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THE EFFECTS OF NONJUDGEMENTAL FEEDBACK ON GENDER EQUITY IN TEACHER STUDENT INTERACTION IN PRIMARY SCHOOL PHYSICAL EDUCATION

A THESIS SUBMITTED IN
FULFILMENT OF THE REQUIREMENTS
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EDITH COWAN UNIVERSITY

BRIAN D. OWEN B.Ed Hons

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DECLARATION

I certify that this thesis does not incorporate without acknowledgement, any material previously submitted for a degree or diploma in any institution of higher education and that, to the best of my knowledge and belief, it does not contain any material previously published or written by another person except where due reference is made in the text.

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It is appropriate that the subject of this research was in the area of gender equity, as all the individuals who influenced me and helped me in the Master's programme were women. I want to thank them for their generous spirits.

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ABSTRACT

THE EFFECTS OF NONJUDGEMENTAL FEEDBACK ON GENDER EQUITY IN TEACHER-STUDENT INTERACTION IN PRIMARY SCHOOL PHYSICAL EDUCATION.

This study examined whether gender role dependent and independent teacher behaviours could be influenced by the provision of peer observation and nonjudgemental feedback.

Sixteen Year 4/5 classroom teachers, eight males and eight females were selected and divided into two groups of eight, a control group and an intervention group. The teachers were provided with standardized physical education programmes. A total of 64 physical education lessons were observed.

For each group of teachers two lessons were recorded as baseline data to show established behaviour patterns. For the rest of the study, the control group continued to be recorded with no feedback being provided.

The intervention group was provided with the results of analysis of their intervention, and nonjudgemental feedback following their first and second lessons (with a collapsed set of data). An adaption of

the clinical supervision system was utilized to enable teachers to analyse their own interaction patterns and identify areas of behaviour that required adjustment. In the third lesson, they were again analysed and conferencing provided feedback. The fourth lesson provided a measurement of a reinforced feedback system.

Gender stereotypic patterns of teacher behaviour were analysed and the extent to which equity of participation and verbal interactions in primary school physical education classes were examined. The findings showed that sex integration in physical education lessons does not elimirate gender inequity. The teacher-student interaction patterns disproportionately favoured boys and disadvantaged girls, possibly contibuting to their lower skill levels and a negative attitude towards physical education. The study also found that teachers were able to effect change in their verbal interaction patterns after they had received intervention by means of nonjudgemental feedback and consequently became more equitable in their interactions.

Significant differences in observed teacher interactions with individual students and groups established the continuance of sex inequitable patterns of teacher-student behaviour. The interaction categories in which these occurred were in control/discipline, the

use of student names and the giving of instructions to students. Other categories relating to management and the criticism of unsuccessful students were also shown to be inequitable, but to a lesser extent.

The results of intervention, however, suggested that with feedback gender biased interaction patterns could be suspended or reduced. Some teachers in the intervention group, after their second conference, were able to balance their patterns of behaviour to such an extent that there was no evidence of biased interactions. Others significantly lowered their biased interactions. All teachers however, expressed a positive view towards conferencing and felt it was a beneficial process. They generally felt that it was important as educators to give all students an equitable share of their attention.

CHAPTER 1

INTRODUCTION

This study examines how intervention by means of nonjudgemental feedback to teachers affects their interaction patterns with students in coeducational primary school physical education lessons.

The first chapter provides a statement of the problem and the purpose of the study. The research questions are stated and the instrumentation and procedures utilised in the research outlined. The significance of the study is then described and finally an overview of the thesis is provided.

Statement of the problem

In physical education and school in general, many achievement differences are a reflection of society's expectations. They are learned differences not necessarily inherent biological differences. On the basis of gender, students are frequently treated differently by teachers and

society alike (Boutilier & San Giovanni, 1983; King, 1988). The gender role dependent behaviour of teachers can therefore affect the equity of classroom life, and as a result differential perceptions and treatment of male and female students need to be addressed.

Teachers endeavour to provide a positive interactive environment for all students. From the moment the teacher initiates a lesson, a variety of decisions are made in areas such as discipline, interaction, teaching style and content. Some of these decisions are likely to influence the teacher's productivity. Certain teacher behaviours may need to change in order to produce a more equitable environment for the students. Encouraging teachers to examine the choices they make while teaching allows them the opportunity to evaluate those decisions and either decide to maintain their behaviour or change it. Intervention by means of nonjudgemental feedback is one strategy which allows teachers the opportunity to take control of their decision-making.

Gender role stereotyping and bias have received increasing attention over the past decade from educators within the school environment. Research has shown that in almost all areas of programming within schools, a consistent pattern of gender bias and stereotyping has occurred. These

areas include curriculum content, instructional materials, programming for boys and girls, educators' attitudes, staffing patterns, and vocational and personal counselling (Hargreaves, 1985; Hoferek, 1982; Riordan, 1985). In addition, several studies have also made a critical analysis of sport in society and found that equal opportunity for all participants is lacking (Boutilier & San Giovanni, 1983; Duquin, 1981; Theberge, 1985). The downgrading of women's skill levels and the perpetuation of the myth that women are inferior has been shown in these studies as contributing to the dominance of males in sport, and the claim that despite increased participation levels and equal opportunity for women, it cannot be assumed that equal participation will mean future equality of status for females in sport.

Safrit (1984) suggested that perceptions of women are "unconsciously biased". She questioned whether judgements are made on the basis of actual performance or perceptions of that performance. "If the judgements are made on perceptions of performance, what is the basis for these perceptions?" (p. 110). Such perceptions, if unconscious, can have a profound effect on teaching styles and interaction patterns without the teacher being aware of the behaviour. When this is considered along with the dearth of female role models in physical education, such behaviours

can have a detrimental effect on the perceptions of female students towards the performance and achievement requirements of physical education.

Similarly, Vertinsky (1984) stated "teachers need to become more aware of how their stereotypic assumptions influence their selection of teaching strategies". She continued, "Girls may have been socialized outside the school to be less interested in participating and competing in sports and physical activities" and may face "female teachers who are more inclined to address the social, fun aspects of sport than competitive, performance issues" (p. 429). This contrasts with the treatment of boys who are socialised to pursue increasing levels of performance and may be encouraged by male teachers to be competitive and forceful.

Theberge (1985) discussed gender differences in rates of participation and claimed that:

> A full analysis of the forms and implications of sport as a male preserve must show the connections between these differences and patterns of power and domination...These differences indicate women's relative exclusion from activity that is culturally valued and to a considerable extent publicly supported. Public support of sport takes place in a variety of ways including the location of programmes in educational institutions, direct government support through tax-incentives

> for corporate donations and sponsorship of events and programmes. Thus, women's under-representation in sport is an instance of their unequal access to the valued goods and resources of our society. (p. 194)

Theberge concluded that sport, as a male preserve, was an important cultural practice that contributed to the definition and re-creation of gender inequity.

While educators recognize a need for change in the area of gender equity, instituting that change constitutes another problem. What is required is a means of behavioural analysis. A similar need was recognized by teacher educators at Harvard University in the 1950s. Smyth (1984, p. 3) elaborated: "There was a feeling that if experienced, as well as inexperienced, teachers were to be helped to analyse their own teaching, and to make improvements in classroom practices as a consequence, there had to be an adequate support structure". The teacher educators of the time were searching for a way to assist teachers to gain a measure of control over their own professional development while enlightening them about their classroom practices. The structure developed to answer these dual demands was clinical supervision. Clinical supervision has as its underlying assumption a belief in the importance, worth and dignity of the individual teacher, demonstrating a willingness to develop new skills and understandings.

> It emphasises the importance of teachers working collaboratively with colleagues to uncover, and attend to, the hidden messages implicit in classroom teaching...One of the espoused intents of clinical supervision is the development of teachers who are responsible to their profession and committed to improving their own practice through reflection, with assistance and support from others. (Smyth, 1984, p. 3)

Clinical supervision is a system which allows planned intervention of a teacher's behaviour. Its objective is to bring about improvements in classroom organization and teacher behaviour. Its most distinctive feature is the way in which it invests in teachers a capacity to note those aspects of their teaching over which they can begin to exercise greater personal control. By means of intervention and nonjudgemental feedback, the teacher is provided with timely and relevant feedback on aspects of his or her teaching that are of interest and concern to that teacher, the goal being to assist the teacher to modify existing patterns of behaviour in ways that the teacher has selected. This collaborative effort is conducted in a non-threatening environment, allowing maximum benefit from the exercise (Smyth, 1984).

Purpose of the study

The purpose of this study was to examine how intervention by means of nonjudgemental feedback affects

gender equity in relation to teacher-student interaction in terms of gender role dependent and independent teacher behaviour in coeducational primary school physical education. Gender role dependent behaviour expects, reinforces or accepts traditional stereotypic behaviour in males and females. In addition, it discourages male and female behaviour that is inconsistent with traditional stereotypes. Gender role independent behaviour encourages, expects or reinforces female and male behaviour that is independent of traditional stereotypes.

The study was undertaken to ascertain whether identified stereotypic interaction patterns between teachers and students in coeducational physical education classes in Western Australian primary schools, could be altered by means of intervention through nonjudgemental feedback in a collaborative non-threatening environment. The research used a modified version of the Sex Role Dependent/Independent Teacher Behaviour Observation System (Griffin, 1980) to identify gender role dependent and independent behaviour.

Research questions

This descriptive analytic study investigated the effects of nonjudgemental feedback on teacher-student interactions with regard to gender equity in primary school physical education.

The question which guided the study was: Does intervention by means of objective nonjudgemental feedback affect gender role dependent and independent teacher behaviour in coeducational primary school physical education lessons?

Subsidiary questions assisted in answering the above question. These questions were:

i) Do male students receive a higher proportion of verbal interactions than female students during physical education lessons?

ii) Does the gender of the teacher influence the proportion of verbal interactions given to male and female students?

iii) How does the gender of the students affect the pattern of verbal interaction?

iv) Does the provision of nonjudgemental feedback to teachers enable them to make changes to their verbal interaction patterns in order to make them more equitable?

Instrumentation and procedures

The main focus for research into gender stereotyping amongst teachers has been on teacher attitudes rather than identifying teacher behaviour in the classroom (Alpers, 1977; Macaulay, 1979). These studies assumed that the teacher's attitude towards gender stereotyping was related to how a teacher behaved towards male and female students. However, in Good, Sikes and Brophy (1973) it was shown that differential treatment of male and female students was due to the teacher's reactions to a student's behaviour rather than the sex of the student. Good (1983) reported that the research findings in classroom interactions are not always transferable to the particular characteristics of individual classrooms, therefore teachers find them difficult to implement. Teachers' self-reports and observations of classroom behaviour are often different from those of the researcher. This could be attributed to the heavy demands of teaching which do not allow sufficient time for self-evaluation and analysis.

Monitoring gender dependent behaviour and attitudes is difficult for teachers especially with the use of self-reports. They may be useful as initial consciousness-raising instruments, but their accuracy is highly questionable. The use of a systematic behaviour observation

instrument is a far more accurate measure of recording teacher-student behaviours. The interactions are recorded by an observer who enters the natural environment of the school in order to identify specific behaviours between the teacher and students. The goal of systematic teacher behaviour observations is to provide an accurate record of those teacher behaviours specified for observation.

The direct observation of gender dependent or independent teacher behaviour places the focus on the critical point of communication of teacher expectations to students and provides an accurate assessment of what actually happens in the class environment (Rate, 1987). This is in contrast to a teacher's self-report of behaviour or attitudes, which provides only a profile of what the teacher thinks happened in the classroom. Griffin's (1980) instrument was designed specifically to identify gender dependent and independent behaviour of physical education teachers, and therefore it was deemed to be effective as a systematic observation instrument for this study. The three sections developed by Griffin were : class organization, interaction, and language. The data collected showed that although the teachers did not make many gender dependent or independent comments, discriminatory patterns of teacher-student interactions did occur (Griffin, 1980, 1981, 1983, 1984, 1985a, 1985b, 1985c; Rate, 1987; Owen, 1989). In

general, boys participated and interacted more with teachers, and girls participated and interacted less, despite a lower ratio of boys to girls within the classes. This study will investigate if intervention by means of nonjudgemental feedback could influence such imbalances in teacher-student interaction patterns.

Significance of the study

The majority of primary school physical education classes have been coeducational for some years, but this does not necessarily ensure gender equity. The issue has not been sufficiently investigated. The expectations of teachers of physical education for boys and girls in coeducational classes may favour and reinforce the participation and achievement of boys over that of girls. In Western Australia, one study has been conducted in coeducational physical education classes in secondary schools (Rate, 1987), and similar research has been undertaken in primary school coeducational physical education classes (Owen, 1989). This study provides information about the levels of gender dependent and independent behaviour within physical education classes. Such data allow the analysis of gender stereotypic patterns of teacher behaviour, thus determining the extent to which

equality of participation and interaction in those classes is being achieved. The results will be significant if "gender fair programmes" in physical education are achieved as a result of teachers being made aware of inequitable classroom patterns and making a commitment to change inequitable practices.

Awareness will be achieved by adapting the clinical supervision system, and using it as a model to employ intervention by means of nonjudgemental feedback to assist teachers to analyse their own interaction patterns and identify areas of teacher behaviour that require adjustment. Such a programme would assist both preservice and inservice teachers to see the benefits of utilizing an observation instrument to analyze their own behaviours. The subsequent collaborative use of the clinical supervision system would empower them to identify and control the behaviours they perceive to require change or adjustment, while endeavouring to minimize their weaknesses and building on their strengths.

Thesis overview

The purpose of this study was to examine how intervention by means of nonjudgemental feedback affects gender equity in relation to teacher-student interaction in terms of gender role dependent and independent teacher behaviour in coeducational primary school physical education.

In the second chapter a review of the literature relevant to teaching styles which encourage gender role stereotyping, systematic observation instruments and clinical supervision is presented. The third chapter describes the methodology of the study and includes details of the modified systematic teacher behaviour instrument used in the analysis. Chapter four consists of data analysis and results. The final chapter includes a summary of the problem and the results, discusses the implications of the study and provides suggestions for further research.

CHAPTER 2

REVIEW OF RELATED LITERATURE

The participation levels and interest in sport of girls and women has received increasing attention in the literature in recent years. Comparisons have been made between the participation and interest levels of males and females in sport, both in the school system and society in general. This has led to a push from female sports educators for increased attention by both society and the education system to encourage the participation of girls in sport (Hall, 1984; Marburger, 1987; O'Brien, 1987).

Gender stereotyping is an issue which has received attention as a possible cause for the negative attitude and lack of participation of girls in physical education. This issue has been of greater interest since the inception of coeducational classes in secondary school physical education. There has been limited reported research in the area of teacher behaviour in this connection in education, though there is considerable evidence to suggest that gender stereotyping does exist.

This literature review examines the research on teaching styles and attitudes which encourage or discourage gender stereotyping, describes attempts to address gender stereotyping by teachers, discusses systematic teacher-student behaviour observation, and examines clinical supervision as an intervention method in order to elicit changes in teacher behaviour.

Gender stereotyping: Attitudes and teaching styles

Behaviour is continually constrained by gender stereotyping, which coerces an individual to conform to and avoid behaviours that violate cultural norms of femininity and masculinity. This is the basis of gender schema theory, and a number of studies have been undertaken to support the theory and demonstrate the limitations that are placed on an individual's decision-making by sex stereotyping (Bem, 1975, 1981; Bem & Lenny, 1976; Bem, Martyna, & Watson, 1976; LaFrance, 1981; LaFrance & Carmen, 1980; Lippa, 1978; Matteo, 1986, 1988). "Some feminists have argued that since societal values and structures have been defined in male-relevant terms and experiences, women are forced to function in a world that celebrates and rewards male values" (Blinde 1989, p. 37). This alienates some women, as they perceive a contradiction between what they are taught and what they see

reflected in institutions and their own experience. Feelings such as value discrepancies, conflict, and self-estrangement are characteristic of this alienated state. Blinde suggested that as sports programmes are defined and shaped by men's values, their understanding of the world, and their experiences, women are alienated from the sporting experience. Thus the "male sport model represents an alienating ideology for women, an ideology lacking authentic meaning in women's lives". Birrell and Richter, (cited in Blinde, 1989) advocated a redefining of sport by women so that it focuses "upon the values and lived experiences of females" (p. 37).

A variety of social problems are being encountered with the increase in female participation in sport. Lackey (1990) stated "practices viewed as negative by many are now occurring in female sports as well as male" (p. 26). He advocated an examination of the ethics in sport commenting: "Society has tended to place sports on a pedestal and has been inclined to overlook practices of a negative nature" (p. 26). While improper relationships between coaches and female athletes are not widespread they do occur. As a social issue Lackey suggested the tolerance of unethical behaviour "should be identified and addressed" (p. 26). Thus a redefining of sport to include the contribution of sportswomen would require the examination of ethics in sport

and a possible adjustment to the behaviour of male sports coaches and instructors.

Any redefining of sport involves the educational system. Therefore the studies of teacher attitudes toward gender stereotyping are relevant to this study because it is evident from available research that gender stereotyping and bias exists in schools in general, and in physical education in particular (Bain, 1985; Duquin, 1981; Soutar, 1979).

Pewtress (1987) suggested that girls are not encouraged to be involved in sport because it is seen primarily as a male pursuit. Therefore females cease playing sport because they do not see it as an appropriate endeavour. Physical activities are classified by children as sex-appropriate, each sex bringing different expectations to the physical education lessons. Boys at a very early age dominate active play and space in the playground, while girls fall behind in ball skills through lack of practice (Williams, 1989). "In game situations boys tend to dominate the setting and determine the pace and direction of the game being played...though they seem no more knowledgeable or able than the girls" (Evans, 1989, p. 84). Gender stereotyping is seen as having negative effects on students and teachers and may be an underlying cause for girls' lack of interest and participation in physical education. Some studies have

investigated the effect of gender stereotyping and support this assumption.

