

CHAPTER 10

DIFFERENTIAL DEPLOYMENT OF APPROVAL AND DISAPPROVAL BY SECONDARY SCHOOL TEACHERS IN NEW SOUTH WALES TO BOYS AND GIRLS

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CHAPTER 10

DIFFERENTIAL DEPLOYMENT OF APPROVAL AND DISAPPROVAL

BY SECONDARY SCHOOL TEACHERS IN NEW SOUTH WALES

TO BOYS AND GIRLS

10.1 Overview

The purpose of this chapter is to explore whether there are any differences in the way Australian secondary teachers deliver approval and disapproval to the boys and girls in their classrooms. An analysis of teacher responses to boys and girls will be presented in terms of a) overall teacher responses; b) positive responses to academic behaviour; c) negative responses to academic behaviour; d) positive responses to social behaviour; and e) negative responses to social behaviour in the context of a sample of secondary classrooms in New South Wales. The role of teacher gender in the distribution of approval and disapproval to boys and girls will also be investigated, as will on-task behaviour levels of boys and girls. Findings from the present study relating to who gets the teacher's attention and for what behaviour will be compared to the UK study (Merrett & Wheldall, 1992) on which this study is based, and to a lesser extent, the research on gender influences in classroom interactions conducted in other parts of the world since the 1980s.

10.2 Background

There is a body of research literature from around the Western world indicating that boys generally receive more attention from teachers than girls in classrooms (see Chapter 9). Some researchers have interpreted this as disadvantaging girls. It might be expected, however, that, given boys have been identified as the students whom teachers

say they find most troublesome (see Chapters 2 and 4), teachers may respond to their male students in different (and less positive) ways than to their female students. There may be some question as to whether boys are experiencing positive discrimination in terms of teacher attention or whether they are becoming alienated from teaching/learning in our secondary classrooms by punitive classroom environments. The relative distribution of teacher approval and disapproval may be powerfully confounded by student gender.

Moreover, the relative underachievement of boys in school is of current concern in many countries including the United States, Canada, the United Kingdom, Australia, New Zealand and other OECD countries (Francis, 1999; Myhill, 2002; Trent & Slade, 2001; Warrington & Younger, 2000; Yates, 1997; Younger & Warrington, 1996; Younger et al., 1999). This may not be unrelated to the behaviour of boys in school since boys are consistently identified as those students who are most likely to cause trouble in terms of the maintenance of order and control in the classroom. Houghton et al. (1988) found that boys were selected 71% of the time by their British secondary school teachers as being the most behaviourally troublesome student in the class, regardless of the sex of the teacher or the subject matter they taught. Similarly, in the Australian context, 88% of secondary school teachers indicated that a boy was the most troublesome student in the class, again by male and female teachers alike (see Chapter 4). When teachers were asked to nominate the number and sex of troublesome students in their classes, in both the UK (Houghton et al.) and the New South Wales study reported in Chapters 4 and 5, about four students, on average, per class (or about 20%) were regarded as troublesome, just under three of whom were boys. Thus, boys consistently outnumber girls as the students who cause disruption in the classroom.

Given that boys are perceived as more troublesome in class than girls, it would not be surprising to find that they were treated differently by their teachers. Since the

mid-1970s, several studies have shown that teachers respond differently to boys and girls in their classes (see, e.g., Croll, 1985; Dart & Clarke, 1988; French & French, 1984; Myhill, 2002; Swann & Graddol, 1988). Kelly (1988) reported a meta-analysis of more than 80 studies on gender differences in teacher-pupil interactions and concluded that boys attract more interactions regardless of socio-economic status, ethnic origin, gender of teacher, age level of pupils, curriculum area or country.

