social Justice and Equity in Schools and Society' had been planned on a three modular sequence. This enabled us to

actively intervene in the learning process by monitoring the outcomes of the first group and to make refinements for each following group involved in the Gender Equity module. Our action research was thus able to proceed more rapidly through *spiralling cycle of planning, execution and reconnaissance (or fact-finding) in order to evaluate and perhaps modify the unit plan* (Lewis (1948) cited in Oja & Smulyan 1989: 17). We acknowledged the difficulties associated with generating attitudinal and behavioural changes in an area such as gender equity (Shah, 1989). For example, we excluded a video that was perceived by the first group of students as overly feminist and not valuing the masculine. We replaced the video with another that had a touch of humour in the hope that we would teach the next group of *the ignorance behind the prejudice through laughter* (Hill, 1988: 109).

As evidenced by the example of the video, data collection for the evaluation of the module was intense and diverse. Data were collected from informal conversations with students, and notes were made immediately afterwards. Also included were the students' written statements of their expectations about the module, and the 'Draw a Scientist' exercise (Lewis and Davies, 1988). Worksheets on childhood social experiences and childhood play were completed (Lewis and Davies, 1988) and a questionnaire was developed from these data.

The autobiographical questionnaire was developed from a draft which had been found to be most helpful in developing an awareness of the effect of gender on our own lives and career opportunities, as a result of our different time span and culture of origin. The outcome for students was a more personal acknowledgement of the theory we were espousing.

Textual analysis of classroom resources seemed to make students more sensitive to the need to adapt the curriculum in terms of countering the invidious effects of gender stereotyping. Engaging in careful analysis of resources that either undermined the capabilities of girls and women or marginalized them by their absence from the literature, created in students an awareness of the practical applications of gender equity in the classroom.

### **The Research Questions**

In gathering the data for this research we asked three questions:

1. What were student's expectations upon entering a module such as 'Gender Equity'?
2. Did they accept and/or operate upon the masculine/feminine stereotypes in our society?
3. Was there any evidence that completing the module made students challenge the status quo, or change their belief system in any way?

2. Did students accept the masculine and feminine stereotypes in our society?

To assess students adherence to stereotypes in the sciences, we gave them the activity 'Draw a Scientist' in the first 15 minutes of the first workshop. We then noted how many were pictures of stereotyped figures. The typical student drawing was of a male scientist working alone, wearing glasses, wild hair and holding a bubbling flask. One student drew a female scientist pulling the 'perfect male' out of a test tube. Her response was unusual. Predominantly, the students' drawings were of male scientists.

A further non-assessable exercise on stereotyping was done at the end of the module, to see if there had been any change in students' attitudes and expectations towards girls' career paths and future life chances. The students role-played counsellors and their task was to advise 'Dennis' and 'Denise', both of whom had similar school records, on their career paths. The results, we hoped, would indicate how many of the students had departed from stereotypical attitudes towards careers for women and future life chances. The results were surprisingly egalitarian. This was reflected, not only in the advice to 'Dennis' but also to 'Denise'.

**Group A**

Generally 'Denise' was encouraged to stay at school, plan for a career and to attend a tertiary institution; and 'Dennis' was advised to pursue 'person oriented' careers, where a notable direction in two instances was towards nursing as an option. Part-time jobs were encouraged for both whilst still at school. There was one 'resister' who argued that there was insufficient information in the case study.

**Group B**

This group of students included an originally aggressive group of Industrial Arts students and it was encouraging to find that they and the rest of the group advised 'Denise' and 'Dennis' to 'open up life chances' by exploring the options, including non-traditional apprenticeships or tertiary study; to take up part time work, to be persistent in their careers and especially for 'Denise' to speculate where she 'would like to see herself in ten years time'. (It should be noted that this group had been given autobiographical questionnaires to complete on their own socialisation, career paths and vision of

themselves in the future). A point that was well picked up by three students was, 'Is good looking a relevant point?' for Dennis's credentials. There was only one resister whose only comment was, 'Join the Salvation Army and be saved!'

**Group C**

Their advice, apart from two resisters, reflected a gender inclusive attitude, strongly advising both the boy and the girl to stay on at school to broaden life-chances through higher studies. The boy was often encouraged to take up nursing; and the girl to broaden her life-chances with further study, by taking up non-traditional Year 12 options in order to pursue careers such as engineering. Encouraging comments abounded for the girl

*I would recommend obtaining employment and part-time study so she is in the tertiary system and working towards a goal and not left out of the system and marginalised.*

Dennis's career suggestions ranged from criminology, doctor, lawyer, person oriented university careers, nursing, teacher and apprenticeships. Their advice was packed with catch phrases such as 'gender inclusiveness', 'role reversal', 'critical filter', 'career options', which gave some indication of internalising the content of the module.