Hoferek (1978) found that teachers have stereotypical attitudes towards activities they favour in coeducational classes. Evans (1989, p. 84) stated "teachers may be inadvertently or unthinkingly creating the conditions which still leave some of the children, either psychologically or physically swinging with indifference from the goalmouth crossbar". Browne examined physical education textbooks for gender bias and discovered "subtle inferences pervading teaching practices and resources". She concluded that the resources consistently ignored or minimised "the existence or importance of females in sport", and urged teachers and lecturers producing resource materials to "critically examine their materials with regard to gender equity"(1990, p. 6). Similarly, Williams (1989, p. 178) suggested that stereotypical attitudes extend to classroom organization stating:

> It should be remembered that many aspects of classroom practice, over and above the actual lesson content may affect the perceptions which girls and boys have of different curriculum activities. Requests for help with apparatus in PE from 'a couple of strong boys' have little logic in a class of prepubescent children where the strongest children in the class are quite likely to be female.

Hoferek (1982) examined the attitude of teachers toward the place of women in society and how it related to their attitude toward the participation of girls and boys in coeducational classes. If they were more liberal-minded regarding the role of women in society, they had a more favourable attitude towards the participation of students of both sexes in coeducational classes. Another study by Vertinsky (1984) found that teachers firstly need to become more aware of how their stereotypical assumptions influence their selection of teaching strategies. Her findings suggested that male physical educators focused on discipline and well-specified goals, while female teachers avoided the use of forceful discipline and endorsed broader, more diffused goals. Vertinsky opined "These differences in strategic preferences are hardly conducive to bridging the gender performance gap in physical education" (p. 429). The study showed that girls may face teachers who are more inclined to address the social-fun aspects of sport rather than competitive performance issues, whereas boys were encouraged to pursue higher levels of performance in sports and were oriented towards being more competitive and forceful. Vertinsky concluded that matching teachers and students on the basis of sex may not be in the best interests of either boys or girls and suggested that coeducational classes should be persevered with as a remedy for the sex gap.

Traditionally, sport and physical education has been associated with the male gender stereotype. As a result, gender bias in sport and physical education is perhaps more blatant and resistant to change than in other school programmes. Jobling and Macdonald (1987) supported this idea by saying that being good at sports seemed to be an attribute ranked highly for males by both males and females, but was ranked very low for females by both males and females. As a result women and girls lack confidence in physical activity and often attribute their success to luck rather than their own ability. This assumption is supported by Dyer (1982), whose findings showed a positive relationship between feelings of physical competency or well-being and physiological well-being in sportswomen.

In 1972, legislation was introduced in the United States of America requiring all classes to be sex integrated (Title IX of the Education Amendments Act). However, there is evidence that despite legislation and community attitude changes, the outlook for female participation in sport is deteriorating. Felder and Wishnietsky (1990, p. 8) highlighted a reduction in the number of female physical education teachers and coaches in the United States and examined the incidence of "burnout and role conflict" they experienced. This decline in female physical education

teachers has implications for the participation of girls in sport because of the lack of female role models.

In Western Australia, the Equal Opportunity Act (1984) was instituted by the Government making it unlawful for an educational authority to discriminate against a student on the grounds of the student's sex. This has meant that some physical education teachers in Western Australia have now developed coeducational physical education programmes. The legislation is such that it has not enforced this change, but there is a general awareness of the need for equal opportunity in all areas of education. Therefore physical education teachers have been encouraged to offer similar curricula to girls' and boys' classes, and have increasingly scheduled coeducational classes. The rationale behind this change to coeducational classes is that it will assist the elimination of gender bias in physical education.

There has been considerable debate as to the interpretation and intent of this legislation in physical education in Australia. Browne (1986) first alerted teachers to the legislation and discussed its implications. Further, Browne (1988) discussed the issue with regard to equality in assessment in coeducational classes leading to replies from Burden (1988), Dyer (1988), Paddick (1988), Evans (1989) and Macdonald (1989). The issue showed that

coeducational physical education is of concern to physical educators, classroom teachers, and to society in general. In addition, investigations into skill acquisition and attitudes of males and females in integrated and segregated physical education classes had reported insignificant or conflicting results (Iso-Ahola, 1979; Lopez, 1987).

Critics of coeducation point to the larger issues suggesting "sex segregation [or integration] is not in itself a substitute for the fundamental reforms in the curriculum and the environment for schooling" and that "policies fail to address the central issue in educational discrimination, that of the education system reflecting the sexist ideologies deeply imbedded in the wider social context" (Macdonald 1989, p. 129). Brown, Frankel and Fennell (1989) found that girls who received increasing support for their participation in sport primarily from family and friends had stronger patterns of continuity than their peers who lacked this support. They did however suggest that additional studies were required to establish and define the role that teachers and coaches play in the participation of girls in sports. Evans (1989) proffered potentially more disturbing concerns with coeducational classes stating that it may "not be the best or only way of bringing boys and girls together; indeed it may be highly insensitive to the cultural values and interests of some

categories of children (for example Asian girls)" an issue Macdonald (1989) touched on when she asked "How do we compensate for Muslim girls who find it distressing to perform alongside boys in many physical activities?" (p. 12).

A study by Lopez (1987) also raised questions about the accuracy of the assumption that mixed sex physical education classes eliminate gender bias. She observed mixed sex physical education classes in junior high school. These children were first year pupils in their first term. She found in activities such as swimming, the pupils mixed well as they were used to engaging in mixed swimming in their leisure time. It was a neutral activity, which was not considered either masculine or feminine. However, in activities such as hockey or gymnastics the abilities of the children were quite pronounced. Boys with greater skill levels did not want girls in their team because they were not sufficiently skilled. On the other hand, if the girls did not fit the feminine stereotype and were better than the boys, in activities such as gymnastics, the boys became self-conscious and would not try a new skill. Scott and West (1990) reported similar findings with both sexes enjoying activities such as swimming, but more girls than boys enjoying gymnastics and dance and boys preferring the

outdoor activities. They also found 10% more boys than girls listed physical education as their favourite subject.

Macdonald (1989) stated that student attitude towards coeducational classes was ambivalent. She found 56% of both girls and boys agreed "that physical education was not as much fun when it was in single sex classes" (p. 6). While boys preferred not to be with the girls for the majority of sports listed on a questionnaire, girls were happy to perform with boys except in stereotypically female and male activities such as gymnastics and football. It appeared that while the students believed coeducational groups were more fun, they felt the gender stereotypic activities were more effectively taught in single sex groups.

In primary school, physical education coeducational groups have always existed but Ignico (1989) noted that "numerous studies and reports have consistently demonstrated that teachers have gender-differentiated behaviour patterns, that is, they teach boys and girls differently or have varied expectations for them" (p. 23). As a result the literature has shown the desirability of coeducational physical education, but has identified many of the problems associated with its implementation.

In another study conducted by Solomons (1977), with primary school children in their fifth year, it was found that sex was a salient factor of differentiation among students in physical education classes. She found the girls were left out of games' interactions by the boys. This occurred even when the girls displayed greater skill levels than the boys. In fact, both boys and girls regarded boys as more highly skilled even when girls were identified as more skilled in objective tests. When girls were included in skilled game play, they tended to give scoring opportunities away to the boys. Another important observation noted by Solomons was that teachers of physical education had different expectations for boys and girls. Boys were praised for their performance, where as girls were praised for their effort.

De Voe (1991) found that differential treatment of male and female students occur with boys being the targets for more non-nurturant behaviour from their teachers. They were more noticeable than the girls and they had generally stronger modifying effects upon teacher behaviour. The male students received more behaviours associated with giving directions and criticizing or justifying authority than the female students. Therefore the investigation concluded that there may be differences in teacher behaviour patterns in

primary school physical education classes based upon student sex.

The above findings support many assertions about coeducational classes. They have found that teacher behaviour can reinforce differential expectations of boys and girls in physical education. Also, these observed differences are consistent with traditional views of male and female stereotypes in society. Merely integrating children into coeducational physical education classes is not enough to eliminate gender bias. Evans (1989, pp. 9) stated:

> One can only applaud the arrival of Equal Opportunity legislation which may help ensure that boys and girls receive at least the right to a common PE curriculum...simply opening up access for boys and girls to a common range of physical activities does little to alter the traditional, stereotyped conceptions which they hold towards themselves and each other.

Finally, teacher behaviour may be the crucial element in either perpetuating or eliminating gender stereotyping and bias in physical education. The development of teacher strategies to address these problems of gender bias in coeducational classes is recommended. "Teachers, therefore, need to constantly reappraise their own teaching to make sure that mixed sex grouping becomes mixed sex teaching as well" (Turvey & Laws, 1988, p. 255).

Gender stereotyping: Attempts to address the issue

Unlike their American counterparts, Australian teachers have received little practical assistance in the years since the promulgation of the Sex Discrimination Act (1984) in Australia. While there has been considerable debate over the implications of the legislation, there has been little attempt to interpret the legislation meaningfully for the Australian teacher. Unlike the American system, the education administrators across Australia have lagged behind in producing manuals and guides to assist the teacher struggling to interpret and implement the legislation. One of the few resources made available to teachers is the paper of practical suggestions presented by Dr Rob Sands to the Geelong Grammar Staff Conference The "Science" of Self-Esteem in the Phys-Ed/Sport Settings: Some Practical Strategies (1988). The paper outlined practical suggestions for teachers to assist them to design programmes which monitor all students in the class and attempt to eliminate gender stereotyping. These programmes also attempt to maximize skill practice, individual practice time, and enable self-perceived or actual improvement to be identified by the teacher. It further discussed practical teacher/coaching strategies in the categories of class organization; teacher/coach-student interaction and cognitive techniques. The main emphasis of the programmes

was to improve children's self-esteem, promote a positive attitude by highlighting improvement related to past performances and linking this with effort and a need to promote non-stereotypic attitudes in all areas of physical education teaching. A video was produced entitled When Girls Play and explanatory and discussion notes were prepared by Sands (1989). This video features positive views of activity, girls and school programmes. It provides insight into the gender stereotyping issue and acts as an instructional discussion model in areas such as developing equitable conditions for girls in primary and secondary schools; assessing the value of coeducational versus single sex activity sessions; arranging extra school activity programmes; and quality of instruction in order to produce beneficial social outcomes for girls.

By contrast, there has been a proliferation of programmes and materials designed to address gender role stereotyping among teachers in the United States of America since 1972, following the implementation of Title IX of the Education Amendments Act.

The Women's Education Equity Act Program (WEEAP) developed a planning manual, The Equity in Physical Education Planning Manual (1980), for administrators and physical educators to help them design physical education

programmes which assure equal opportunity for females in physical education. Other manuals such as Complying with Title IX of the Education Amendments Act of 1972 in Physical Education Amendments Act of 1972 in Physical Education and High School Sports Programs (1976), Title IX and Physical Education: A Compliance Overview (1976) and Implementing Title IX in Physical Education and Athletics: Application Book for Physical Activity Specialists (1978), designed to interpret Title IX guidelines, were also developed by The American Alliance of Health, Physical Education, Recreation and Dance, to help administrators, teachers and coaches in physical education and athletics.

In addition to the planning manual that WEEAP has produced, there has also been a teacher handbook and seven modules developed which helps teachers address sex discrimination in physical education. Introduction to Stereotyping and Discrimination (1981), Sex Role Stereotyping and its Effects (1981), Biological Sex Differences (1981), Introduction to Title IX (1981), Curriculum Development (1981), Teacher Behaviour (1981), and Student Performance Evaluation (1981), are examples of these projects. All focus on one or more of the following areas: increasing teacher understanding and awareness of gender stereotyping and its effects; defining gender stereotyping in society; providing teachers with an understanding of the

biological myths relating to gender bias; identifying curriculum materials designed for student use; procedures and attitudes which perpetuate gender stereotyping; and eliminating teacher behaviour which promotes gender stereotyping. However, no actual teacher behaviour observation techniques were used to evaluate teacher behaviour change in the classroom.

Project Missing Link was another WEEAP development and Arrighi, Chrietzberg and McKnight (1981) were extensively involved in field testing these materials. The field testing phase involved 172 preservice education teachers. The instructional materials focused primarily on the application of teaching approaches and behaviour that were gender fair as well as educationally sound. To enable teachers to respond to the problems that limit gender equity, three components were built into each instructional unit; knowledge of gender biased behaviour; awareness of gender stereotypic behaviour in the classroom; and application of the appropriate actions to promote gender fair behaviour. As a consequence of this project, instructional materials were re-evaluated to include more emphasis on instructional approaches and teaching behaviours and less attention to background information on equity issues. It was recommended that the content of the instructional material needed to assimilate new knowledge

about gender equitable teaching practices in order to better prepare future physical education teachers. The link between knowledge, attitudes and the actual implementation process in school physical education classes is a topic that warrants further investigation.

Bunker (1987) described many strategies that coaches can use to encourage girls and boys to participate in sports together. She offered suggestions on how sports teachers can provide quality coeducational experiences and adjust activities to allow for a wide range of skill and motivational levels in sex integrated classes. However, the handbook does not specifically address gender stereotyping among physical education teachers.

The teacher education programmes and materials that have been examined here are representative of attempts made by educators, interested in gender stereotyping and bias, to address the problem. The programmes and materials rely heavily on self-evaluation and reports of teachers, attitude inventories, or checklists to describe teacher behaviour and attitudes towards gender stereotyping and bias. They depend to a large extent on self-appraisal and evaluation in an area that requires a change in behaviours and attitudes to comply with the current sex discrimination laws.

Gender stereotyping : Systematic teacher behaviour observation and teacher behaviour changes

"A teacher's primary objective is to facilitate student learning. Teachers must choose what they do in the teaching-learning process based on their knowledge of that process" (Rink, 1985, p. xixi). Teachers are thus obliged as responsible professionals to choose to utilize teaching skills that assist all their students to learn effectively and equally. Throughout their professional lives teachers need to decide whether to assimilate or reject new concepts, techniques and developments. Decisions need to be made by teachers, with a clear understanding of their own teaching style, strengths, weaknesses and biases. Such knowledge and understanding is only gained by a careful examination of their teaching, preferably with the assistance of a colleague. A variety of observation instruments have been designed to assist this exercise. They can be used by the individual teacher or collaboratively with a colleague.

For example, systematic teacher behaviour observation systems have been utilized by researchers to identify the differences in behaviour between male and female teachers and male and female students (Good, Sikes, & Brophy, 1973). These researchers identified the frequency patterns and type of teacher interactions with female and male students.

Differentiated teacher interaction with female and male students was identified as an important part of describing teacher gender stereotypical behaviour. The patterns revealed in these studies showed consistent differential teacher interaction between boys and girls. Good, Sikes and Brophy demonstrated in their research that boys received more attention in lessons than girls. The observations revealed that teacher disapproval occurs more often with boys than girls. The boys were much more active and aggressive and therefore received more frequent teacher interactions. The girls however, were more passive than the boys, behaviour encouraged by the teacher, thereby receiving less frequent attention.

Gender-related differences have been identified in a variety of curriculum areas through the use of observation instruments. Several examples are found in Wilkinson and Marrett (1985) including the use of a system to evaluate autonomous learning behaviour in mathematics and a student-teacher interaction observation system in science, curriculum areas that are normally considered male-dominated. Eccles and Blumenfeld (cited in Wilkinson and Marrett, 1985) asked "What role do teachers play in perpetuating sex differences in math attitudes?" and continued "Our data (obtained through the use of observation systems) suggest that general classroom climate may play an

important role in reinforcing sex differences in achievement attitudes, beliefs, and performance" (1985, p. 111). They concluded that certain classroom environments may facilitate learning for boys and inhibit learning for girls. Similarly, Young and Wyman (1982) utilized a scientific observation system to examine teacher-student interactions. They found that "teachers made more academic contact with girls in reading and boys in math, teachers spent more cognitive time with girls in reading and boys in math, and teachers consistently made more managerial contacts with boys than girls". Initially, academic differences were not significant, however by the end of the academic year, "sex differences were found...in reading achievement" (p. 3).

Generally, teaching research in education has outstripped research in physical education by as much as 10 years. Nevertheless much is being done in the area of physical education and the imbalances are being addressed. In the past decade, research has been accomplished with the development and utilization of systematic observation instrumentation systems to assist the collection of data on teacher and pupil behaviours in physical education classes. Although such systems necessarily focus on only small parts of the complex and interrelated system of teaching they do enable the isolation of particular components for detailed examination. The Academic Learning Time-Physical Education

Observation System, Interaction Analysis systems, and observational tools have been used by researchers to assist this advancement in research (Luke, 1989).

Studies in secondary physical education classes have been conducted by Bain in Chicago (Bain, 1975; 1976) and Houston (Bain, 1978) using systematic observation to describe regularities of teacher behaviour and class organization which communicate values and norms to students. Bain (1985) asserted that research on teacher expectations in physical education indicated that the teacher's perceptions of students are influenced by sex, appearance and perceived effort and that these expectations influence the interactions between teacher and student in a way that is consistent with the teacher's expectations. The research indicated that there are patterns of behaviour which emerge in physical education lessons which can be interpreted as emphasising achievement, autonomy, privacy, orderliness, universalism and specificity. Differences were also shown to exist in the experiences of male and female students, suburban and urban students, athletes and physical education students.