Of particular relevance to the present study, Merrett and Wheldall (1992) reported observations of samples of male and female primary and high school teachers interacting with their mixed classes in British schools. Unlike the more generic interaction analyses employed in some earlier studies, the observation schedule they employed focused specifically on teachers' use of approval and disapproval, and differentiated teacher responses to male and female students. Student on-task behaviour was also observed. For the primary sample, there were no significant differences between teacher responses to boys and girls, nor were any significant differences apparent when the data for male and female teachers were analysed separately. For the sample of secondary teachers, however, there was evidence for major significant differences in rates of responding to boys and girls, boys receiving more responses overall (both positive and negative) from teachers. When these data were analysed separately for male and female teachers it was found that female teachers used significantly more *negative* responses to boys' social behaviour whereas male teachers used significantly more *positive* responses to boys' academic behaviour. In both samples, and for classes taught by male and female teachers separately, levels of on-task behaviour were very similar for boys and girls.

The aim of the present study was to explore possible differential rates of teacher responding by Australian secondary school teachers using the same published observation schedule, *OPTIC (Observing Pupils and Teachers In Classrooms)* (Merrett

& Wheldall, 1986). Responses to the following questions will contribute to the current stock of empirical data addressing the issue of whether teachers respond differently to the boys and girls in their classes and provide specific information in relation to the Australian context. Specifically, the following research questions are posed:

- 1) Do secondary teachers in New South Wales give more attention to boys than to girls in their classes? Are any gender differences apparent in the responses of secondary teachers in terms of their students' academic and social behaviour?
- 2) Do male and female teachers respond to boys and girls differently?
- 3) Are there differences in the on-task levels of boys and girls in New South Wales' secondary classrooms and, if so, is this related to teacher attention?

10.3 Method

10.3.1 *Participants*

The participants in this study comprised 57 secondary teachers and their classes from schools in New South Wales, primarily in the Sydney area. Teachers and their classes comprising this data set are a sub-set of the teachers and classes included in the observational study described in Chapter 8. There were approximately equal numbers of male (29) and female (28) teachers and the average proportion of boys and girls in their classes was also very similar (53% boys and 47% girls). The mean class size was 19.4, varying from 9 to 30 students. The average class taught by male teachers comprised 9.4 girls and 11.8 boys, whereas the average class taught by female teachers comprised 8.8 girls and 8.6 boys, male teachers' classes being slightly (but not significantly) larger, on average, in this sample.

Table 10.1 shows the number of teachers in each discipline area in this sample, as well as the numbers of male and female teachers teaching each subject. As can be

seen by examining the numbers of teachers across different subjects, in some areas there was an unequal distribution between male and female teachers. While there are roughly equal numbers of teachers teaching English and the Humanities, for instance, this is not the case for Mathematics, Science or Art.

Table 10.2 shows the distribution of classes observed over year or grade taught, and by teacher gender. While there was typically a mix of male and female teachers across most years, there were many more male than female teachers teaching Year 7 classes. The converse was true for Year 10 classes.

Table 10.1

Distribution of Teachers Across Subject Taught Overall and by Teacher Gender

| Subject Taught | All teachers (N = 57) | Males (n = 29) | Females (n = 28) |
|------------------|--------------------------|-------------------|---------------------|
| English | 10 | 5 | 5 |
| Mathematics | 5 | 5 | 0 |
| Science | 12 | 9 | 3 |
| Humanities | 10 | 6 | 4 |
| Modern Languages | 3 | 1 | 2 |
| Art* | 13 | 2 | 11 |
| PD/H/PE** | 1 | 1 | 0 |
| Other | 3 | 0 | 3 |

Note. * Includes Music, Drama, Industrial Arts, Home Science (as well as Visual Arts); **Personal Development/Health/Physical Education.