3. Was there any evidence that completing the module made students question the status quo or change their belief system in any way?

From the mid-semester test, and the term assignment, we were able to assess some attitude changes. Concomitantly we also gathered unsolicited comments from students and their reports of changes in their own behaviour while on teaching practice in the schools.

In assessing students' mid-semester test answers, the most noticeable factor was the realisation by a number of student teachers that during his/her observation of classes on teaching practice, the teacher did focus on the louder boys in the classroom to the exclusion of the quieter girls. Of the 35 recorded answers, 17 made this point.

Students commented that gender inequity may be found in many classes, but that it would not be found in theirs.

*I was not aware, until I was aware, and then I went out and did all I could to be equitable.*

The other comment that was made frequently was the historically constructed nature of women's roles and expectations. The importance of history in understanding the construction of present society was heavily emphasised in the module, and was evident in students' comments that they appreciated the 'injustices' suffered by women.

Also emphasised were the importance of caring and sensitivity, the purported feminine traits (Gilligan, 1982) which some students considered should be accepted as a good way of behaving in our world.

*Women should be pushing their philosophy (of caring, sharing and sensitivity) but at the same time breaking down myths of their increased emotional instability. (Female student)*

Some students also commented they were doubtful of the capacity of society to change towards equity.

*The approach taken will adapt women to take part in a "man's" world, but I don't believe it will change it. (Male student)*

Many of the male students became highly aware of what they could do to encourage women in their classrooms to participate, and succeed. Much unsolicited research and comment was gathered from students who took the classroom implications of the module to heart.

**Male and Female Interactions in the Module**

One male student initiated the monitoring of verbal interaction in the workshops. He tallied each statement made as either male or female generated, and located it either as active involvement in class discussion or passive interaction, which he interpreted as private discussion.

**Group A. Workshop, 14 September, 1990**  
 9.00am - 9.45am    9.45am - 10.30am

	Male	Female	Male	Female
Active+	20	4	46	20
Passive#	7	15	40	37

+ involved in class discussion.  
 # talking amongst themselves privately.

His findings showed that the majority of the lecturer's verbal interaction time was taken up by the male students in the workshop. The male students also dominated general class talk.

The student's research led him to state that

*If participation is to be equated with personal student benefit something must be done to encourage females to participate more in discussions ...*

(Markey, 14 September, 1990)

### Discussion of Results

The attitudes of students on entering the module on Gender Equity were generally positive. The range of expectations varied from fear of feminism, to those who were completely uncertain about what the module might involve, to anticipation of learning something useful for implementation in the classroom.

The material such as the 'Draw a Scientist' exercise, which was not for module assessment, indicated that initially students held stereotypical views about the roles of men and women in our society. In the final workshop, the role play of the 'careers adviser' and his/her written advice to 'high school students' indicated they had, at the very least learned to give what was expected; and at best, there had been a shift in their beliefs from traditional roles for men and women, to an acceptance that individuals could, and should, be encouraged into non-traditional areas of work. Evidence of students questioning the status quo and changing their beliefs was garnered from a number of sources. The comments in the examination were corroborated by the non-assessable material described above. Comments in the examinations indicated that there were a great number of the pre-service teachers concerned about a variety of inequalities in the classroom. There were a few students who could not accept equality of men and women on religious grounds, and there were those who had entered the module with a negative attitude and this was still evident in their final examination answers. Fifteen percent of students remained negative toward gender equity, but the majority (85%) actively utilised the module information in their attempt to create equitable classrooms. On their teaching practice there was evidence that students devised ways to counter the marginalisation of girls in the classroom by controlling the distribution of resources and consciously interacting equitably; and by accommodating the preferred learning styles of

girls and boys in both process and evaluation situations.

### Conclusion

The research done by Markey (1990), and our own reflective analysis and post-practice discussions with students indicated that gender equity is an on-going challenge. It clearly indicated that both lecturers and students must work collaboratively to overcome the problems of gender inequity, by listening to each other's discourse.

Our action research indicated that the stereotypical views of some students could be countered, once they became aware of the need to be inclusive and were taught methods of doing this. On their teaching practice, 85% of students from the Gender Equity classes were observed actively utilising the equitable teaching approaches and in their use of resources and texts as suggested in the module. Students were aware of the necessity to build into the curriculum career guidance and encouragement, especially for girls. Despite positive indications of the inclusion of a gender equity module in pre-service teacher education, there is always the question of how effectively such input generates change in a loosely coupled, conservative system (Shah, 1989).