In South Australia, research was carried out with primary school children and a systematic observation instrument developed to help teachers of physical education

become more aware of whether preferential treatment existed in their classes. The research found that boys consistently received preferential treatment, with few exceptions, especially during the warm-up phase of the lesson when motivation for what is to come is a key factor. This altered the teachers' perceptions of their effectiveness to the point where they were conscious of giving more quality attention to the girls, apparently eliminating gender bias in their teaching.

In response to the need for observation instruments, a considerable number of systems have been developed. Each system assists the collection of data on teacher and pupil behaviours. Although such systems necessarily focus on only small parts of the overall complex and interrelated system of teaching, they do enable the isolation of particular components for detailed examination. Each is characterized by its own focus, for example the Flanders Interaction Analysis System (FIAS) is designed for observing, recording and analyzing verbal behaviour only. The Cheffers Adaptation of the Flanders Interaction System (CAFIAS) includes nonverbal human behaviour, descriptions of class structures, variety of teaching agencies and elaboration of pupil response behaviour. To study the interaction between the teacher/coach and a particular student/athlete a further adaptation of CAFIAS was developed, The Dyadic Adaptation of

CAFIAS (DAC). A further modification, Batchelder and Keane Lecture System (BAKE) was designed to describe teacher lecture behaviour which is strongly predominant in the classroom, by expanding CAFIAS. Another approach was designed to quantify and categorize verbal and nonverbal behaviours directed to individual students. This approach developed by Lewis (1978) is known as Individualized Teacher Behaviour Analysis System (ITBAS). These teacher behaviour observation systems can be either specifically applied to one student or the whole class (Darst, Mancini, & Zakrajsek, 1983; Darst, Zakrajsek, & Mancini, 1989).

In order to identify gender stereotypic teacher behaviour more effectively in physical education lessons, an instrument was developed by Griffin (1980) specifically for this purpose. This systematic observation instrument provides a more complete and accurate picture of teacher gender related behaviour than is presented by either the studies of differential teacher interactions with females and males, or teacher self examinations. These types of instruments have been demonstrated to be most effective in facilitating change in teacher behaviour and providing accurate descriptions of classroom events.

The use of systematic teacher behaviour observation instruments can provide physical education teachers and

teacher educators with an increased awareness of teacher behaviour related to sex equity in physical education classes. Strategies which identify and change teacher behaviour within gender equitable physical education programmes, and identify and reinforce teacher behaviour that encourages gender equitable student participation, need to be implemented (Griffin, 1981).

A further study in primary schools utilizing the Sex Role Dependent/Independent Teacher Behaviour Observation Instrument was conducted by Griffin (1983) with sixth and seventh grade gymnastics classes and she found that students' behaviour revealed patterns of differentiation based on sex. Serious participation in specific gymnastic events was governed by perceived gender appropriateness of the event. Generally, boys only interacted with girls to "hassle" them. Girls generally only interacted with boys when responding to being hassled. Among boys, interactions tended to be physical, combative, public, clown-like, and hassling girls. In contrast to those of the boys, the girls' interactions were verbal, cooperative, private, serious, and in response to the harassment of the boys. This affected the participation levels in the lesson, resulting in boys' participation in "girl-appropriate" events being either frivolous or reluctant and girls' participation in "boy-appropriate" events being either

exploratory or reluctant. Students segregated themselves according to sex which helped to reinforce sex differentiation in both participation and interactions.

Griffin (1984) used the Sex Role Dependent/Independent Teacher Behaviour Observation Instrument along with formal interviews and informal discussions with physical education teachers to conduct a study which identified girls' participation patterns in a middle school team sport unit. Coeducational classes were observed resulting in six styles of participation levels being identified including "athlete", "Junior Varsity player", "cheerleader", "femme fatale", "lost soul", and "system beater". Observations revealed that the majority of the girls were classified in varying degrees as "Junior Varsity players", "cheerleaders" and "lost souls". As these categories were classified as nonassertive behaviours, it is accurate to say that nonassertive sport behaviour was typical for most girls in the team sport activities observed. Teachers, who were made aware of these participation patterns in their female students, could help them become more assertive, thereby increasing their confidence levels in order to increase their enjoyment of physical education.

Griffin (1985) conducted a similar study utilizing the Sex Role Dependent/Independent Teacher Behaviour Observation

System, in girls' and boys' participation styles, concluding that to "depend only on student gender to describe generalized participation patterns or to predict interest and ability in team sports can ignore the diversity of participation among students in physical education classes, placing artificial expectations on some students, and artificial limitations on others" (p. 8).

In a study investigating teachers' perceptions of, and responses to, gender equity problems in a middle elementary school physical education programme, Griffin (1985) again used teacher behaviour observation as well as teacher interviews and informal discussion. The study raised questions about the process of implementing coeducational physical educational classes. She noted teachers' expressions of frustration regarding the lack of inservicing on the changes, and inadequacy of teacher input into the legislative decisions being made in the area of curriculum change.

Rate (1987) used the Sex Role Dependent/Independent Teacher Behaviour Observation Instrument developed by Griffin (1980) to observe physical education lessons in secondary schools in Western Australia. She found that teachers do exhibit gender dependent and independent behaviours in coeducational physical education classes, a

finding consistent with that of Griffin. Boys participated more than was expected and teachers interacted with them more often. Also, boys were favoured on the variables of "control" and "participation", while teachers more frequently interacted with girls on the variable "encourages unsuccessful performance". Therefore, offering encouragement to girls more than boys for unsuccessful performance is likely to reinforce lower levels of skill performance and perpetuate gender stereotyping of girls in physical education lessons.

A similar study was conducted by Owen (1989) in Western Australian primary schools utilizing the Sex Role Dependent/Independent Teacher Behaviour Observation Instrument in the modified form recommended by both Griffin (1980) and Rate (1987). In this study the participation patterns of boys and girls were similar, but boys interacted with the teachers more than was expected. In contrast teachers interacted with girls less than was expected. In some categories such as control/discipline, criticizing unsuccessful students, and the use of student demonstrators, interaction varied from the expected by as much as 30%. Boys received the bulk of interactions in the control/discipline category and student demonstrator. Interactions favouring girls were few and the differences were minor. The results demonstrated that teacher or

student gender stereotypic behaviour does not necessarily change as a consequence of integrating boys and girls in physical education classes.

Using the modified Sex Role Dependent/Independent Teacher Behaviour Observation Instrument, the findings of McBride (1990) concurred with other similar studies. While he found no evidence of boys receiving more attention than girls, he found that boys did record more incidents of discipline than did girls, and that female teachers provided their students with more management interaction. In the language category, male students typically received more attention and response from teachers than female students. This finding is in accord with other similar research findings.

While McBride was encouraged by the results of his study, stating "the results represent an encouraging indicator for gender equity in the psychomotor setting. Perhaps sex role stereotyping is not quite as rampant in the gymnasium as is generally assumed", he also cautioned against over-confidence. He stated:

> This is not to suggest, though, that nothing else need be done...If a truly equitable learning environment is to be obtained, more strategies are needed...more studies are warranted on sex typing and potential long-term effects on students. Only when the accrued effects of gender typing are understood can effective

> teaching practices be implemented to eliminate all sex typing in physical education. (p. 260)

In any teacher education programme which is related to the issue of gender equity, the assumption is that teachers believe in fairness and want to be as fair and effective as possible in the classroom. Therefore physical educators need to be informed of whether there are gender stereotypic patterns in their classes, thereby affording them the opportunity to be personally committed to changing these patterns if they exist. Also specific suggestions on how to change these patterns need to be provided. At both the preservice and inservice levels, teacher behaviour can be observed with the systematic observation instrument and teachers can be guided in their attempts to address the problem of gender equity. The identification of gender related behaviour of teachers of physical education within coeducation classes in this study is a starting point for those who must contend with the problems of equity in physical education.

Clinical supervision and intervention

The identification of gender role stereotypic teacher behaviour can be accomplished using an observation system. The adaptation or correction of such behaviour is more

easily accomplished through collaboration, which identifies biases not perceived by the subject-teacher. The assistance of a colleague through intervention techniques allows the behaviours to be isolated and suggestions for adjustments to be brainstormed. The utilization of nonjudgemental feedback allows the development of strategies to assist the teacher to exercise greater personal control over his or her teaching behaviours.

> The implicit rationale of clinical supervision is that teaching processes can be improved when the teacher is provided with timely and relevant feedback on aspects of teaching that are of interest and concern to that teacher...The goal is to assist a teacher to modify existing patterns of instruction in ways the teacher has selected. (Smyth, 1984, p. 5)

Smyth elaborated stating that clinical supervision is a one-to-one, face-to-face process, resulting from a "close and intimate professional relationship". It is an "interactive encounter between two colleagues who are collaborating in the analysis of data about their own teaching in order to extract meaning and understanding" (p. 5).

Acheson and Gall (1987, p. 3) stated "clinical supervision is a process, a distinctive style of relating to teachers...the clinical supervisor's mind, emotions, and actions must work together to achieve the primary goal of

clinical supervision: the professional development of the preservice or inservice teacher". A major emphasis in the conferencing aspect of clinical supervision is the nonjudgemental focus. There must be no attempt to 'evaluate' the lesson, or the teacher's effectiveness or style. The purpose is to exchange interpretations. Due to differing values and beliefs, opinions may vary as to what constitutes teacher behaviour requiring adjustment. Each person has the right and opportunity to challenge the other's interpretation of observed teacher behaviours.

The supervision of teachers, and criticism of teacher effectiveness has been an inherent feature of education. However, most of the early criticism was managerial in style, rather than the humanist, democratic approach that characterises clinical supervision (Anderson, cited in Smyth, 1986b). Teaching is a complex profession with differing demands and requirements, so ongoing teacher-learning needs to take place. Acheson and Gall (1987) provided examples of teachers who benefited greatly from the utilization of clinical supervision with experienced and sympathetic supervisors. These teachers were assisted to overcome feelings of insecurity, inappropriate role behaviours, low ratings on teacher effectiveness, inappropriate lesson plans and verbal behaviours. In each case the supervisor's intervention was critical to the

classification of problem behaviours, and the eradication or modification of those behaviours. Clinical supervision is also used for the reinforcement of positive behaviours and teaching strengths, and is a powerful tool for the viewing and analysis of broader educational and social issues such as equity, gender, class and race.

The Smyth (1984) model of clinical supervision is cyclical, in four stages, which are quite distinct and purposeful, with conferencing as the centrepiece. Conferencing occurs both before and after the teaching of a lesson. Figure 1 demonstrates the relationship of each stage to the next.

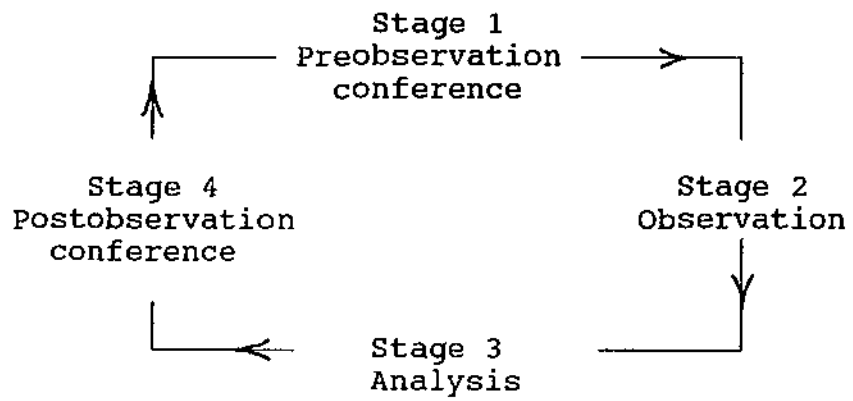

Figure 1: The Clinical Supervision Cycle (adapted from Smyth, 1984, p. 7)

The four stages of clinical supervision as outlined above are:

1. Preobservation conference.

The preobservation conference allows an opportunity for the discussion and establishment of specific goals and objectives for the lesson. The teacher and colleague discuss why a particular lesson is to be taught and how the objectives will be achieved. The preobservation conference allows for not only the establishment of a meaningful dialogue and a rapport between the supervisor and teacher, but also the defining of the target observable behaviours. This conference will also establish the method which will be used by the observer. This may be observation schedules or checklists, diagrams or interaction patterns, verbatim notes of conversations, or mechanical means such as recording or videotaping.

2. Observation

During the observation stage, the decisions made in the previous stage are acted upon. The teacher aims to deliver the lesson according to the plan and objectives decided upon, and the supervisor unobtrusively observes the lesson, collecting the

required data utilizing the observation method as agreed.

3. Analysis

In this stage, the results of the previous stage are analysed, and made meaningful. If an observation instrument has been used, the data will be coded and analysed. Videotapes may be viewed and points noted. Then both the teacher and supervisor try to uncover patterns, or attach significance to the flow of behaviour found in the raw data. The supervisor-observer is able to contribute a different perspective to that of the teacher's, allowing an appreciation to be gained by the teacher in a situation where it might be difficult to maintain distance in perspective.

4. Postobservation conference

Having made sense of the raw data by establishing patterns or tabulating data, the teacher and supervisor meet to discuss the results, which allows the drawing of conclusions, the establishment of inferences, and a plan of future action to be determined. This involves an assessment of the original objectives of the

situation, and the evaluation of whether those objectives have been met. However, an effort should be made to avoid being judgemental about the observed teaching. Rather, questioning to encourage consideration and decision-making about alternate possibilities of behaviour in future lessons is more appropriate. It is important that the cooperating individuals suggest behavioural adaptations that they feel comfortable about and can anticipate initiating with success, considering their own environmental factors. Once questions are asked about what might happen in a future lesson, clinical supervision has been full-cycle. Essentially, a preobservation conference has been reached and objectives for the next stage may be established from the inferences drawn in the postobservation conference. The cycle is thus in actuality a spiral, with the process being an ongoing rather than a terminating one.

Some problems with clinical supervision have been identified:

First, clinical supervision has often been imposed on teachers as a process that is "good" for them. This form of interaction is a waste of everyone's time when conducted

with a reluctant teacher. No real behaviour changes are likely to result if the subject is defensive and does not want to change.

Secondly, clear objectives for the process need to be established for the system to be of benefit. The "why" is as important as the "how" (Acheson & Gall, 1987; Smyth, 1986a).

Thirdly, with the current time constraints for teachers, the recruitment of a suitable colleague to act as a supervisor is likely to be difficult. The conferencing required makes the process a lengthy and time-consuming exercise (Acheson & Gall, 1980; Smyth, 1986b).

Fourthly, collaboration means working together effectively and any breakdown of the rapport, including a feeling of subservience (a natural reaction to being the learner instead of the teacher) impedes the teamwork.

Finally, the formal meetings required for conferencing may develop a negative atmosphere, and are sometimes viewed as time-wasting events where nothing productive is achieved.

Each of these problems is surmountable. With good planning and a cooperative attitude, and utilizing effective communication skills between the participating individuals,

it is possible to overcome any of the difficulties cited. Mutually agreed upon and clearly defined objectives allow for a productive process to occur. Additionally, support material is available, for example training manuals and a video kit have been prepared to assist those interested in the process to achieve the best results (Mireau 1985a, 1985b, 1986). As the emphasis of the manual is on continuous professional development for teachers, suggestions and procedures for this development are presented to guide teachers. The kit has a strong emphasis on conferencing (the area that is potentially the most troublesome), including techniques, suggestions and benefits. As conferencing is a major technique of clinical supervision this manual is invaluable for those teachers involved in the clinical supervision process.

The productivity of intervention on teacher behaviour can only be measured if a baseline measurement is first taken. Logically, it is difficult to evaluate the outcomes of intervention objectives if one is unsure that intervention is the only variable. Hence, a baseline measurement prior to intervention is necessary for the evaluation of the intervention process. The researcher can assume, that if there is a change in behaviour after intervention, when compared to baseline (preintervention) measures, it is probable that intervention was responsible

for the change (Tawney & Gast, 1984). A number of studies in physical education have been documented that establish the effectiveness of intervention in bringing about measurable change in teacher behaviour (Luke, 1989).

The success of intervention, as a method capable of producing statistically significant change in teacher behaviour, is well documented. There have been a number of studies conducted at the preservice level of teacher training which have successfully utilized intervention and systematic observation as a basic training model. These studies were conducted, using control and intervention groups, to determine the impact of using systematic supervisory feedback on teacher behaviours and interaction patterns of preservice physical education teachers. The results also provided data on the effects of such feedback on the trainees' attitudes towards teaching, the degree to which they exhibited behaviours indicative of effective teaching, and their awareness of their own teaching behaviours (DeVoe, 1990; Getty, 1977; Grecic, Mancini, & Wuest, 1984; Hendrickson, Mancini, Morris & Fisher, 1976; Inturrisi, Mancini & Frye, 1979; Mancini, Frye & Quinn, 1982; Mancini, Morris & Getty, 1979; Mancini, Wuest & van der Mars, 1985; Randall & Imwold, 1989; Rochester, Mancini & Morris, 1977; van der Mars, Mancini & Frye 1981; Vogel, 1976).

CHAPTER 3

METHODOLOGY

This descriptive analytical study investigates the identification of gender inequitable teacher-student interactions and the effect of nonjudgemental feedback on those interactions. The identification and feedback process utilizes an observation instrument and a clinical supervision model, in addition to the experimental method.

This chapter is divided into 10 subsections, which describe subjects and settings, clinical supervision and conferencing techniques, the observation instrument used in the study, modifications to the instrument, instrument reliability and validity, data collection methods, and use of the video camera. Field and anecdotal notes are also discussed, ethical issues considered, and problems encountered during recording and coding observations noted.