Table 10.2

Distribution of Teachers Across Year Taught Overall and by Teacher Gender

| Year Taught | All teachers (<i>N</i> = 57) | Males (<i>n</i> = 29) | Females (<i>n</i> = 28) |
|-------------|----------------------------------|---------------------------|-----------------------------|
| 7 | 8 | 7 | 1 |
| 8 | 14 | 8 | 6 |
| 9 | 14 | 9 | 5 |
| 10 | 10 | 1 | 9 |
| 11 | 9 | 4 | 5 |
| 12 | 2 | 0 | 2 |

10.3.2 *Instrument*

Observations focussing on behavioural interactions in classrooms were completed using the *OPTIC* classroom behaviour observation schedule (Merrett & Wheldall, 1986) (see Chapter 8). As has previously been described in Chapter 8, the *OPTIC* schedule samples teachers' use of approval and disapproval and the behaviour of their classes. Trained observers recorded the number of times teachers gave approval (positive response) or disapproval (negative response) to students in the class and whether these were in response to students' academic work or their social behaviour. The schedule also allowed an estimate to be made of the amount of time students spent behaving appropriately or time "on-task".

OPTIC allows the observer to sample the behaviour of the teacher and the class by alternating his or her attention between them in a systematic way. In section A (for five periods, each of three minutes) the observer records the number of approval and disapproval statements the teacher makes, indicating whether this results from student academic or social behaviour. In section B (for five periods, each of three minutes) the

observer looks at each student in turn for a set period (four seconds) and records whether for the whole of that period they were on- or off-task.

10.3.3 Procedure

All teachers and classes were observed using the *OPTIC* schedule on three separate occasions for half an hour on each occasion. This yielded 45 minutes of observed behaviour for both teacher and student behaviours. When observing teacher behaviours, the observer coded responses to boys and girls separately so that differential responding by gender of student could subsequently be analysed. Responses to the whole class were also recorded but were not analysed for the present purposes. In order to control for differences in number of boys and girls in the class (and between the classes of male and female teachers), the data for the four teacher behaviour variables (positive academic responses; positive social responses; negative academic responses; and, negative social responses) for boys/girls were divided by the number of boys/girls in the class to provide an average of teacher responses per boy/girl student. These data were then multiplied by $4/3$ (1.33) to yield for each class the mean number of teacher responses per boy/girl student per hour (given that 45 minutes of observations had been collected for each teacher). On-task behaviour did not need to be corrected, the percentage on-task behaviour estimates for boys and girls separately being averaged over the three sessions.

10.3.4 Inter-observer Agreement

A second observer was present for one of each set of three observations per teacher/class and inter-observer agreement (IOA) measures were calculated for teacher behaviour and student on-task behaviour separately for each gender for each class. IOA was calculated using the usual formula of agreements divided by agreements plus disagreements, expressed as a percentage.

IOA for teacher behaviour towards girls averaged 95% (ranging from 50% to 100%) and towards boys averaged 87% (ranging from 25% to 100%). IOA for student on-task behaviour of girls averaged 94% (ranging from 80% to 100%) and 92% (ranging from 60% to 100%) for boys. While acceptable IOA is typically regarded as 80%, the small number of responses in some instances meant that the discrepancy between observer ratings was artificially inflated and that lower than typically acceptable IOAs were produced. This was the case with teacher behaviours for some classes. For example, the 11 girls in one class attracted only 3 teacher responses over the three observation sessions. If two of these comments had occurred in the session attended by the second observer, then failing to notice or to misclassify just one of these would result in the 50% IOA obtained for teacher behaviour toward girls in this class. The high mean IOA figures and the fact that only 11% of values were less than 80%, therefore, indicate that the data collected may be regarded as reasonably reliable.

10.3.5 Data Analysis

Descriptive statistics provided basic information regarding the characteristics of the sample, as well as the means and standard deviations for student on-task behaviour and for each of the five teacher variables (total responses; positive academic responses; positive social responses; negative academic responses; and, negative social responses). Means and standard deviations were calculated for all teachers combined, expressed as mean responses per boy or girl per hour. As stated above, the percentage on-task behaviour estimates for boys and girls in each class were averaged over the three sessions.