### REFERENCES

- Alcoff, L. (1988). Cultural feminism versus post structuralism: The identity crisis in feminist theory. *Signs*, 13(3), 418-419.
- Barnes, M., Plaister, R. & Thomas, A. (Eds.). (1984). *Girls Count in Maths and Science: A Handbook for Teachers*. Sydney: Mathematical Association of N.S.W.
- Beazley, K.E. (1984). *Education in Western Australia. Report of the Committee of Inquiry into Education in Western Australia*. The education of girls pp. 340-349. Perth: Western Australian Education Dept., Government Printers.
- Burton, L. et al. (Ed.). (1986a). *Girls into Mathematics*. Cambridge: Cambridge University Press; The Open University and Inner London Authority Course.
- Burton, L. (Ed.). (1986b). *Girls into Maths Can Go*. London: Holt, Rinehart and Winston.

Clark, B. (1988). (3rd ed.). *Growing up Gifted*. Ohio: C.E. Merrill.

Commonwealth Schools Commission. (1987). *The National Policy for the Education of Girls in Australian Schools*. Canberra.

Commonwealth Schools Commission. (1985). *Girls and Tomorrow: The Challenge for Schools*. Canberra.

Commonwealth Schools Commission. (1975). *Girls, School and Society*. Canberra.

Evans, T. (1989). Living Curricula. In Leder, G.C. and Sampson, S.N. (Eds.). *Educating Girls: Practice and Research*. Australia: Allen and Unwin.

Foster, V. (1989). Is gender inclusiveness the answer for girls? In Leder, G.C. and Sampson, S.N. (Eds.). *Educating Girls: Practice and Research*. Australia: Allen and Unwin.

Gilbert, P. & Rowe, K. (1989). *Gender, Literacy and the Classroom*. Australia: Australian Reading Association.

Gilligan, C. (1982). *In a Different Voice: Psychological Theory and Women's Development*. Cambridge M.A.: Harvard University Press.

Hildebrand, G. (1989). Creating a gender-inclusive science education. *The Australian Science Teachers Journal*, 35(3), 7-16.

Hill, D.J. (1988). *Humor in the Classroom: A Handbook for Teachers (and Other Entertainers)*. Springfield, Illinois: C.C. Thomas.

Henry, M., Knight, J., Lingard, R. and Taylor, S. (1988). *Understanding Schooling: An Introductory Sociology of Australian Education*. London: Routledge.

Issacson, Z. (1986). Freedom and girls education: A philosophical discussion with particular reference to mathematics. In Burton, L. et al. *Girls into Maths Can Go*. London: Holt, Rinehart and Winston.

Jaggard, A.M. and Struhl, P.R. (1988). *Feminist Frameworks: Alternative Accounts of the Relations Between Men and Women*. New York: McGraw-Hill.

Lewis, S. and Davies, A. (1988). *GAMAST Professional Development Manual: Gender Equity in Mathematics and Science*. A Project of National Significance Funded by Commonwealth Schools Commission, ACT: Published by CDC.

Markey, A. (1990). *Male and Female Interactions in a Gender Equity Workshop*. Unpublished manuscript.

Newhouse, L.P. (1990). *Gender Equity: Retrospect and Prospect, Recommendations for the School of Education*. Perth: WACAE.

Oja, S.N. and Smulyan, L. (1989). *Collaborative Action Research: A Developmental Approach*. London: Falmer Press.

Print, M. (1987). *Curriculum Development and Design*. Sydney: Allen and Unwin.

Rennie, L.J. and Mottier, I. (1989). Gender inclusive resources in science and technology. *Australian Science Teachers Journal*, 35(3), 17-22.

Shah, S. (1989). Effective permeation of race and gender issues in teacher education courses. *Gender and Education*, 1(3), 221-236.

Spender, D. (1982). *Invisible Women in the School Scandal*. London: Writers and Readers Publishing Co-operative Society Limited.

Stanworth, M. (1981). *Gender and Schooling: A Study of Sexual Divisions in the Classroom*. London: Women's Research and Resources Centre Publications.

Towns, D. (1985). *The Responsibility to Educate Girls for a Technologically-Oriented Society*. Policy Development and Analysis Series, Australia: Deakin University Press.

Vasey, J. (1989). The family maths project (FAMPA). In Leder, G.C. and Sampson, S.N. (Eds.). *Educating Girls: Practice and Research*. Australia: Allen and Unwin.

Whyte, J. (1986). *Girls into Science and Technology: The story of a project*. London: Routledge and Kegan Paul.

Weiler, K. (1988). *Women Teaching for Change: Gender, Class and Power*. The Critical Studies in Education Series. Massachusetts: Bergin and Garvey.