The research used a sample of 16 teachers, eight males and eight females, who were divided into intervention and control groups. The lessons of the control group were coded utilizing the Sex Role Dependent/Independent Teacher

Behaviour Observation System to provide data for comparison with the intervention group, but conferencing did not take place. Conferencing with the intervention group followed the Smyth (1984) four stage model of clinical supervision using the data collected from the observation instrument to guide discussion in teacher consultations. The differences between the results of these two groups were analysed for statistical significance to ascertain the effects of intervention by means of nonjudgemental feedback on teacher behaviours.

Subjects and settings

Utilizing a list of schools obtained from the Joondalup and Scarborough District Education Offices of the Education Department of Western Australia, state primary schools in the northern suburbs of the Perth metropolitan area were contacted to recruit sufficient numbers of Years 4 and 5 teachers. Schools were selected on the basis that there was no physical education specialist placed at the school, and the physical education programmes within the school were the responsibility of the classroom teachers. Each selected school had a coeducational physical education programme. The selected schools drew students from a wide range of

socio-economic backgrounds thus having a diversified student population.

Initial contact was made by the researcher through the Principal. Subsequent official approval to conduct research in the school was requested through the Education Department of Western Australia. Following official approval and the Principal's agreement to participate in the study, the teachers were contacted and their willingness to participate established. Class timetables and types of lessons, class sizes, and teaching areas for physical education were ascertained. A total of 16 teachers were contacted, eight males and eight females, and agreement obtained for their participation in the study. Four females and four males were used as the intervention group, the other four males and four females made up the control group. Each teacher was observed on four occasions, a total of 64 lessons. Only Years 4 and 5 were included in the study and comprised the normal coeducational classes taught by the classroom teacher.

Each teacher was provided with standardized physical education programmes, incorporating sports that were nongender specific, that is, basketball, sofcrosse, hockey and tennis. These sports were taken from the South Australian Daily Physical Education and Aussie Sports

Programmes, which are used in the majority of schools in Western Australia. This was arranged in order to standardize lesson plans, and eliminate activities unsuitable for observation, for example cross-country running. The chosen activities were also suitable for analysis with an observation instrument and would ensure sufficient data while avoiding gender specific activities, for example football and netball. Such activities may artificially affect teacher interactions by increasing interactions with a specific sex.

Each teacher conducted the physical education lesson with the class to which she or he was normally assigned. If any of the participating teachers fell ill on an assigned day, no recording took place; the recording of a temporary teacher was not considered to be appropriate.

Classes were conducted in the typical school environment using equipment available at the school. Observations were conducted on the school oval, basketball courts, netball courts, and the undercover area. These were all areas normally used for physical education lessons.

Observations were conducted during the fourth term of the school year. The teachers had established set routines and rules for physical education with the students and had

well established programmes. Observations were unable to be scheduled in third term due to the preparations for athletics carnivals by all schools in the area.

Clinical supervision and conferencing techniques

In the Smyth (1984) four stage model of clinical supervision the preobservation conference allows the researcher and the teacher to discuss what is to occur in the lesson to be observed. The aim is to uncover the teacher's intentions for the lesson and see how these are expected to be translated into practice. In this application of clinical supervision, it is the teacher who defines the behaviour for which adaptation is desired.

However, as this study was specific to the area of equitable interactions in physical education, this was not possible. Instead, the area of observation was determined by providing the teacher with data obtained from the observation instrument, which was specific to gender related behaviours. The teacher then made behaviour modifications based on the data obtained. Feedback was confined to nonjudgemental collaboration at the postobservation conference. An effort was made to refrain from judgemental comments or from offering advice, rather an effort was made

to 'work over' the data for what it revealed, questioning whether similar or different teacher behaviours might be used in future lessons.

Each teacher was observed on four occasions with the same class which engaged in the same type of activity in each lesson. This procedure was adopted to obtain observations which were representative of that class. Two lessons of the intervention group were observed initially to obtain baseline data. Conferencing was commenced after the second lesson. Subsequent observation sessions were followed by the conferencing technique required in the clinical supervision system. The control group was observed on four occasions, but received no conferencing and intervention.

Description of the observation instrument

The Sex Role Dependent/Independent Teacher Behaviour Observation System designed by Griffin (1980) was used as the basis for this study. At the time of its use it was the only published instrument which gauged gender related teacher behaviour in physical education. The instrument is divided into three main observation sections: class organization; interaction; and language. Each section and

the categories within were carefully operationalised by the researcher so that the observations were specific and mutually exclusive. The coding manual provides full details with examples and is included as Appendix A.

The first section on class organization provides a context for observing teacher sex role dependent/independent behaviours. The five successive categories within this section are *student participation patterns, class groupings, class leaders, curriculum material used*, and *rule changes*. Each of these categories structures the data to provide information about class organization by the teacher and the effects of this organization on equitable male and female student participation in class.

The data collected in the class organization section were as follows:

i) the number of active participation units by males and females during each participation observation period;
ii) the number and composition (by gender) of student participation groups within the class and whether these groups were structured by the teacher or by the students;

iii) the number of females and males pictured or cited in curriculum materials used in the class;

iv) the number of males or females identified as leaders in the class, and whether they were chosen by the teacher or by the students; and

v) the number of rule changes in games initiated by the teacher to alter female and male participation patterns.

The interaction section provides information on the frequency and kind of teacher interactions with male and female students. Seven of the categories are inherently gender related, while nine of the interaction categories are gender neutral. The number of teacher behaviours within each category directed to male and female students was recorded in this section. The specific categories are listed as follows: *instructs; praises successful student; encourages unsuccessful student; criticises unsuccessful student; points out student model/demonstrator; control/discipline interaction; physical contact with a student; informal interaction; management interaction; sex role dependent comment; discourages poaching; sex role independent comment; encourages poaching; discourages student sex role dependent behaviour; encourages student sex role dependent behaviour; discourages student sex role*

independent behaviour; and *encourages student sex role independent behaviour.*

The language section is the final section of the observational instrument. It provides information on how a teacher uses language that is either sex role dependent or sex role independent. The five categories in this section consist of: *use of pronouns; use of activity terms; calls individual students; refers to males/females;* and *use of sex role dependent names.* The number of times a teacher uses this type of language was recorded within each category.

Modifications to the observation instrument

Within the instrument there are 22 teacher gender related behaviour categories in the language and interaction sections; 15 categories of teacher behaviour that are gender neutral, and 7 categories of teacher behaviour that are gender related. Griffin (1980) found that these gender related behaviours were very low frequency categories within her observations, but as they were directly related to the purpose of the instrument, she felt it was important that they be recorded.

Rate (1987) also found these categories infrequently tabulated. However, she recognized their significance as they were associated with gender related behaviour, and without them potentially significant data could be overlooked. She therefore suggested that a combining of the gender dependent categories would be an advantage, as there would be no subsequent loss of vital data, whilst the instrument would be more manageable with the subsequent reduction of categories.

The combining of categories could also occur within the gender independent categories. Rate (1987) recommended that the following categories be omitted from the interaction category: *encourages student sex role dependent behaviour;* and *discourages student sex role independent behaviour.*

From the language category the deletions were: *uses sex role dependent name;* and *uses sex role dependent activity terms.* In place of these categories would be the one category within the interaction category: *sex role dependent comment.*

In addition, the deletion of further categories within the interaction category would be: *discourages sex role dependent behaviour;* and *encourages student sex role independent behaviour.* Furthermore within the language

categories the deletion would be: *uses sex role independent activity terms*. This would be replaced with the one category in the interaction section: *sex role independent comment*.

The modifications to the observation instrument recommended by Griffin (1980) and Rate (1987) included the removal of certain low-frequency categories. The exploratory study for this research (Owen, 1989) utilized the modified instrument, with the category changes as recommended by both of the earlier researchers. The categories eliminated from the instrument were in the interaction category: *encourages student sex role dependent behaviour; discourages sex role independent behaviour; discourages poaching; encourages poaching; discourages sex role independent behaviour; encourages sex role independent behaviour*. In the language section, *uses sex role dependent name and uses sex role dependent/independent activity terms* were also removed.

These revisions of the Sex Role Dependent/Independent Teacher Behaviour Observation System designed by Griffin (1980) resulted in a reduction in the total number of categories. However, an increase in the frequency of observations within these categories occurred with no loss of data. These changes also simplified the researcher's

task of locating categories, and allowed the coding sheet to be more easily discussed with the teacher observed.

McBride (1990) utilized the Sex Role Dependent/Independent Teacher Behaviour Observation System (Griffin 1980) in the modified form in his study Sex Role Stereotyping Behaviours Among Elementary, Junior, and Senior High School Physical Education Specialists. Despite the combining of categories, he reported no loss of essential data.

Instrument reliability and validity

The validity of an instrument is the degree to which it actually measures what it purports to measure. Three means of determining validity were possible for this instrument. These were face, criterion and content validity. Face validity is accepting an instrument at face value. It entails deciding that the behaviour categories are logical and accurate based on common sense knowledge. Criterion validity is determined by comparing the data collected by another previously validated instrument designed to measure the same phenomena with the data collected by the instrument under construction. Content validity can be established by having a panel of expert judges rate the instrument's

content as accurately representing the class of behaviours under investigation.

Griffin (1980) chose content validity as the appropriate means of determining the validity of this instrument. Face validity was rejected because it was the weakest indicator of the three. Criterion validity was rejected because this was an initial attempt to design an instrument of this nature. Consequently there were no instruments available with which to check criterion validity. A panel of three experts in the area of sex equity and physical education, Michael V. Hannigan, Carole Johnson, and Dorothy McKnight, were identified. They reviewed the instrument in order to attest to the content validity of the observation system.

In reviewing the instrument, each expert responded to the following questions:

1. Do the behaviours and content which the system purports to describe really exist?
2. Does the instrument detect and describe specific behaviours?
3. Are behaviour and content meaningfully described in the instrument?
4. Is the content of the instrument representative of behaviours associated with sex role stereotyping

and sex bias in physical education classes?

5. Was a sensible method of test construction used?
6. Is the rational or theoretical support underlying the instrument clear?
7. Is the behaviour the instrument purports to measure consistent with the behaviour described in the literature on sex role stereotyping and sex bias in education?

All three experts attested to the content validity of the instrument.

The instrument was used by the researcher in 1989 in a trial exercise and was most successful in the measurement of teacher-student interactions. It identified all behaviours necessary, and despite the collection of additional anecdotal notes, no interactions were recorded which could not be coded using the instrument.

The reliability of the instrument was determined using an intercoder agreement formula:

$$\frac{\text{Agreement}}{\text{Agreement + Disagreement}} \times 100$$

This formula is accepted and frequently used with behaviour observation instruments. Griffin (1980) initially trained three coders. Intercoder agreement between each coder trainee and the expert coder was obtained for the total instrument, each section, and each category within each section of the instrument. Intercoder agreement was above the 90% criterion for the total instrument, class organisation section and interaction section, but not for the language section. Intercoder agreement for the individual categories of the instrument were variable. The class organisation and interaction sections generally had a 90% agreement rate for each of their categories. The categories within the language section were less acceptable because of the lack of consistency in achieving 90% agreement.

For the exploratory study (1989), the modified instrument was retested for reliability by the Griffin (1980) method. Three coders were trained in the use of the instrument by practising techniques in videotape analysis. Intercoder agreement was calculated using the same formula as that used by Griffin (1980). Intercoder agreement was established at 90% and above in all categories of the instrument. Additionally a reliability check was taken during data collection in the 1989 study and was found to be constant, above the 90% level. A similar check using this

method of reliability testing was made to ensure intracoder agreement for each of the three coders. Each coder was tested as to his or her personal reliability using videotaped lessons. Reliability was established above the 90% level in all categories for all coders.

McBride (1990) reported a similar degree of instrument and coder reliability in his use of the modified instrument. He reported interobserver scores ranging from 90% to 94% prior to and during the investigation.

Video recording during lessons also enhanced validity and reliability of observations as it enabled each lesson to be watched as many times as necessary to code all sections of the instrument with accuracy. This eliminated misinterpretation in coding interactions into the wrong category of the observation instrument.

Data collection

The Sex Role Dependent/Independent Teacher Behaviour Observation System utilises the interval recording technique. This technique requires the researcher to record the frequency of occurrence of each behaviour being observed over a set period of time (interval). As suggested by

Griffin (1980), three minute intervals were used to record teacher-student interactions, teacher language and all categories in the class organisation section, with the main focus being on teacher behaviour.

In each three minute interval, all teacher behaviour occurrences were recorded. A 30 second period during which student participation was observed, was alternated with the three minute intervals. During the 30 second interval, the focus was on the students, either group or whole class. If the 30 second observation interval fell during group activity a single group was selected for observation. This selection was rotated, starting with the group closest to the observer, with each 30 second interval. This procedure was followed for the entire class observation.

Each teacher was observed on four occasions. The intervention group of eight teachers was involved in one-to-one conferencing interviews prior to observations, after the second and third lessons.

A preobservation conference was held with each teacher before observations commenced to discuss organization, programming and lesson content. Lessons 1 and 2 provided baseline data. These were analysed, and results were used in a postobservation conference. Nonjudgemental feedback

was provided by the researcher, discussing the data obtained from the observation instrument. The discussion was continued into a preobservation conference as interaction pattern objectives were established for Lesson 3.

Lesson 3 was recorded and analysed and the results of the data analysis made available to the teacher in the postobservational conference. Discussion and nonjudgemental feedback ensued, allowing the preparation of interaction pattern objectives for Lesson 4.

Lesson 4 was then observed, and the results obtained from instrument coding. The results were analysed in order to ascertain the effectiveness of the intervention process. The results were made available to the teacher in the concluding postobservation conference. The intervention included discussion of results obtained by instrument coding, and the implications, understandings and meanings it might contain. The control group of teachers was not involved in conferencing, but was observed on four occasions only. These teachers were provided with the results of the analysis after the study observations were completed. The comparison of data between the control and intervention groups allowed the effectiveness of the intervention provided to be measured and evaluated.

All data were collected by the researcher and his field assistant, one of the trained coders. Each lesson was recorded onto video tape using a VHS colour video camera, mounted on a tripod. The teacher's voice was recorded directly onto the videotape by means of a small cordless microphone. The microphone was attached to the teacher's shirt and the battery pack clipped to the teacher's belt or placed in the teacher's pocket. The researcher wore headphones to ensure that the sound equipment was functional and to assist the operator to direct the video camera in the direction of the teacher's attention. The field assistant used a clipboard and notepad to record field observations, student numbers, class organisation, and the division between boys and girls. She also collected anecdotal records during the lesson, which provided back-up data to supplement the video and audio-taping.

The researcher and his assistant arrived 30 minutes before the commencement of the lesson to be observed, in order to set up the equipment and make last minute checks with the teacher about the location of the teaching station. Prior to the lesson, the teacher to be observed was given the small cordless microphone and battery pack in order to attach these to his/her clothing. The researcher and assistant were positioned so they could observe the entire teaching station without interfering with student

participation. The timing during lessons was crucial, with student participation observations being conducted every three minutes, for a 30 second interval. Both the researcher and the assistant utilised stop watches to synchronise anecdotal records with the videotaped records.

During a 30 second interval the group nearest the camera was taped specifically, for student participation levels. At the completion of each 30 second interval, the camera was directed back to the teacher to continue interaction and language observations.

Use of video camera

Griffin (1980) used video taped lessons in her study, but felt their use was not as effective as live observations. The problems she encountered were of a technical nature: poor quality of vision due to inclement weather; limited experience of researcher using this type of equipment; and restrictions of field of view due to the nature of the equipment. These problems were not encountered by the researcher in this study, as the weather in the area of research was not as extreme as that experienced by Griffin, and the knowledge and use of video equipment by the researcher was extensive, therefore the

quality and effectiveness of the video recording was at a level commensurate with live observational recording. Additionally, the exploratory study (Owen, 1989) demonstrated the effectiveness of this method of data collection.

An additional reason for using video recording during lessons was to enhance validity and reliability of observations. Each lesson could be watched as many times as necessary to code all sections of the instrument accurately.

Use of field and anecdotal records

Extensive field and anecdotal notes were recorded during each lesson by the research assistant to complement the quantitative data collected by the observational instrument.

Rate (1987) acknowledged, that field and anecdotal notes recorded during observations should be incorporated in further studies using this observational instrument as a supplement to the data, in order to provide a more complete picture of interaction patterns.

Therefore, these notes were recorded and used to provide additional information which the observational instrument or the video recording did not indicate. These notes provided supplementary information to assist with identification of behaviours not easily categorised.

Additionally, notes were kept from the conferencing interviews, to allow the recording of interaction pattern objectives. Anecdotal notes were also kept from the interviews, as teacher reaction and opinion were valuable in the evaluation of intervention.

Ethical issues and considerations

The Principal, schools and teachers observed during this study have not been identified by name. The analysis of data did not compare or contrast individual teacher's attitudes towards gender stereotyping and bias in her or his teaching methods. The differences between male and female teachers' gender stereotyping were examined, as a group and on an individual basis.

The content, skill level of teacher or students, teaching standards, or lesson preparation were not evaluated or reported on within this study. The teachers were

required to prepare the lessons provided by the researcher. Special equipment was not required nor were they required to teach in an area not normally used for typical physical education lessons. The students were not required to wear special clothing or identification tags. Adjustments were required to the classroom teacher's programme, as a programme provided by the researcher was substituted.

The school administrators decided if there was a need for special notes to parents or changes to the usual running of the class being observed. All interviews utilizing the conferencing technique were confidential, and conducted in a place where privacy was guaranteed.

Problems encountered during recording and coding observations.