Because both subject and year taught were likely to be confounded by teacher gender in this sample, no analyses of responses by subject or by year taught were conducted. Repeated measures *t*-tests were conducted to investigate possible

differences in the responses of teachers to boys and girls and to investigate any differences in the on-task levels of boys and girls. It could be argued that one-tailed tests were appropriate for some comparisons because *a priori* differences were hypothesised, that is, the literature unequivocally suggests that boys receive more responses than girls. For instance, Kelly (1988) found that in a meta-analysis of more than 80 studies there were *no* studies reporting more interactions with girls than boys. Notwithstanding the likely direction of findings (more attention to boys than to girls), two-tailed tests were carried out on all measures in order to be more conservative (Borg & Gall, 1989, p. 550). Moreover, as multiple comparisons on the same sample were conducted (where different dependent variables may well be correlated), an attempt to control for so-called "family-wise error rate" was made by adopting the more conservative alpha level of 1% for testing statistical significance (Borg & Gall, 1989, p. 549; Howell, 1997, p. 362). In the present study, six planned *a priori* comparisons (on-task behaviour; total responses; and the four separate teacher response categories outlined above) were made with the sample of 57 teachers.

The data were also separated into two discrete sets, one each for male teachers ($N = 29$) and female teachers ($N = 28$). Descriptive statistics were employed to provide means and standard deviations for male and female teachers separately on each of the five teacher variables and for student on-task behaviour in each data set. Repeated measures *t*-tests were conducted to explore whether male and female teachers responded differently to boys and girls in their classes. In addition, two-sample *t*-tests were also conducted on the responses of male and female teachers to explore whether these two groups responded differently to each other.

Effect sizes using Cohen's *d* were also calculated where means were compared in order to supplement the interpretation possible using statistical significance tests (Howell, 1997; Thompson, 1999). Following Cohen's convention, effect sizes were

regarded as small (.20), medium (.50) or large (.80). Pearson's product-moment correlations were carried out to explore possible relationships between teacher and student variables. In order to take account of any effect of multiple comparisons on significance findings in the case of correlations, the more conservative alpha level of 1% was adopted. Relationships were deemed statistically significant if they were equal to, or exceeded, 0.35 ($df = 55$).

10.4 Results

10.4.1 *Teacher Responding and Student On-Task Behaviour*

In terms of *total* responses, boys received significantly more responses overall (2.5 per hour) than girls (1.5 per hour), $t(56) = 6.81$, $p < .01$, about two-thirds *more* responses. A medium effect size was evident ($d = 0.62$) for the difference between teacher responses to boys and to girls in terms of total responses. Expressed as a percentage of the total responses of teachers, boys received 62% of all (total) responses. Table 10.3 provides an overview of how teachers responded to both the academic and social behaviour of their students and their students' on-task behaviour.

Table 10.3

Teachers' Rates of Responding Per Student Per Hour and Students' On-task Behaviour Levels

| Response | Boys (SD) | Girls (SD) | <i>t</i> | <i>p</i> | <i>d</i> |
|--|------------------|-----------------|----------|----------|----------|
| Total responses | 2.50 (1.88) | 1.52 (1.47) | 6.81 | <.01 | 0.62 |
| Positive responses to: academic behaviour | 1.32 (1.42) | 0.98 (1.25) | 3.32 | <.01 | 0.27 |
| social behaviour | 0.12 (0.24) | 0.08 (0.15) | 1.48 | NS | 0.25 |
| Negative responses to: academic behaviour | 0.13 (0.18) | 0.08 (0.15) | 1.72 | NS | 0.34 |
| social behaviour | 0.93 (0.82) | 0.38 (0.54) | 6.11 | <.01 | 0.83 |
| Students' on-task (%) | 83.07 (15.14) | 88.17 (9.90) | 4.04 | <.01 | 0.46 |

Note. *N* = 57 (all teachers)

10.4.1.1 Positive Academic Responses

Boys received significantly more positive responses (praise or approval) for *academic* behaviour (1.3 per boy per hour) than girls (1.0 per girl per hour), $t(56) = 3.32$, $p < .01$, about 30% more responses. Expressed as a percentage, boys received 57% of all academic approval directed at individual students. The magnitude of the effect size calculated for the difference in positive academic responses to boys and to girls was, however, only small ($d = 0.27$).