Some problems were encountered by the researcher during observations, and related to the context, recording of observations, equipment and observer effects. Similar problems were experienced by Rate (1987) and Owen (1989).

Problems in coding resulted from recording out of doors. The speed and complexity of interactions in a

physical education lesson affected data collection even though all lessons were recorded on video tape. On some occasions the teacher positioned an activity too close to the camera, which made it difficult to frame the whole class within the field of view of the camera, making coding difficult for those interactions not recorded by the video camera. However, this situation occurred only a few times over the recording period. The problem was overcome by recording more extensive anecdotal notes.

Sometimes, teachers had several brief, but separate interactions with many students in a variety of categories within a time span of 20 to 30 seconds. If the camera was not directed toward the teacher and students concerned, coding became more difficult. Though each teacher had his/her own individual style, the pattern of teacher interaction with individual students was generally a matter of a series of brief comments. In a few seconds a teacher may have quickly disciplined one student, instructed another, praised a third, joked with a fourth, and made an extraneous comment to a fifth. This style provided on-going challenges to the researcher in terms of constantly rewinding the tape, stopping the timing, recording the position at which coding stopped by number, and then commencing timing and coding again at the correct point in order to record all interactions accurately.

The coding process was further complicated by the physical movement of the teacher and the students in the class. In a physical education class everyone is moving, and the size of the teaching area may be as large as a 100 metre x 60 metre oval or two basketball courts. This necessitated the continual panning of the camera toward the teacher and the students and the necessity to zoom the camera in or out.

Although the researcher had a complete schedule of activities and teachers for each day during the observation period, there were occasional schedule changes due to other classes waiting to use the same facilities, special events such as unexpected excursions, weather, or illness on behalf of the staff member. These changes of schedule created some problems, but appropriate changes were able to be made.

Because physical education lessons are generally outdoor activities, adverse weather affected the scheduling of lessons with little notice. Some lessons had to be postponed, but others were simply delayed or shifted to a new location in an undercover area of the school with little effect on the collection of data.

Additionally, wind caused some problems. With a strong wind blowing, the quality of the audio-recording was

inevitably affected. This was alleviated by adjusting recording levels on the sound equipment or playback equipment, or taking more extensive anecdotal records. The researcher also wore headphones to ensure the quality of the audio recording and was therefore able to make adjustments as necessary.

Boys were, for the most part, more conscious of the camera than the girls, and performed by pulling faces, jumping in the air or clowning with their friends. The girls on the other hand were either too shy or not overly concerned by the camera or the observers. As a result there were few occasions when a girl behaved purely for the benefit of the camera. This sort of behaviour generally only happened at the beginning of a lesson, but once the lesson was underway the distraction of being recorded was forgotten and full concentration on the activities of the lesson was resumed. Therefore the presence of the researchers and equipment had minimal effect on the behaviour of the children during lessons.

Both male and female teachers showed some nervousness while teaching their lessons but this was in the most part, during their first lesson. Generally, the teachers were well prepared and confident in their lessons and appeared relatively unhindered by the microphone.

Some teachers in their first lesson pointed out the recording equipment to the children and told them that it was not there to record student behaviour, rather it was the teacher's behaviour that was significant. They were told not to let the observation process distract them and to concentrate on the task at hand. This generally had the desired effect.

For the first two lessons, teachers in the control and intervention groups were not briefed as to the objective of the project in order to avoid a change from their normal teaching styles and interaction patterns with students. They were told that the researcher was interested in observing all interactions. No mention of gender equity was made, thereby reducing the possibility of lesson interactions being modified during the baseline observations. This caused some curiosity by teachers as to the purpose of the study, but this was dispelled for control group teachers at the conclusion of the observations with a brief explanation as to the nature of the research.

The interaction group, on the other hand, was informed as to the reason for the study before the third and fourth lessons. The teachers acknowledged that this information had affected their responses. One teacher said after

conferencing that he was very aware of his interactions and thought after choosing four boys for a student demonstration "Oh dear! That will affect the data". He also indicated that because his interactions were to be analyzed he probably said less than he normally might in order to stay in the "comfort zone" (as he expressed it). Clearly he found the process a little inhibitory.

CHAPTER 4

DATA ANALYSIS AND DISCUSSION OF RESULTS

This chapter provides the analysis of data and a summary and discussion of results. In the third section the results of teacher conferencing and their effectiveness are discussed. Finally, an analysis of field notes is described and teachers' reactions at conferences explained.

Initially, all raw data for Lessons 1 and 2 were grouped for male and female teachers in the control and intervention groups to provide baseline data. Lessons 3 and 4 were grouped separately. Data totals for each category and chi-squares were calculated to identify statistically significant gender biased behaviours.

Examining the combined data of each group in each lesson demonstrated that a number of categories contained gender bias in terms of the measured interaction patterns.

The data were analyzed in all four lessons comparing the control and intervention groups to determine if intervention had produced behavioural change.

For each group of teachers and each category a chi-square value was computed, based on observed and expected frequencies. A chi-square test was used because of its versatility, and because it was considered to be the best statistical test to determine the extent of any difference between the observed and expected data in a category. The use of chi-square as a test of significance permits the testing of several differences at the same time and makes no assumption that the population distribution is normal.

Chi-square investigates if a relationship exists among selected categories and determines if membership of one category affects membership of another category. If such a relationship exists the categories are said to be contingent on one another. If the relationship does not exist the categories are said to be independent of one another. For chi-square distributions which have more than one degree of freedom, no more than 20% of the cells should have an expected frequency less than five (Jongeling 1988).

All categories which were at the 0.05 level of significance ($p < .05$) and below, were considered to be statistically significant. In this study, those categories which did not fit this criterion were not considered to be significant. Similarly, all categories were determined to be independent of one another.

Data Analysis

Seven tables were prepared by collapsing the data obtained across preselected categories. The data were combined on the basis of teacher, lesson number and control and intervention group.

Certain categories can be considered problem areas from the viewpoint of gender equitable interaction. It is in these categories that change may be expected if intervention is effective.

Table 1 represents the combined data for the four control group males for Lessons 1 to 4 and identifies the statistically significant behaviours.

In considering Table 1, it is apparent that statistically measurable biased interaction occurred six times in the base-line lessons, that is Lessons 1 and 2, and again six times in Lessons 3 and 4, suggesting that consistency was obtained over the four lessons.

As a measure of the gender biased behaviour, the statistics indicate that in some of the categories interactions with boys were high.

Table 1

Analysis of Interaction Behaviours of Teachers 1-4 for Lessons 1-4 (Control Group Male Teachers)

Categories	Lessons		
	1/2	3	4
Total Participation	-	-	-
Group Participation	*	-	-
Leaders	-	-	-
Curriculum Materials	-	-	-
Instruction	*	*	*
Management	*	-	-
Control/Discipline	*	*	*
Praises Successful Student	-	-	-
Physical Contact	-	-	-
Encourages Unsuccessful Student	-	-	-
Informal Talk	-	-	-
Criticizes Unsuccessful Student	*	-	-
Points Out Student Model	-	-	-
Sex Role Dependent Comment	-	-	-
Sex Role Independent Comment	-	-	-
Use of Pronouns	-	-	-
Use of Student Names	*	*	*
Refers to Males/Females	-	-	-

* Boys' score significantly higher than girls' score ($p<.05$)

Girls' score significantly higher than boys' score ($p<.05$)

That is, in Lessons 1 and 2 of the control group male teachers, the categories of *group participation, instruction, management, control/discipline, criticizes unsuccessful student* and *use of student names*, demonstrate large discrepancies in the gender biased interactions.

In the area of *group participation*, a category which data are recorded by concentrating on the students, the boys dominated the activity.

In the categories of *instruction, management* and *control discipline* the interactions were more frequently directed to the male students. The category of *criticizes unsuccessful student* demonstrated a similarly biased pattern with the boys receiving a significantly higher proportion of total teacher interactions. These results are reflected in the number of interactions directed at boys observed in the category *use of student names*.

In Lesson 3, the control group males continued a strong gender bias in three of the six categories identified in Lessons 1 and 2. Similarly the categories of *instruction, control/discipline*, and *use of student names* again showed strong male biases.

The pattern was identical in Lesson 4 of the male control group teachers with the same three categories measured as statistically significant and all male dominated. They were *instruction*, *control/discipline*, and *use of student names*.

Table 2 represents the combined data for the four control group female teachers for Lessons 1 to 4 and identifies the statistically significant categories.

This table shows that in Lessons 1 and 2 the same categories were significantly different when analysing gender equitable behaviours in the control group female teachers as for the male teachers. Statistically measurable biased interactions occurred six times in the base-line Lessons 1 and 2 and 12 times in Lessons 3 and 4, suggesting that less consistency was obtained over the four lessons with the female teachers than was observed in the male teachers.

However, the female teachers of the control group displayed a stronger positive bias towards boys in their interactions over the four lessons, than did their male counterparts. Only two of the 18 measured biased categories were positively biased towards females.

Table 2

Analysis of Interaction Behaviours of Teachers 5-8 for Lessons 1-4 (Control Group Female Teachers)

Categories	Lessons		
	1/2	3	4
Total Participation	-	-	-
Group Participation	*	-	#
Leaders	-	-	-
Curriculum Materials	-	-	-
Instruction	*	*	*
Management	*	-	*
Control/Discipline	*	*	*
Praises Successful Student	-	*	-
Physical Contact	-	-	-
Encourages Unsuccessful Student	-	-	-
Informal Talk	-	-	-
Criticizes Unsuccessful Student	*	*	-
Points Out Student Model	-	*	-
Sex Role Dependent Comment	-	-	-
Sex Role Independent Comment	-	-	-
Use of Pronouns	-	-	-
Use of Student Names	*	*	*
Refers to Males/Females	-	-	#

* Boys' score significantly higher than girls' score ($p<.05$)

Girls' score significantly higher than boys' score ($p<.05$)

As a measure of the gender biased behaviour, the statistics indicate that once again, in specific categories, interactions with boys were high. In Lessons 1 and 2 of the control group female teachers, the categories of *group participation*, *instruction*, *management*, *control/discipline*, *criticizes unsuccessful students*, and *use of student names* were all measured as being biased towards the boys.

In Lesson 3, the categories of *instruction*, *control/discipline*, *praises successful student*, *criticizes unsuccessful student*, *points out student model* and *use of student names* are all strongly biased towards the boys.

In Lesson 4, two categories were measured as biased towards the girls, that of *group participation* and *refers to male/females*. The other statistically significant categories were biased towards the boys: *instruction*, *management*, *control/discipline* and *use of student names*.

Table 3 represents the combined data for the four intervention group male teachers for Lessons 1 to 4 and identifies the statistically significant categories.

A significant difference between the control group teachers and the intervention group male teachers was evident. Statistically measurable biased interactions

Table 3

Analysis of Interaction Behaviours of Teachers 9-12 for Lessons 1-4 (Intervention Group Male Teachers)

Categories	Lessons		
	1/2	3	4
Total Participation	-	-	-
Group Participation	#	-	-
Leaders	-	-	-
Curriculum Materials	-	-	-
Instruction	-	-	-
Management	-	-	-
Control/Discipline	*	*	-
Praises Successful Student	-	#	-
Physical Contact	-	-	-
Encourages Unsuccessful Student	-	-	-
Informal Talk	-	-	-
Criticizes Unsuccessful Student	-	-	-
Points Out Student Model	-	-	-
Sex Role Dependent Comment	-	-	-
Sex Role Independent Comment	-	-	-
Use of Pronouns	-	-	-
Use of Student Names	*	*	-
Refers to Males/Females	-	-	-

* Boys' score significantly higher than girls' score ($p<.05$)

Girls' score significantly higher than boys' score ($p<.05$)

occurred three times in the base-line lessons, that is, Lessons 1 and 2 and again three times in Lesson 3 and none at all in Lesson 4, a total of six categories measured as biased in all, well below their control group counterparts.

In Lessons 1 and 2 only three categories were statistically significant, and one of the three, *group participation* was gender biased towards girls. However, again *control/discipline* and *use of student names* were biased towards the male students.

In the third lesson, three categories were statistically significant. Table 3 shows that these categories were different from the previous lessons. While *control/discipline* and *use of student names* were heavily weighted towards the boys, *praises successful student* was significantly biased towards the girls.

Lesson 4 suggests that the male teachers (following the second intervention interview) achieved a balance in their interactions with the students. Lesson 4 shows no significant gender bias across any category. They appear to have identified their biased interaction patterns and corrected them without overreacting.

Table 4 represents the combined data for the four intervention group females for Lessons 1 to 4 and identifies the statistically significant categories.

Many of the same categories as previously identified are problem areas in the analysis of gender equitable behaviours in the intervention group of female teachers as they were in the control group. Statistically significant biased interactions occurred five times in the base-line lessons, that is, Lessons 1 and 2 and six times in Lessons 3 and 4.

Again, the female teachers of the intervention group displayed a strong positive bias towards male students in their interactions over the four lessons.

As a measure of the gender biased behaviour, the statistics indicate that once again, in specific categories, interactions with boys were high. In Lessons 1 and 2 of the intervention group female teachers, *instruction*, *management*, *control/discipline*, *criticizes unsuccessful student* and *use of student name* all favour the boys.

In Lesson 3, far fewer categories were noted as being significant. However, *Control/discipline*, *criticizes*

Table 4

Analysis of Interaction Behaviours of Teachers 13-16 for Lessons 1-4 (Intervention Group Female Teachers)

Categories	Lessons		
	1/2	3	4
Total Participation	-	-	-
Group Participation	-	-	-
Leaders	-	-	-
Curriculum Materials	-	-	-
Instruction	*	-	-
Management	*	-	*
Control/Discipline	*	*	*
Praises Successful Student	-	-	-
Physical Contact	-	-	-
Encourages Unsuccessful Student	-	-	-
Informal Talk	-	-	-
Criticizes Unsuccessful Student	*	*	-
Points Out Student Model	-	-	-
Sex Role Dependent Comment	-	-	-
Sex Role Independent Comment	-	-	-
Use of Pronouns	-	-	-
Use of Student Names	*	*	*
Refers to Males/Females	-	-	-

* Boys' score significantly higher than girls' score ($p<.05$)

Girls' score significantly higher than boys' score ($p<.05$)

unsuccessful student and *use of student names* were male-biased.

In Lesson 4, *management*, *control/discipline* and *use of student names* were male oriented in terms of bias.

Table 5 provides a comparison of the interaction patterns of the intervention and control groups for the baseline data, Lessons 1 and 2. If we initially ignore the two *group participation* categories, as they measure student interaction rather than teacher interaction, a similar pattern of behaviour emerges. The control group males and females and the intervention group females demonstrate statistically significant gender biased behaviour in five of the categories. Table 5 demonstrates that the categories affected by positively biased interactions towards boys are identical, that is, *instruction*, *management*, *control/discipline*, *criticizes unsuccessful student*, and *use of student names*.

Table 5 also shows that the intervention group males demonstrate only two categories in which the behaviour is gender biased toward boys. They are *control/discipline* and *use of student names*. The only female biased behaviour occurred in the *group participation* category.

Table 5

Comparison of Control and Intervention Group Interactions for Lessons 1 and 2

Categories	Teacher Groupings			
	Control		Intervention	
	Male	Female	Male	Female
Total Participation	-	-	-	-
Group Participation	*	*	#	-
Leaders	-	-	-	-
Curriculum Materials	-	-	-	-
Instruction	*	*	-	*
Management	*	*	-	*
Control/Discipline	*	*	*	*
Praises Successful Student	-	-	-	-
Physical Contact	-	-	-	-
Encourages Unsuccessful Student	-	-	-	-
Informal Talk	-	-	-	-
Criticizes Unsuccessful Student	*	*	-	*
Points Out Student Model	-	-	-	-
Sex Role Dependent Comment	-	-	-	-
Sex Role Independent Comment	-	-	-	-
Use of Pronouns	-	-	-	-
Use of Student Names	*	*	*	*
Refers to Males/Females	-	-	-	-

* Boys' score significantly higher than girls' score ($p<.05$)

Girls' score significantly higher than boys' score ($p<.05$)

Both control groups are biased in favour of the boys in the categories of *group participation*, *instruction*, *management*, *control discipline*, *criticizes unsuccessful student* and *use of student names* for Lessons 1 and 2.

By comparison, Table 5 shows that for the intervention group females in Lessons 1 and 2, the categories of *instruction*, *management*, *control/discipline*, *criticizes unsuccessful student*, and *use of student names* were all biased towards male students, as they were for the control group. The male teachers, however, were biased towards boys in two categories: *control/discipline* and *use of student names* and biased towards girls in the category of *group participation*.

Table 6 provides a similar comparison of the control and intervention groups interactions for Lesson 3.

Following the first intervention interview at which nonjudgemental feedback was provided, some differences in the interaction patterns of the intervention group can be seen when compared with the control group. The total of categories indicate some difference, in that nine categories are measured as statistically significant for the control group, compared to six categories for the intervention group.