10.4.1.2 Positive Social Responses

Positive responses to students' social behaviour were very rare and, as Table 10.3 shows, there was no significant difference in the number received by boys as against girls, $t(56) = 1.48$, $p > .01$. The effect size was small ($d = 0.25$), indicating that

there was very little meaningful difference in how teachers responded to the positive social behaviour of their male and female students.

10.4.1.3 *Negative Academic Responses*

Negative teacher responses (reprimands or disapproval) to students' academic behaviour were also rare, as Table 10.3 shows. Again there was no significant difference in the number of negative academic responses received by boys compared to girls, $t(56) = 1.72, p > .01$. The effect size calculated was small ($d = 0.34$) confirming the absence of any major difference in the way teachers distributed negative academic responses to boys and girls differentially.

10.4.1.4 *Negative Social Responses*

For teacher disapproval to social behaviour a clear difference was apparent, however. Boys received significantly more reprimands or disapproval for social behaviour (0.9 per boy per hour) than girls (0.4 per girl per hour), $t(56) = 6.11, p < .01$, over twice as many or, expressed as a percentage, 70% of all reprimands. The magnitude of this difference in terms of effect size was large ($d = 0.83$).

10.4.1.5 *Comparison of Teacher Response Variables to Boys and Girls*

Overall, while boys received 58% of all approval responses (academic and social combined) distributed by teachers in this sample, they also received 70% of all disapproval, principally in response to their social behaviour. Of the 57 teachers observed, 23 (40%) gave no reprimands for social behaviour to girls whereas only three teachers (5%) gave no such reprimands to boys. Moreover, of the 34 (60%) teachers who reprimanded girls for social behaviour, 19 of these gave at least 50% more social reprimands to boys as girls and 15 gave at least twice as many. Combining these figures shows that two thirds (67%) of teachers either gave no social reprimands to girls or

gave boys twice as many as girls. Boys clearly inhabit a more punitive environment than girls.

10.4.1.6 Student On-task Behaviour

As Table 10.3 shows, taking the sample of classes as a whole, and regardless of the gender of the teacher, the mean on-task behaviour levels of the boys (83.1%) was significantly lower than that of the girls (88.2%), $t(56) = 4.04, p < .01$, by about 5%. The effect size ($d = 0.46$) calculated approached a medium effect.

When teacher gender was taken into account (see Table 10.4), the on-task behaviour of *boys* in the classes of male teachers (83.5%) was very similar to that found in the classes of female teachers (82.7%) and the on-task behaviour of *girls* in the classes of male teachers (89%) was also very similar to that found in the classes of female teachers (87.3%). Thus boys were shown to have been less attentive than girls in the classes of both male and female teachers.

Table 10.4

Mean Levels of On-task Behaviour in the Classes of Female and Male Teachers

| | <i>N</i> | Boys (<i>SD</i>) | Girls (<i>SD</i>) | <i>t</i> | <i>p</i> | <i>d</i> |
|-----------------|----------|-----------------------|------------------------|----------|----------|----------|
| Female Teachers | 28 | 82.65 (12.01) | 87.32 (10.34) | 3.50 | <.01 | 0.46 |
| Male Teachers | 29 | 83.49 (17.87) | 88.98 (9.56) | 2.57 | NS | 0.46 |

Notwithstanding these similarities in the classes of male and female teachers, there was a significant difference in the on-task behaviour levels of boys and girls in the classes of *female* teachers, with boys being on-task about 5% less than girls, $t(27) = 3.50, p < .01$. This difference was not found in the classes of male teachers. Effect

sizes of similar magnitude, and approaching a medium effect, were found in both instances ($d = 0.46$ for both male and female teachers), however.

10.4.2 Male and Female Teacher Responding and On-Task Behaviour

Before investigating whether teacher sex was a factor in the differential responding to girls and boys evident (Question 2), it is important first to establish if there were any significant differences in the *rates* of male and female teacher responding to boys and girls (i.e., do male and female teachers differ *from each other* in the way they respond to their students?).