Table 6

Comparison of Control and Intervention Group Interactions for Lesson 3

Categories	Teacher Groupings			
	Control		Intervention	
	Male	Female	Male	Female
Total Participation	-	-	-	-
Group Participation	-	-	-	-
Leaders	-	-	-	-
Curriculum Materials	-	-	-	-
Instruction	*	*	-	-
Management	-	-	-	-
Control/Discipline	*	*	*	*
Praises Successful Student	-	*	#	-
Physical Contact	-	-	-	-
Encourages Unsuccessful Student	-	-	-	-
Informal Talk	-	-	-	-
Criticizes Unsuccessful Student	-	*	-	*
Points Out Student Model	-	*	-	-
Sex Role Dependent Comment	-	-	-	-
Sex Role Independent Comment	-	-	-	-
Use of Pronouns	-	-	-	-
Use of Student Names	*	*	*	*
Refers to Males/Females	-	-	-	-

* Boys' score significantly higher than girls' score ($p<.05$)

Girls' score significantly higher than boys' score ($p<.05$)

In the control group, these categories are significantly biased towards male students. They are *instruction, control/discipline, praises successful student, criticizes unsuccessful student, points out student model,* and *use of student names.*

For the intervention group, *control/discipline, criticizes unsuccessful student* and *use of student names* (for the female teachers) are all male biased interaction categories. In this lesson the male teachers in the intervention group displayed some female-biased behaviour in the category of *praises successful student,* which suggests a positive behaviour bias and only two categories of bias towards male students, that is *control/discipline* and *use of student names.*

In Table 7, the results of the second intervention interview are manifest in a contrast of data of the control and intervention groups in Lesson 4. A total of nine categories are statistically significant for the control group compared to three for the intervention group.

The male intervention group teachers failed to register a single significant category, showing a lack of gender bias in this lesson. The female intervention group teachers registered biased behaviour towards the boys in the

Table 7

Comparison of Control and Intervention Group Interactions for Lesson 4

Categories	Teacher Groupings			
	Control		Intervention	
	Male	Female	Male	Female
Total Participation	-	-	-	-
Group Participation	-	#	-	-
Leaders	-	-	-	-
Curriculum Materials	-	-	-	-
Instruction	*	*	-	-
Management	-	*	-	*
Control/Discipline	*	*	-	*
Praises Successful Student	-	-	-	-
Physical Contact	-	-	-	-
Encourages Unsuccessful Student	-	-	-	-
Informal Talk	-	-	-	-
Criticizes Unsuccessful Student	-	-	-	-
Points Out Student Model	-	-	-	-
Sex Role Dependent Comment	-	-	-	-
Sex Role Independent Comment	-	-	-	-
Use of Pronouns	-	-	-	-
Use of Student Names	*	*	-	*
Refers to Males/Females	-	#	-	-

* Boys' score significantly higher than girls' score ($p<.05$)

Girls' score significantly higher than boys' score ($p<.05$)

categories of *management*, *control/discipline*, and *use of student names*.

In contrast, all the control group teachers displayed gender biased interaction patterns in the categories of *instruction*, *control/discipline*, and *use of student names*. The female control group teachers were also biased towards male students in the additional category of *management* and biased towards females, in the categories of *group participation* and *refers to males/females*.

Summary and discussion of results.

When examining the control group for the four lessons, the data suggest there were many categories which were gender biased towards the boys. Interactions such as *instruction*, *control/discipline*, and *use of student names* were common to all teachers. Other categories were significantly biased for some of the teachers. These were *group participation*; *management*; *criticizes unsuccessful student* and others, which were lower in frequency, but still of concern, such as *points out student model* and *refers to males/females*.

Most interactions were biased, with only two categories in the female teachers' data biased towards the girls. These were *group participation* and *refers to males/females* both occurring in Lesson 4.

In the intervention group, less categories overall were significantly biased towards the boys. The categories of *control discipline*, and *use of student names* were common to all lessons. Other categories indicated significant bias towards the boys such as *instruction*, *management* and *criticizes unsuccessful student*. There were only two categories which were significantly biased towards the girls. These were *praises successful student* and *group participation*, both evidenced in interactions with male teachers.

The male intervention group was significant for the change they made in interaction patterns in their fourth lesson. The data showed no significantly gender biased categories at all. This indicated they were able to adjust biased interaction patterns in Lesson 3, in that their interactions had swung to be biased towards the girls in the category of *praises successful student*. As they suggested, this may have been an over-reaction from examining their biased data at the first conference session. They stated that there was a level of shock finding their patterns to be

inequitable and the tendency to compensate was irresistible. After their second conference, they were able to balance their patterns of behaviour, so that there was no evidence of biased interactions.

The female teachers of the intervention group were not as successful. Despite the same personally expressed reactions to their data, they were unable to completely eliminate biased interactions. They were able to lower their biased interactions from five categories in Lessons 1 and 2, to three categories in Lesson 3 and similarly in Lesson 4. However, the categories in which bias was still evident were the categories that are in some way controlled by student behaviour, that is, *control/discipline* and *use of student names*.

Results of teacher conferencing

The second purpose of the study was to provide teachers with data about their verbal interaction patterns by means of nonjudgemental feedback following the adapted form of the clinical supervision model. Teachers were able to examine their interactions recorded by the coding instrument during conferencing. This was achieved in a nonthreatening manner with no pressure being applied by the researcher to affect a

change in the teacher's interaction patterns. The teacher decided if any changes needed to occur, and the way in which such changes would be made.

The results of conferencing were beneficial, with teachers expressing a positive view towards the process. The teachers commented that they had not been previously aware of inequity in their own interaction patterns, but found the provision of tabulated data extremely useful. Most felt it was important as educators to give their female students a greater share of their attention.

However, not all teachers felt this way. Some felt that content was more important when teaching than who received the teacher's attention. This reaction suggests that conferencing was in fact nonjudgemental and did not seek to persuade teachers to alter their patterns of behaviour if they did not wish to do so. The conferencing method did however, benefit the male teachers of the study, all commenting that they now enjoyed an increased awareness of the problem and had been able to make immediate changes in behaviour. By the second conference they were managing to eliminate biased interactions from their teaching.

Similarly, the female teachers expressed the view that nonjudgemental conferencing was extremely beneficial.

whilst they enjoyed a heightened awareness of gender issues by comparison to their male peers, they were appalled and alarmed to discover their own gender bias. They found the provision of objective statistical data invaluable in identifying areas of need. They were keen to effect change, but had some difficulty in eliminating their biases. This was not from a lack of application, but rather because the students are part of the interaction equation and the boys demanded the attention if it was limited. This produced biases in the *control/discipline* category and the *use of student names*, as names are often used as a discipline technique.

This appears to indicate that with sufficient effective feedback and relevant supporting data, teachers were able to change their interaction patterns in a positive way, which lends support to the conferencing process and demonstrates that it is beneficial to teachers and as a result to students. Therefore, the conferencing process appears to be useful in the professional development of teachers. It is important to emphasize that the real benefit came about because the feedback was unconditional and objective. All the teachers found the use of an observation instrument removed any feeling of being "criticized" unfairly. When presented with the statistics of the interaction patterns they all reacted positively, some expressing chagrin, some

disappointment and following efforts to change, a sense of accomplishment. Others felt no need to change.

Analysis of field notes.

The statistical data were supplemented by written comments which could not be coded into a particular category by the observation instrument. Examples of gender dependent/independent teacher or student behaviour were noted by the researcher and field assistant and recorded as anecdotal comments and field notes.

During team sport, boys in mixed sex groups were more aggressive and dominated the game. Generally the boys appeared more confident, demanding more of the activity and achieving more individual turns.

In one lesson of basketball the boys engaged in much hand-slapping, "high fives", when placed together in a team. No such reaction was observed from the girls. The girls in this lesson were no less skilled than the boys but they tended to hang back. The boys on the other hand were more aggressive in the game, failed to pass to others, or only to boys and tended to monopolize the ball. The girls who were keen to actively participate in the game, were generally

ignored by the boys who would not pass to them even if they were in a better position on the court. The girls on the other hand, when they did manage to receive the ball, passed to either boys or girls.

Boys tended to be patronizing in their comments to girls, one saying "Nice try Kathy!" to a girl on his team. In another lesson with the same group and the same activity, the boys made derogatory comments about girls when they were picked in their team, responding that "Girls are hopeless; girls have no strength; they can't play basketball; they can't help it, because they are girls". Additionally, the male teacher tended to promote the male macho image which may have fuelled the boys' comments. He heard the comments from the boys and ignored them and in his body language appeared to approve, smiling slightly at the boys who had made them.

During these basketball lessons, a boy who had his arm in a sling still wanted to join in the lessons and had to be told to sit out by the teacher. In contrast, girls were consistently the nonparticipants. It was noted by the observers that the male teacher of these basketball lessons consistently gave more attention to the boys' groups or mixed sex groups and less attention to girls' groups. This

may have contributed to the apprehensiveness of the girls when participating in games.

In most lessons it was also noted that when instructions were given, and the children were seated around the teacher, that the girls positioned themselves closest to the teacher and listened to instructions. The boys, however, sat towards the back, often not paying attention and playing around with their mates, or performing for the camera.

In a gymnastics lesson the girls were notably reluctant and less adventurous when attempting activities. The boys often engaged in activities which were more daring with blind disregard for their own safety, trying to do somersaults and round-offs to show off to their mates. The only thing which restricted their level of activity was a dispute as to whose turn it was. The boys also tended to misbehave more in these lessons when the teacher was not in the immediate vicinity, resulting in less on-task behaviour during the set activity.

When teachers chose children as demonstrators, the boys were always keen to be chosen. This was evidenced in a tennis lesson, especially by one boy who had been professionally coached and was a participant at state level

competition. The teacher chose this boy, using his expertise to demonstrate skills, and expounding to the class that they could achieve this level of skill with much practice and proper coaching.

In a sofcrosse lesson, a boy was chosen as a demonstrator but a girl complained to the male teacher that he always used boys, so he then used her instead. The boys in another lesson involving basketball, were heard to say to the teacher "Why a girl? Oh no, not a girl!" when she was selected to demonstrate a skill. This tended to set a negative tone for the girls when participating in the activities and could have contributed to them having less confidence when participating in games where boys and girls were in the same team.

In the selection of groups it was noticed that if the students were asked to select their own groups they invariably chose single sex groups. Mixed groups were rare unless specifically requested by the teacher, or if the teacher selected the groups. During a lesson of sofcrosse, a comment was made by both the boys and the girls in one group that they were disadvantaged because not as many boys were in their group. They were heard to say "If we had more boys in our group we could have won" thus perpetuating the

notion that boys are better at sports than girls and were needed in a group in order to win.

A teacher in a minkey lesson was recorded saying to the class "The girls won!", with surprise in his voice, suggesting that it is unusual for girls to do so well when competing against boys. This same teacher was also observed saying to a boy in a partner activity involving a boy and a girl, "Take her on" suggesting the boy should try harder in order to beat the girl. In fact at the end of the activity the girl beat the boy with no comment from the teacher.

Generic, male oriented terms were often used by teachers, such as "guys" to the whole class and even to groups of girls. Teachers used elite male community teams such as the Wildcats for basketball or the Eagles football team as examples. These groups were mentioned as ideals to emulate even though there are many female teams in this state which could be used as examples.

Teachers also used terms such as "batsman", "man-to-man defence" and "guard your man" instead of using more neutral terms or rejecting gender role stereotypes.

When making encouraging comments to girls, teachers tended to be more patronizing, using such terms as

"sweetheart" or "darling". When talking to boys if they were not putting in enough effort or were being beaten by a girl they were referred to in feminine terms. For example, in a minkey lesson a boy considered to be not trying hard enough received the comment, "That's cute Ross" about the effort he was putting in. In a netball lesson, a female teacher was heard to say to a boy "Goodness me, Ross. Pushed out of the way by a woman! Just as well she is pretty, isn't it?" thereby discouraging the girl from trying harder, implying to the boy he is not very good at the skill if a girl can beat him, and emphasizing the value of looks over substance for a female.

Another teacher in a netball lesson said to a girl in a group of six boys "You're the only little flower in the patch", a somewhat depressing analogy if one is attempting to be competitive. A female teacher in a tennis lesson said to a boy "Simon, I am going to get a dress for you tomorrow". The other children took up the call saying "You'd look good in a dress" because he had chosen to work with a group of girls.

By contrast, other teachers encouraged girls to make a greater effort in activities. After one girl had told the class that rugby was her favourite sport the teacher said "We should have rugby in school for sport". Another teacher

in a game of rounders made the comment to the whole class that "It is good to see that both boys and girls were hitting well today" thus giving all children positive feedback regardless of gender. In fact in this class it was noted that during the lessons the girls with good skill levels were very enthusiastic in their participation levels and called out encouragement to both boys and girls to do well and try their best.

Some teachers were obviously very conscious of using nongender biased curriculum materials in the examples they presented to the children. On one occasion a teacher gave the example of netball as a game in which to excel and participate.

While lesson content was not evaluated as part of the research it was noted that the warm-up activities used seemed to set the standard for the lesson. Many warm-ups consisted of a run around the oval. On such occasions, the girls expressed displeasure with this activity, taking an extended period of time to return to the teaching area. This disinterest in the warm-up activity tended to continue throughout the lesson. However, in lessons where teachers utilized inventive warm-up activities using simple competitive games such as tag games, the children were more motivated and enthusiastic. This enthusiasm and positive

behaviour tended to encourage the girls to participate throughout the lesson.

Some teachers' choice of activity during the skill acquisition phase of the lesson dampened the less keen students' enjoyment of the activities. For example, in a sofcrosse lesson, an activity was chosen in which very few children were able to practise the skill repeatedly, resulting in a general sense of boredom and restlessness. Similarly, when umpiring a hockey game, another teacher was overly strict when applying the rules before they were totally understood by the children, resulting in the game becoming very slow and stilted. The girls in these lessons lost interest very quickly or found ways to avoid taking their turn in the activity.

Other teachers by contrast, chose to join in the activity. This engendered much enthusiasm by all children, to "beat the teacher". Some allowed extended periods of time for skill practice to allow for maximum participation and skill acquisition by all children and gave positive feedback to all class groups.

In most informal interactions, teachers did not indicate gender bias. The exception was a male teacher, who at the conclusion of his lesson, sent the girls off to have

a drink and while they were away spoke to the boys. He gave them a "pep" talk stating that boys were better at this skill than girls and they should help the girls to improve their skills. On examination of the videotaped skill practice and careful observation, this comment was found to be totally unwarranted, as the skill levels of both genders were on a par. This sort of comment reinforces the stereotypic attitude that boys are better at sport than girls and goes a long way to encouraging boys to belittle girls' participation in sporting activities.

Teacher reaction at conferences

Teachers were very positive when receiving feedback on their interaction patterns. The conferences were conducted in a nonthreatening environment with no attempt being made by the researcher to criticize the teachers' interactions or persuade them to change their interaction patterns. The teachers were shown their data and differences in the various categories were discussed. They decided if their interactions were inequitable or not and the decision to change or not was left to their discretion.

At their conference some suggested they had difficulty changing their interaction patterns, and think of the lesson

content at the same time. This was especially so if they were not familiar with the lesson content. They felt they were more conscious of giving girls more attention after conferencing and said they should strive to be more equitable, especially because boys receive so many more interactions in the *control/discipline* category.

Some found it difficult remembering the various categories which needed to be adjusted in the course of a lesson, when there were so many other demands on their attention. Others felt it was difficult to change their interactions even if they saw the need, because the boys demanded so much of their attention as a result of disruptive behaviour or attitude problems. One teacher stated that he had made a conscious effort to change his interactions and give more constructive criticism to the girls in order to improve their performance and skill levels. He had no trouble with the content of the lesson, and therefore found it easy to concentrate on making the personal behavioural changes he desired.

After conferencing following Lesson 3, interactions of the intervention group of male teachers were heavily weighted towards the girls. This would tend to suggest that the style of the lesson shifted a little, the teacher perhaps being more conscious of the quality of the lesson,

encouraging the girls and physically assisting their skill development.

The intervention group of female teachers could also be considered outstanding and extremely dedicated teachers, and individuals in the group expressed strong personal commitments toward gender-fair teaching practices. All of them were strong personalities, with excellent control skills. Despite this, they were unable to adjust their interaction patterns to eliminate the bias, much to their frustration.

The teachers reported that the conferences were very beneficial in helping them to be more equitable in their interaction patterns and were surprised to see the results of their data, most feeling that they were not biased in their interactions. They were concerned that an inequity did exist and felt the need to make an effort to rectify the situation.

One male teacher, by contrast, felt that there was no need to change his interaction patterns and give equal attention to boys and girls. He indicated that it was more important to teach at the point of error regardless of gender and if boys received more attention it was of no consequence. After conferencing, he was not conscious of

giving the girls more praise to any degree in his lessons, and expressed that equity was not an objective in his lesson but may have become a subconscious outcome. He found the feedback given at conferencing beneficial, as it none-the-less made him more aware of his interactions, but found it difficult to alter behaviour patterns. The content of the lesson was a priority and not who received attention in the activities.

The anecdotal and field notes recorded during observations have provided useful supplementary information, complementing and supporting the quantitative data. Similar participation patterns were observable for boys and girls. Girls participated in a more responsible manner, and those with high skill levels demonstrated assertive behaviour. Boys participated well, though there were many examples of off-task behaviour and a lack of responsibility.

Skill levels varied in boys, though their reactions to players who demonstrated a lower skill level was somewhat different to the girls. Girls tended to maintain peripheral positions in games and activities, especially when their skill level was inferior. In addition, their hand-eye coordination was generally similar to the boys in games involving ball skills.

Girls' conduct during group activities was less disruptive than boys, providing less control and discipline problems for the teacher.

It is possible that the similarity of participation patterns observed could be attributable to the type of activities, the semicompetitive nature of the activities and the emphasis on maximum group participation which promotes whole class involvement rather than highly competitive game play.

CHAPTER 5

SUMMARY, DISCUSSION AND IMPLICATIONS OF THE STUDY

The principal intention of this study was to examine if gender role dependent and independent teacher behaviours could be influenced by the provision of peer observation and nonjudgemental feedback.

Gender stereotypic patterns of teacher behaviour were analysed to indicate the extent to which equity of participation and verbal interactions in primary school physical education classes does occur.