As Table 10.5 clearly shows, there were no significant differences on any of the teacher response variables between male and female teachers or on the on-task levels of boys and girls in the classes of male and female teachers.

Table 10.5

Comparison of Secondary Male and Female Teachers' Rates of Responding to Boys and Girls Per Hour and Boys' and Girls' On-task Behaviour Levels

| Response | Male teachers (SD) (N = 29) | Female teachers (SD) (N = 28) | <i>t</i> | <i>p</i> | <i>d</i> |
|------------------------|-----------------------------------|-------------------------------------|----------|----------|----------|
| Total responses: | | | | | |
| per boy per hour | 2.24 (1.37) | 2.77 (2.28) | 1.08 | NS | 0.28 |
| per girl per hour | 1.53 (1.17) | 1.50 (1.76) | 0.06 | NS | 0.02 |
| Positive responses to: | | | | | |
| academic behaviour | | | | | |
| per boy per hour | 1.20 (1.15) | 1.44 (1.66) | 0.53 | NS | 0.17 |
| per girl per hour | 1.02 (0.99) | 0.93 (1.50) | 0.77 | NS | 0.07 |
| social behaviour | | | | | |
| per boy per hour | 0.11 (0.22) | 0.13 (0.26) | 0.75 | NS | 0.08 |
| per girl per hour | 0.08 (0.12) | 0.08 (0.17) | 0.90 | NS | 0.00 |
| Negative responses to: | | | | | |
| academic behaviour | | | | | |
| per boy per hour | 0.15 (0.20) | 0.10 (0.17) | 1.04 | NS | 0.28 |
| per girl per hour | 0.12 (0.16) | 0.05 (0.14) | 1.72 | NS | 0.47 |
| social behaviour | | | | | |
| per boy per hour | 0.77 (0.76) | 1.09 (0.86) | 1.52 | NS | 0.39 |
| per girl per hour | 0.31 (0.49) | 0.45 (0.58) | 0.95 | NS | 0.26 |
| Boys' on-task (%) | 83.49 (17.97) | 82.65 (12.01) | 0.21 | NS | 0.06 |
| Girls' on-task (%) | 88.98 (9.56) | 87.32 (10.34) | 0.63 | NS | 0.17 |

Effect sizes measuring the magnitude of difference in the rates of approval and disapproval deployed by male and female teachers indicated small to (approaching) medium effects in some instances, however. While there was a small effect ($d = 0.28$)

evident in terms of total responses to boys (with female teachers providing more responses to boys than male teachers), this was not the case for total responses to girls, where no difference was evident when the effect size was calculated ($d = 0.02$). On the four specific teacher response variables, in terms of positive responses to academic behaviour, there was a negligible effect evident ($d = 0.17$), with female teachers providing slightly more positive responses to boys' academic behaviour than male teachers. There was no parallel difference in the responding of male and female teachers to girls' positive academic behaviour ($d = 0.07$).

There were no apparent effects in terms of positive responses to social behaviour to boys ($d = 0.08$) or to girls ($d = 0.00$). While there was a small effect for negative academic responses to boys, with male teachers providing more negative responses to boys ($d = 0.28$) than female teachers, there was a (nearly) medium effect ($d = 0.47$) for negative academic responses to girls, with male teachers providing more than twice as many responses as female teachers. Conversely, female teachers gave more negative *social* responses to boys than did male teachers, resulting in an effect size approaching medium ($d = 0.39$). In terms of negative social responses to girls, while female teachers still gave more negative social responses to girls than did male teachers, the magnitude of the effect was only small ($d = 0.26$). In terms of student on-task behaviour levels, there was no appreciable difference in the on-task behaviour of boys in the classes of male or female teachers ($d = 0.06$). While showing a larger effect than for boys' on-task behaviour, the magnitude of difference between the on-task behaviour of girls in the classes of male and female teachers was also negligible ($d = 0.17$).

Having established that male and female teachers deploy rates of approval and disapproval in *broadly* similar ways to girls and to boys, and that they experience similar on-task levels for boys in their classes and for girls in their classes, we now turn

to the question of whether male teacher and female teachers respond to boys and girls differently.

10.4.2.1 Male Teachers

Table 10.6 shows that male teachers provided significantly more responses overall to boys (2.2 per boy per hour) compared to girls (1.5 per girl per hour), $t(28) = 3.87, p < .01$, indicating a medium effect ($d = 0.64$).

Table 10.6

Secondary Male Teachers' Rates of Responding Per Student Per Hour

| Response | Boys (SD) | Girls (SD) | <i>t</i> | <i>p</i> | <i>d</i> |
|------------------------|----------------|----------------|----------|----------|----------|
| Total responses | 2.24 (1.37) | 1.53 (1.17) | 3.87 | <.01 | 0.64 |
| Positive responses to: | | | | | |
| academic behaviour | 1.20 (1.15) | 1.02 (0.99) | 1.28 | NS | 0.20 |
| social behaviour | 0.11 (0.22) | 0.08 (0.11) | 1.04 | NS | 0.20 |
| Negative responses to: | | | | | |
| academic behaviour | 0.15 (0.20) | 0.11 (0.16) | 0.88 | NS | 0.26 |
| social behaviour | 0.77 (0.76) | 0.31 (0.49) | 3.32 | <0.01 | 0.91 |

Note. $N = 29$

Most notably, and in terms of the more specific teacher responses, there was a statistically significant difference in male attention to boys and girls for social disapproval responses, producing a large effect ($d = 0.91$). Male teachers provided more disapproval to boys than to girls, $t(28) = 3.32, p < .01$, with boys receiving more than *twice* as many reprimands for their inappropriate classroom behaviour as girls. In terms of the other teacher response variables, the minimal to small effects evident for positive

responses to academic *and* social behaviour in favour of boys ($d = 0.20$ for both response variables), as well as for negative academic responses to boys ($d = 0.26$), confirmed the absence of statistically significant differences in any of these other teacher response variables. It is noteworthy, however, that on every teacher response variable, male teachers provided more attention (both positive and negative) to boys than to girls.

10.4.2.2 Female Teachers

Like their male counterparts, female teachers responded more frequently to boys (2.8 per boy per hour) overall than girls (1.5 per girl per hour), $t(27) = 5.90$, $p < .01$, also producing a medium effect ($d = 0.64$). Similarly, female teachers gave significantly more *negative social* responses to boys (1.1 per boy per hour) than to girls (0.5 per girl per hour), more than twice as many, $t(27) = 5.62$, $p < .01$; this differential responding producing a large effect ($d = 0.82$).

Table 10.7

Secondary Female Teachers' Rates of Responding Per Student Per Hour and Students' On-Task Behaviour Levels

| Response | Boys (SD) | Girls (SD) | <i>t</i> | <i>p</i> | <i>d</i> |
|------------------------|----------------|----------------|----------|----------|----------|
| Total responses | 2.77 (2.28) | 1.50 (1.76) | 5.90 | <.01 | 0.64 |
| Positive responses to: | | | | | |
| academic behaviour | 1.44 (1.66) | 0.93 (1.50) | 3.46 | <.01 | 0.33 |
| social behaviour | 0.13 (0.26) | 0.08 (0.17) | 1.06 | NS | 0.29 |
| Negative responses to: | | | | | |
| academic behaviour | 0.10 (0.17) | 0.05 (0.14) | 1.70 | NS | 0.40 |
| social behaviour | 1.09 (0.86) | 0.45 (0.58) | 5.62 | <.01 | 0.82 |

Note. $N = 28$

Unlike their male colleagues, female teachers also gave significantly more positive academic responses to boys (1.4 per boy per hour) than to girls (0.9 per girl per hour), $t(27) = 3.46, p < .01$, with female teachers providing 55% more academic praise statements to boys than to girls. The small effect size for this difference ($d = 0.33$) was, however, small.