The second outcome was to provide teachers with nonjudgemental feedback about their interaction patterns. An adaptation of the clinical supervision system was utilized to enable teachers to analyze their own interaction patterns and identify areas of teacher behaviour that required adjustment.

Sixteen Year 4/5 classroom teachers, eight males and eight females were selected and divided evenly into two

groups of eight, a control group and an intervention group. The teachers were provided with standardized physical education programmes.

For each group of teachers two lessons were recorded as baseline data to show established behaviour patterns. For the rest of the study, the control group continued to be recorded with no feedback being provided.

The intervention group was provided with the results of analysis of their intervention, and nonjudgemental feedback following their first and second lessons. In the third lesson, data were again analyzed and conferencing provided feedback. The fourth lesson provided a measurement of a reinforced feedback system.

Significant differences in observed teacher interactions with students established the continuance of sex inequitable patterns of teacher-student behaviour. The results of intervention, however, suggested that with feedback gender biased interaction patterns could be reduced.

Discussion

The findings of this study support the findings of Griffin (1980), Rate (1987) and Owen (1989), indicating that the integration of physical education lessons does not eliminate gender inequity. The teacher-student interaction patterns of boys and girls, which occur within physical education lessons, may disadvantage girls contributing to lower skill levels and a negative attitude towards physical education.

The results of this study of 16 teachers suggests that boys were significantly favoured by the control group in the interaction section categories of *instruction*, and *control/discipline*. The intervention group favoured the boys in this section in the category of *control/discipline*. There were other categories which were biased and which occurred in both groups such as *group participation*, *management*, and *criticizes unsuccessful student*. Only two categories showed bias towards the girls by female teachers in the control group. These were *group participation* and *refers to males/females*. In the intervention group, only two categories were biased towards girls. They were *group participation* and *praises successful student*(in male teachers).

In the language section a similar tendency was recorded in the category, *use of student names*, by both the control and intervention groups.

The control groups' behaviours were similar to the behaviours identified in four previous studies (Solomon, 1977; Rate, 1987; Griffin, 1988; Owen, 1989).

The intervention group teachers showed similar patterns of behaviour to the control group, and while there was limited success in eliminating bias (males completely, females partially) further research needs to be undertaken to examine if these changes are maintained in the long term. Additional data are also needed to determine the effect this type of teacher interaction has on the levels of girls' confidence in skill performance and how this is related to girls' participation patterns.

Observations and anecdotal evidence suggested that the skill levels of girls were not discernibly inferior to that of the boys. However, the participation of girls was undoubtedly affected in coeducational classes. Girls were reluctant to place themselves in positions of risk, either personal or emotional. Often the boys behaved aggressively in the game situation, which the girls found most intimidating. Additionally, the boy's team building

exercises (high-fives and hand and back slapping), excluding girls, intimidated the better female performers. Many of the students sitting out of lessons were girls, and while the majority of boys showed enthusiasm for the physical tasks, the same could not be said of the girls. A real commitment to the task was frequently lacking. The researcher observed that female groups were more easily distracted by outside influences.

Additionally, the peripheral female groups often wasted time by standing chatting to their friends. While working however, the enthusiastic female groups stayed on-task to a much greater degree than did the enthusiastic boys' groups. The boys evidenced similar time-wasting behaviours but these were more "clowning" and task related than were the girls' groups. What was interesting to observe was the teacher's reaction to such time-wasting. The anecdotal and field notes suggested that the teacher often noted the female group's inactivity and ignored it, whereas the male groups were disciplined when off-task.

The male intervention group did, however, show observable changes to their interaction patterns after conferencing. While all the teachers who volunteered for the programme were dedicated and interested teachers with a real concern to provide as equitable a learning environment

as possible, as individuals the male intervention group were unusually sensitive to and aware of student needs. All were gentle men, softly spoken, yet very controlled and aware of their educational environment and their responsibilities within that atmosphere. Each could be considered an outstanding teacher. This was reflected in the measurement of their interaction behaviours. It was interesting to note that the bias in the *group participation* that was evident towards the girls could indicate the girls' awareness of, and response to, an unusually gender equitable educational environment.

Following the conferencing, Lesson 3 interactions for this group were heavily weighted towards the girls. This would tend to suggest that the style of the lesson shifted a little, the teacher perhaps being more conscious of the quality of the lesson, encouraging the girls and physically assisting their skill development. Lesson 4, levelled out the overreaction, responding to the second conferencing session, and the final data demonstrated interaction patterns that were not significantly biased towards boys or girls in any of the categories. It was extremely interesting to note the high degree of on-task behaviour observed in the fourth lessons. All groups remained on task, achieving a considerable amount of skill development

in one lesson. Discipline interaction was minimal, all students working efficiently.

This study has shown that change by means of intervention can occur. The comparison of the control and intervention groups showed that observable changes did occur as a result of the conferencing process. The control group showed significantly differential interaction towards the boys in *group participation*, *instruction*, *management*, *control/discipline*, *praises successful student*, *criticizes unsuccessful student*, *points out student model* and *use of student names*, that is, eight of the 18 categories of the observation instrument (Tables 5,6,7).

The intervention group also displayed similar interaction biases in five categories, *instruction*, *management*, *control/discipline*, *criticizes unsuccessful student* and *use of student names*. These occurred in the first two lessons before intervention (Table 5). After the first conference intervention, this group reduced the number of categories which significantly favoured the boys to three, *control/discipline*, *criticizes unsuccessful student* and *use of student names* (Table 6). One category in the male teachers' data was biased towards the girls, *praises successful student* (Table 6). After the second conference, the fourth lesson showed there were still three categories

biased towards the boys, *management*, *control/discipline*, and *use of student names* (Table 7). However, this occurred only in the female teachers, the male teachers showing no significantly differentiated categories.

This indicates that the teachers were able to effect change in their verbal interaction behaviours after they had received intervention by means of nonjudgemental feedback. The female teachers were able to reduce the number of biased categories from five to three, and the male teachers were able to eliminate bias in all categories by the final lesson.

The observation instrument used in this study provided a sound basis for the observation of gender role related teacher behaviour. The addition of field notes added richness and depth to the accuracy and frequency of data recorded. Student behaviours in coeducational physical education lessons are complex and sometimes could not be accurately recorded in the frequency data categories. Additionally, teacher body language, while extensive and highly communicative, was rarely coded and therefore, was noted in the anecdotal records. The use of a field assistant, who recorded extensive anecdotal comments made by both teachers and students, proved extremely effective. This data supplemented the information collected by the

observation instrument and the videotaped recordings, and assisted with identification of behaviours not easily categorized when coding.

Implications of the study

This study has established that gender inequitable behaviours in coeducational primary school physical education lessons do exist. Teachers still display gender stereotypical behaviours. The results confirm previous research, which has shown that teachers interact with boys significantly more often and more productively than they do with girls. The systematic teacher behaviour observation instrument was able to identify these behaviours and provide teachers with an effective means of monitoring teacher-student interaction. The behaviours were identified in both the control and intervention groups.

As Acheson and Gall (1987, p. 3) stated "clinical supervision is a process, a distinctive style of relating to teachers. The clinical supervisor's mind, emotions and actions must work together to achieve the primary goal of clinical supervision: the professional development of the preservice and inservice teacher". A major emphasis in the conferencing aspect of clinical supervision is the

nonjudgmental focus. There must be no attempt to 'evaluate' the lesson, or the teacher's effectiveness or style. The purpose is to exchange interpretations. Due to differing values and beliefs, opinions may vary as to what constitutes teacher behaviour requiring adjustment. Each person has the right and opportunity to challenge the other's interpretation of observed teacher behaviours.

The supervision of teachers and criticism of teacher effectiveness has been an inherent feature of education. However, much of the continuing supervision is managerial in style rather than the humanist, democratic approach that characterizes clinical supervision (Anderson, cited in Smyth, 1986b). Teaching is a complex profession with differing demands and requirements, so on-going teacher-learning needs to take place. Acheson and Gall (1987) provided examples of teachers who have benefited greatly from the utilization of clinical supervision with experienced and sympathetic supervisors. These teachers have overcome feelings of insecurity, inappropriate role behaviours, low ratings on teacher effectiveness, inappropriate lesson plans and verbal behaviours. In each case the supervisor's intervention was critical to the classification of problem behaviours and the eradication of those behaviours. Clinical supervision is also used for the reinforcement of positive behaviours and teaching strengths,

and is a powerful tool for the viewing and analysis of broader educational and social issues such as equity, gender, class and race.

The current evaluation of teachers, as accomplished by the Education Department of Western Australia, occurs only with temporary staff, thus permanent staff are infrequently provided with peer feedback as to their interactions. Temporary staff are provided with feedback on both their sufficiencies and deficiencies. However of the panel of assessors, only one is a peer evaluator, the others are drawn from the management strata and it must be stressed that their roles are evaluatory. The situation is highly stressful, both for the teacher and for the evaluators. Re-employment will often depend on the assessment, and as a result this is not the appropriate forum for the provision of advice such as that utilized by the clinical supervision model that has been so effective in producing behavioural change. Teachers when being evaluated tend to be defensive and feel threatened and this is not the state of mind in which behavioural adjustment is a real possibility.

Rather, any provision of peer assistance needs to occur in an atmosphere which lacks the evaluatory tone and that allows the provision of unconditional, objective feedback in a supportive and nonjudgemental environment.

One of the most interesting features of the conferencing situation was the initial discovery of a lack of awareness of gender inequality of the volunteer teachers. In the large part, all felt confident in the equity of their interactions and were surprised that a need still existed to examine this issue. It would appear that the topic of gender bias has been discussed so regularly and possibly at such length that the assumption is that it has been eliminated as an issue.

When the objective behaviour instrument showed statistically significant gender biased behaviours did exist, the individuals concerned were somewhat taken aback. This would indicate that continuing education is required. The emphasis on this aspect of social justice cannot be allowed to become "that old acorn". The very real commitment to social justice evidenced through the Education Department's insistence on this being addressed continually, may not be enough to eradicate inequitable behaviours. Education in the form of professional development of preservice and inservice teachers is clearly still required if the gender equity aspect of social justice is to be a reality rather than an issue requiring lip-service.

Additionally the study identified the crucial effect of behavioural change in male teachers. When the male teachers

were able to achieve equitable behavioural interaction patterns, equity was achieved. However, the female teachers were unable to achieve a similar outcome. The reason that the situation perpetuated gender inequitable behaviour, despite the best of intentions of the teacher, is that the students control one side of the interaction equation. When the students actually wish equity to occur, the teacher is more able to provide an equitable learning environment. In this study, the male teachers having set a standard, encouraged imitation in the male students. This allowed true equity to occur. The female teachers on the other hand, were unable to provide a gender role model for the boys, and as a result were unable to achieve the same equality in the interaction equation. This indicates that a real commitment to gender equity as a social justice issue is crucial for the male members of staff. Their examples as role models cannot be overestimated.

One of the reasons that the female intervention group teachers were unable to achieve the gender equitable environment they desired was that control and discipline of the boys tended to take considerable amounts of teacher time. Sarah, Scott and Spender (1988) suggested that, in the school environment, boys demand the continuance of the "male superiority" that is "normal" in the social environment. They stated that "when boys and girls are

brought together there is not a merger of two equally balanced groups but a submersion of one, while the other can remain virtually unchanged" (p. 59).

Similarly Sarah (1988, p. 158) pointed out that boys will enforce a control of the classroom environment through disruptive behaviour, thus effectively highjacking the lesson. This occurred in the lessons observed. It would appear that the only way to resolve this issue is to sex segregate the physical education class. While this is a controversial resolution it appears to be the only practical solution to the problems of equal opportunity and equity. The argument is always raised that the social impact of sex segregation is negative but this raises the question of negative for whom? As Sarah suggested "co-education is working well-for boys"(p. 159). One needs to question if it is working for the whole class and as a social justice issue this needs to be considered in the light of the findings of this study.

Finally, while the results of this research are heartening, in that behavioural change was clearly achieved through the use of intervention by means of nonjudgemental feedback, the study was unable to measure a long-term outcome. This raises the question of whether the behavioural change would be maintained, or if in the stress

of the everyday teaching situation, behavioural modification was short term. More research is needed to examine the long-term effects of such assistance and how much assistance is required. Change may have been possible in all eight teachers had intervention continued over an extended period of time.

Additionally, it would be beneficial to investigate the implications of a gender equitable physical education environment on the enthusiasm and commitment of female students. When an equitable environment was achieved, the anecdotal evidence suggested a strongly improved learning environment. Further investigation of this phenomenon is recommended.

APPENDIX A

SEX ROLE DEPENDENT/INDEPENDENT TEACHER BEHAVIOR

OBSERVATION SYSTEM

CODING MANUAL

From Developing a Systematic Behavior Observation Instrument to Identify Sex Role Dependent and Sex Role Independent Teacher Behavior in Physical Education Classes. Pat Griffin, Doctoral Dissertation, University of Massachusetts, Amherst, 1980

This observation instrument is designed to identify sex role dependent and sex role independent teacher behavior in physical education classes. Sex role dependent behaviors are actions or comments that expect, reinforce, or accept traditional sex role stereotypic behavior in males and females. Sex role independent behaviors are actions or comments that reject or discourage sex role stereotypic behavior for males and females.

This observation instrument is intended to be used as a teacher training tool to :

1. Increase teacher awareness of sex role stereotyping in the classroom.

2. Provide objective information to teachers about their sex role independent and sex role dependent behavior.

3. Provide specific guidelines for self directed change in sex role dependent and sex role independent behavior.

4. Measure changes in teacher sex role dependent and sex role independent behavior.

The instrument is divided into three sections. These are class organisation, interaction, and language.

Class organisation. This section provides a context for observing teacher sex role dependent/independent behaviors. Student participation patterns, class groupings, class leaders, curriculum materials used, and rule changes all provide information about class structuring by the teacher and the effects of this organisation on equitable male and female student participation in class.

Interaction. This section provides information on the frequency and kind of teacher interactions with female and male students. Nine of the interaction categories in this section are sex role neutral. That is, they are only related to sex role stereotyping if it becomes evident in observation that the teacher interacts with differential frequency and in differential ways with male and female students. Seven of the categories are inherently sex role related. Whenever they occur the teacher is either reinforcing or freeing students from sex role stereotypic expectations.

Language. This section provides information on how a teacher uses language in the classroom that is either sex role dependent or sex role independent.

Coding Definitions and Rules

Class Organisation

Section 1

1. Participation. Begin with the first teacher organized student participation. For 30 second intervals every three minutes during a class, count the number of active participation units by boys and by girls in the class or in a sub-group of the class. During this 30 seconds, only student participation is coded. If the last 30 second interval is interrupted by the end of class, that interval is not counted in the participation data.

   A. If the entire class is active in one game or activity count the active participation units by girls and boys in the game or activity during each 30 second interval.

   B. When several games or groups are active independent of each other within the class, begin the first 30 second observation with the group nearest to the observers. On each successive 30-second observation, record a new group moving in a counter-clockwise direction. Repeat observation of the first group when all groups have been observed once and continue the cycle moving to new groups in a counter-clockwise direction. Indicate the group observed for each 30 seconds by recording the group number from the group category.

   C. If groups change during class, begin observations again with the group nearest the observers and proceed as before.

Active Participation Units

A. For team games with a ball (basketball, volleyball,soccer, softball,frisbee) count the number of times boys and girls play the ball within the context of the game or attempt to execute a game skill in a drill. If a game uses more than one ball, code contacts with the ball closest to the observers when the 30 second observation interval begins.

Do not code:

1. Accidental contacts with the ball.
2. Retrieving the ball from out of bounds.
3. Returning a ball to the server.
4. Tossing the ball to a partner who is practising a skill.
5. Slaps or uncontrolled contacts with the ball.

B. For tennis or badminton doubles, count as in team sports.

C. For tennis for badminton singles, swimming, dance, calisthenics, or warm up exercises, count the number of males and females actively participating in the activity during the 30 second observation.

D. For gymnastics, circuit training, weight training, fitness or other individual activities with stations, count the number of females and males actively participating at each station or piece of equipment. Begin with the station nearest the observers and move counter-clockwise for each successive observation.

2. Groups. Note the number of participation groups organized within the class. These may be games, practice, or drill groups.

A. Indicate whether each of these groups is sex integrated or sex segregated.

B. Indicate who structured or chose the groups. If it was the teacher, write "T" in the "structured by" column. If it was the students, write "S" in this space. If it is evident that the groups were

chosen before class, ask the teacher after the class ends who structured the groups.

C. If groups change or are reorganized during class, record the new groupings as separate groups. Ex. When substitutions are made in a game.

D. If possible, provide a brief description of how the groups were formed in the space "structured by"
Ex. Captains pick teams
Teacher chooses teams

E. Indicate the group number being observed for each of the 30 second participation observations in the participation group column on the coding form.

3. Leaders

A. Count the number of males and females designated as leaders in the class. Ex. Teacher assistants, squad leaders, team captains, drill leaders, head of a drill or practice line, calisthenic leaders, recorders for grades, scores on tests.

B. Indicate whether the leaders were chosen by the teacher (T) or students (S) in the space "structured by" on the form.

C. If possible, provide a brief description of how the leaders were chosen. Ex. Students elect, students volunteer.

4. Rule changes. Indicate the number of times the teacher changes rules or restructures groups, practice, procedures, or positions in a game with the explicit purpose of equalizing female and male participation. The teacher must state this purpose to the students or to the observer.

Ex. Requiring alternating passes to males and females.
Having a penalty for poaching.
Switching students playing high and low interaction positions (infield and outfield).
Temporary rule changes: boys must set up girls for spikes.

Interaction

Section 2

General Rules: 1. Only code interaction when the teacher is in sight of the coders. For example, teacher goes into the equipment room or locker room.

2. Do not code teacher interactions with other teachers, student teachers or student aides.

3. Do not code unintelligible or inaudible interactions.

1. Instruction

A. The teacher gives information to an individual student about skill execution, strategy, rules, or equipment use. The teacher asks an individual student about skill execution, strategy, rules, or equipment use.

B. When the teacher encourages a participating student.

C. The teacher calling out student times or performance scores are not coded.

D. Do not code officiating calls made by the teacher. If the teacher elaborates or explains the call to an individual student, this should be coded.

Coding: One for the entire instructional interaction. If the teacher changes focus to speak to another student, this ends the instructional interaction. If the teacher then instructs the first student again, code another instructional interaction for that student. If the teacher uses another category with the same student, code this. If the teacher then instructs the same student again, code another instruction. Code each instructional interaction to a male in the male column and each instruction to a female in the female column. If a student initiates the instructional interaction, mark an "S" in the appropriate column.

Examples: Step into the ball, Susan.
John, you're guarding her too closely before she dribbles.
Aim for backhand, Linda.
Tina, where should you be trying to place the ball?
If you're tagged off the base, John, you're out.
Sprint, Steve.
Come on, Mary, go, go, go.

2. Management The teacher speaks to an individual student about class organisation, equipment set up, directions for practice or playing a game, asks the score of a game, asks about student performance or score, asks about an injury that occurred in class, gives directions to a student for safety.

Coding: One for each interaction to an individual student.
Record in the male or female column accordingly.
Code "S" for student initiated interaction.

Examples: What's the score on court 3, Sue?
Has everyone played on your team, Mike?
You practise on court 5, Tom.
Steve, will you collect the balls please?
Eve, you belong in that drill line.
Go again, Kate, I didn't see you.
Here you go, Lisa. (Tosses ball to student).
What was your time, Elaine?
Mike, don't jump off the top of the bleachers, you might get hurt.

3. Controls/discipline. The teacher verbally warns, threatens or controls a disruptive or inattentive student. Cautions for safety are not control/discipline interactions.

Coding: One for each control interaction with an individual student. Record in male or female column according to student addressed.

Examples: Cool it, Carl.
Steve, sit down and be quiet.
Gwen, stop talking please.
Art, wait your turn.
Do you want to sit out, Janet?

Roll the ball, Mike, don't throw it.
Watch where you throw that!

4. Praises successful student The teacher verbally recognizes an individual student for successful execution of a skill or for giving the correct answer to a question or the teacher compares the student to an ideal model. "OK" and "all right" are not coded unless it is clear from the teacher's voice inflection that it is meant as praise.

   Coding: One for each praise to an individual student. Record in male or female column according to the student addressed.

   Examples:
   Nice shot, Shawn. Nice shot. (Code one)
   Much better swing, Sue, you've got it.
   All right, Mark!
   That's it, Michelle.
   Very good, Bob.
   Look out Jimmy Connors. You've got it, Steve.

5. Physical contact with student. The teacher touches an individual student. It may be informal or as part of skill instruction, control, or management.

   Coding: One for each physical contact with an individual student. Record in male or female column according to the student touched. Code "S" if the student initiates the physical contact.

   If a student touches the teacher and the teacher returns the touch, code each.

   Do not code if a teacher touches every student (walks down a line of students and touches each to indicate a team).

   Examples:
   Placing a hand over a student's hand to direct the correct racket swing.
   Placing a hand on a student's shoulder when talking to her/him.
   Physically restraining a student.
   Directing a student to a position with a hand on his/her back.
   Fanny slaps, hair tousles, taps.
   Checking an injury.
   A student touches a teacher's arm to get her/his attention.

6. Encourages unsuccessful student The teacher makes a positive verbal response to an unsuccessful individual student attempt at performing a skill or answering a question. "OK" and "all right" are not coded.

   Coding: One for each encouragement to an individual student. Record in the male or female column according to the student addressed. Code "S" if the student asks for teacher feedback.

   Examples. Nice try, Laurie.
   You're getting closer, Steve.
   You're beginning to get the hang of it, Mike.
   Almost, Sue, just a little higher.

7. Informal talk. The teacher talks to an individual student about topics unrelated to skill instruction or other class related content. Praises or instructs a student about an activity unrelated to class. Greets a student entering the teaching area. Do not code any interactions about the microphone or observers.

   Coding: One for each informal talk to an individual student. Record in male or female column according to the student addressed. Code "S" if the student initiates the informal interaction.

   Examples: So, Fred, are the Sox going to take it this year?
   Have you been watching the Olympics?
   New tennis shoes, Mary?
   It is hot in the gym today, huh?
   OK, Tom, we can get this point (teacher playing)
   You ranked in the top ten in your class ranking Sue. Nice going.
   Hi, Steve. How are you today?

8. Criticizes unsuccessful student. The teacher verbally expresses a negative response to an individual student unsuccessful skill attempt. There is no instruction. It may be teasing, joking, or sarcastic.

   Coding: One for each criticism to an individual student. Record in the male or female column according to the student addressed.

Examples: No, no, Steve, that's all wrong.
No, Alice, not like that.
That's the worst play I've seen all day.
Got a hole in that racket, John.
Graceful as a cow, Pat.
Tom, your time was about a day and a half.
Give up while you're ahead, Sue.

9. Points out student model(s) or demonstrator(s). The teacher verbally singles out one or more individual students as skill models or asks one or more students to demonstrate or help demonstrate skills to the rest of the class. This may be a positive or negative model.

Coding: One for each student singled out. Record in the male or female column according to the student(s) addressed. If the students volunteer to demonstrate, code "S". If the model is singled out because it is unsuccessful or incorrect, code "U".

Examples: Watch Pam, her serve is terrific.
Mark, hit some half volleys with me so the class can see some good ones.
Class, see how Joan swings. That's a problem many of you have. (Code "U")
Allen, will you come up and help me demonstrate this?
Sue and Jean, will you show the class a forward roll please? (Code 2)

10. Discourages poaching: The teacher discourages or prohibits one student from jumping into another student's territory and attempting to make a play that was clearly the 2nd student's play. (Do not count opponents in a game). The teacher stops students from excluding another student from a rotation system (volleyball). The teacher stops a student from butting in front of another student when taking turns.

Coding: One for each discouragement to the poacher. Record in the male or female column according to the sex of the poacher. If the poachee was a female, code "F". If the poachee was a male, code "M". If a poach occurs and it is clear that the teacher saw it, but did not respond, code "0".

Examples: John, that was Susan's ball. (Code "F")
May, Dave called that one. (Code "M")
Tom, it's Marie's turn to serve.
(Code "F")
Mike, Tanya hasn't been up yet.
(Code "F")
Don't crowd her out, Dan. (Code "F")

11. Encourages poaching. In response to a poach, the teacher praises the poacher or criticizes the poachee. This praise or criticism is not coded in categories 4 or 8.

Coding: One for each encouragement to an individual poacher. Record in the male or female column according to the sex of the poacher. Record "M" or "F" according to the sex of the poachee.

Examples: Nice play, Mike (Mike knocks female teammate down to play her ball. Code "F")
Susan, if you can't catch it, back off and let Steve get it. (Code "F")
You have to be more aggressive, Martin. (Code "M")

The following sex role related categories (Numbers 12-17) may be directed to individual students or a group of students. Both are coded.

12. Sex role dependent comment. A teacher comment that expects, reinforces, or accepts sex role stereotypic behavior in males and females. Teacher comment that discourages or rejects male or female behavior that is inconsistent with traditional sex role stereotypes. Included in this category are the following:

1. Behavior or performance is linked to sex.
2. Teacher teases a student with a sexual or romantic connotation.
3. Teacher jokes about student to student physical contact in the class.

Coding: One for each comment. Code in the male or female column according to what student the comment was addressed to. If the comment was made to the entire class or a group of students, code "G".

Examples: (After a boy and girl collide with each other going for a ball) Hey, none of that stuff in my class.
Mary Ann throws like a boy.
Mike, you lucky guy. All the beautiful girls on your team.
May I have some strong boys to carry the mats?
Harry, how come you're taking dance with all the girls this six weeks?
(To the only boy in a game with girls) Take it easy on these guys, Dan.

13. Sex role independent comment. A teacher comment that rejects or discourages sex role stereotypic behavior for males and females. A teacher comment that encourages, expects, or accepts male and female behavior that is independent of sex role stereotypes.

Coding: One for each comment. Code in the male or female column according to the student addressed. If the comment was made to the entire class or a group of students, code "G".

Examples: (male teacher) Yes, I love folk dancing.
I'm team teaching it with Ms Smith next unit.
I hope some of you boys and girls will be taking it.
I'd like three girls or boys to carry the mats in.
All girls and boys taking wrestling come to the main gym.
I've changed the name of this game from Spiderman to Spiderperson because both boys and girls are playing, (Code "G")

14. Discourages student sex role dependent behavior. Teacher verbally expresses disapproval of or disagreement with or directs a student to stop in response to a student sex role dependent behavior. (Definition is the same as described in category 12).

Coding: One for each discouragement. Record in male or female column according to the student addressed. If the comment is addressed to the whole class or a group of students record "G". If there is a student sex role dependent

behavior that the teacher clearly saw or heard, but does not respond to, code "0".

Examples: (male student to another male student who is crying): John, if you're going to act like a girl, get off the field.

Teacher: Tom, anyone, boy or girl, who gets hit and knocked down that hard might cry.

Student: Why do the girls have to play?

Teacher: John, the girls want to play as much as you do.
Everyone will have a fair turn to play.

Student: Mark throws like a girl.

Teacher: No, Jane, Mark throws like he needs practice throwing. Lots of girls throw well and lots of boys don't.

Student: This is a sissy game.

Teacher: (no comment) Code "0".

(To another student) Student: You faggot.

Teacher: (no comment) Code "0".

15. Encourages student sex role dependent behavior. The teacher agrees with, laughs at, or responds to the student making the comment without responding to the sex role dependent content of the comment.

Coding: One for each encouragement. Record in the male or female column according to the student addressed. If the comment is addressed to the entire class or a group of students, Code "G".

Examples: Student: Why do the girls have to play?

Teacher: Don't worry Steve, we'll have an all boys game next week.

Student: John throws like a girl.

Teacher: Yes, he needs to snap his wrist more.

Student: This is a sissy game.

Teacher: Oh, come on Tom it's not that bad.

Student: The girls can't serve it over so we're serving for them.

Teacher: OK, if they don't want to.

16. Discourages student sex role independent behavior. The teacher teases, jokes about, or does not support a student sex role independent behavior.

Coding: One for each discouragement. Record in the male or female column according to the student addressed. If the comment is made to the entire class or a group of students, code "G".

Examples:

Student: Who is the third baseperson?

Teacher: Third baseperson? Come on Sue.

Student: Why are the guys always captain?

Teacher: Uh oh, a women's libber in class.

17. Encourages student sex role independent behavior. The teacher verbally accepts, reinforces, or seriously acknowledges a student sex role independent comment.

Coding: One for each encouragement. Record in the male or female column according to the student addressed. If the comment is addressed to the entire class or a group of students, code "G".

Example:

Student: I'm the third baseperson, not the third base man.

Teacher: You're right, Sue. Thanks for correcting me.

Language

Section 3

1. Use of pronouns

A. Guys . Used to address or refer to :

1. male and female students in a group;
2. female students in a group;
3. the entire class;
4. a theoretical player or person.

Coding: One for each time "guys" is used in this manner.

Examples: If you guys will take down the nets please.
(To male and female students).
If the guy you're guarding ...
(theoretical player).
Mary, Sue, and Ann, you guys are on team 3 (all females).

B. He/she. Used to refer to a theoretical player member of the class.

Coding: One each time "he/she" or "him/her" is used.

Examples: Each class member may take as many shots as he or she wishes.
When your opponent has a weak backhand, hit it to his or her backhand.

C. He/his. Used to refer to a theoretical player or class member.

Coding: One each time the generic "he" or "him" is used in this manner.

Examples: Each class member can take as many shots as he likes.
If your opponent has a weak backhand, hit it to his backhand.

D. She/her. Used to refer to a theoretical player or class member.

Coding: One each time "she" or "her" is used in this manner.

Examples: Each class member can take as many shots as she likes.
When your opponent has a weak backhand, hit it to her backhand.

E. Person. Used when referring to a theoretical player or class member.

Coding: One each time "people" or "person" is used in this manner.

Examples: The person at the net ...
Hit the ball to the person on your right
You people be on team three.

2. Use of activity terms

A. Sex role dependent. The teacher uses activity or sport terminology that includes the generic use of "man" or assumes traditional sex role stereotypes.

Coding: One for each activity term that is sex role dependent.

Examples : Man to man defense
Guard your man
Girls push ups
Boys push ups
Third baseman
Spiderman
Third man

B. Sex role independent. The teacher uses activity or sport terminology that is sex neutral or rejects sex role stereotypes.

Coding: One for each activity term used that is sex role independent.

Examples Player to player defense
Guard your opponent
Knee push ups
Toe push ups
Third base or third baseperson
Third player
Spiderperson

3. Calls individual students. Since most teachers do call students by first names, only exceptions to this are coded.

A. Mr. addresses or refers to male student . Ex. Mr Jones or Mr Smith.

B. Miss. addresses or refers to a female student. Ex . Miss Jones or Miss Smith .

C. Ms. addresses or refers to a female student. Ex. Ms Jones or Ms Smith.

D. Last name. Uses female or male student's last name only. Ex. Smith, get the nets down please. Jones, you're on court 2.

Coding: One for each time an individual student is addressed or referred to in one of the defined categories. When the teacher is calling-off a list of students (for attendance, or teams, or groups) do not code. Instead, indicate in the space under "calls individual students" what the list was and how students were called. Ex. attendance--last names or teams--first names.

4. Refers to females/males. The teacher addresses or refers to one or more students in the following ways:

Calls male students: boys, gentlemen, guys, or men
Calls female students: girls, ladies, gals, or women.

Coding: One each time one of the names is used. Record under the appropriate column.

5. Uses sex role dependent name. The teacher calls a student or group of students a name that accepts, reinforces, or expects sex role stereotypic behavior or rejects sex role independent behavior.

Coding: One for each sex role dependent name used by the teacher.
Write the name in the space after "uses sex role dependent name"

Example: Jon, Sue, stop talking. Code: 2 control/discipline (interaction)
Mike, nice try. Follow through more. Code: 1 encourages unsuccessful student. (interaction); 1 instructs (interaction)
Look out Jimmy Connors. You've got it, Steve. Code: 1 curriculum material (male) (class organization); 1 praises successful student (interaction); touches student and talks to her/him.

Coding Instructions

1. Arrive before the class begins. Note the curriculum material visible in the teaching station. Give the microphone to the teacher. Set up observation in an unobtrusive area to avoid interfering with class instruction and to discourage teacher-observer or student-observer interaction.

2. Fill in the teacher's code number, activity being taught, date of observation, grade level of students, observer name, and reliability observer name. Check to be sure the receiver is picking up the teacher's voice. Get the interval tape ready and put in the ear jacks.

3. BEGIN CODING interactions and language as soon as the teacher and at least one student from the class to be observed are present in the teaching station. NOTE TIME the observation begins on the coding form.

4. Record the number of males and the number of females dressed to participate in the class. Record the number of non-participating females and males (NP) also.

5. When the class begins teacher organized participation, begin coding participation observations. Start the interval tape and record 30 seconds of participation observation. Repeat this process every three minutes. When coding participation during the 30 second interval, do not code language or interactions. The process of observing 30 seconds of participation and three minutes of language and interaction will alternate throughout the observation session.

6. Record the class groups (composition by sex) and who chose these groups during language and interaction observations. Record new groupings as they occur.

7. Record class leaders during language and interaction observations.

8. Record rule changes during language and interaction observation.

9. END CODING when all students have left the teaching station. NOTE TIME the observation ends on the coding form.

Materials. tape recorder, ear jacks, interval tape, spare batteries, vega microphone, receiver, coding forms, clipboard, pencils.

APPENDIX B

THE MODIFIED SEX ROLE DEPENDENT/INDEPENDENT TEACHER BEHAVIOR OBSERVATION CODING FORM

SRD / I TEACHER BEHAVIOUR OBSERVATION SYSTEM

F _____ NP _____
M _____ NP _____

TEACHER _____
GRADE _____
TIME _____ to _____
DATE _____

CODERS _____

I. CLASS ORGANISATION

PARTICIPATION					
GROUP	BOYS	GIRLS	GROUP	BOYS	GIRLS

			STRUCTURED				STRUCTURED				STRUCTURED
GROUP	BOYS	GIRLS	BY	GROUP	BOYS	GIRLS	BY		BOYS	GIRLS	BY
1				7				LEADERS			
2				8							
3				9				CURRICULUM			
4				10				MATERIAL.			
5				11				RULE			
6				12				CHANGES.			

II. INTERACTION	MALE	FEMALE
Instruction		
Management		
Control / Discipline		
Praises Successful Student		
Physical Contact with Student		
Encourages Unsuccessful Student		
Informal Talk		
Criticizes Unsuccessful Student		
Points Out Student Model / Demonstrator		
Sex Role Dependent Comment		
Sex Role Independent Comment		

III. LANGUAGE								
Use of Pronouns	Guys	He /She	He /His	She /Her	Person			
Use of Student Name	Mr	Miss	Ms	Boys First	Girls First	Boys Last	Girls Last	
Refers to Males/Females	Boys	Girls	Ladies	Gentlemen	Guys	Gals	Men	Women

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