Positive responses to social behaviour again favoured boys in terms of absolute rates (where they occurred), with a small effect being evident ($d = 0.29$). Negative responses to academic behaviour (which were also rare) were delivered to boys (0.10 per boy per hour) twice as often as to girls (0.05 per girl per hour), a difference which produced a small-medium effect ($d = 0.40$). There were, however, no statistically significant differences in the way female teachers deployed their attention to boys and girls in respect of either of these variables. As was the case with male teachers, female teachers directed more responses to boys on every teacher response variable.

10.4.3 *Relationships Between Teacher and Student Variables*

As Table 10.8 shows, the on-task behaviour levels of boys and girls were highly correlated ($r = .79, p < .01$). In classes where the on-task behaviour of girls was high it was also high for boys, and vice versa. Total teacher responses to boys and girls were also highly correlated ($r = .82, p < .01$).

Table 10.8

Relationships Between On-Task Behaviour and Total Teacher Responses to Boys and Girls

| | % Girls' On Task Behaviour | % Boys' On Task Behaviour | Responses Per Boy Per Hour |
|-----------------------------|----------------------------|---------------------------|----------------------------|
| % Boys' On Task Behaviour | .790* | | |
| Responses Per Boy Per Hour | -.170 | -.132 | |
| Responses Per Girl Per Hour | -.123 | -.058 | .815* |

Note. Significance level $p < .01$, $r = .35$ ($df = 55$); * $p < .01$.

Table 10.9 provides details of the relationships between the on-task behaviour of boys and girls and specific teacher response variables. The only relationships between on-task levels appear to be in relation to negative social teacher responses. The level of on-task behaviour for girls was negatively correlated with the number of social reprimands they received ($r = -.36$, $p < .01$) indicating that in classes where on-task behaviour was low there were more reprimands to girls. In other words, higher numbers of negative social responses to girls was associated with lower on-task levels. A parallel relationship was not true for boys, however, between on-task behaviour and social reprimands ($r = -.17$, NS). Curiously, there was a relationship between teachers' rates of social reprimands to boys and the on-task behaviour of girls ($r = -.36$, $p < .01$), which is identical to the relationship between social reprimands to girls and girls' on-task behaviour. (There was no relationship between social reprimands to girls and the on-task behaviour of boys; $r = -.04$, NS).

Table 10.9

Relationships Between On-Task Behaviour and Teachers' Positive and Negative Responses to Boys' And Girls' Academic and Social Behaviour

| Teacher Response | % Girls' On Task Behaviour | % Boys' On Task Behaviour |
|---|----------------------------|---------------------------|
| Positive Teacher Response Per Boy Per Hour to Academic Behaviour | -.02 | -.08 |
| Positive Teacher Response Per Girl Per Hour to Academic Behaviour | .04 | -.03 |
| Positive Teacher Response Per Boy Per Hour to Social Behaviour | .07 | .08 |
| Positive Teacher Response Per Girl Per Hour to Social Behaviour | -.25 | -.04 |
| Negative Teacher Response Per Boy Per Hour to Academic Behaviour | .12 | -.06 |
| Negative Teacher Response Per Girl Per Hour to Academic Behaviour | .03 | -.12 |
| Negative Teacher Response Per Boy Per Hour to Social Behaviour | -.36* | -.17 |
| Negative Teacher Response Per Girl Per Hour to Social Behaviour | -.36* | -.04 |

Note. Significance level $p < .01$, $r = .35$, ($df = 55$); * $p < .01$.

Table 10.10 shows the relationships among teacher response variables. Teachers' rate of negative social responses to girls was strongly correlated with the rate that they reprimanded boys ($r = .57$, $p < .01$). Teacher rates of positive responding to academic behaviour to boys and girls were also highly correlated ($r = .83$, $p < .01$), but there were no significant relationships between either variable and either boys' or girls' on-task behaviour ($r < 0.10$, NS, in all cases as shown in Table 10.9). Other positive teacher responses that were significantly related include teachers' positive responding to girls' and boys' social behaviour ($r = .50$, $p < .01$), indicating that teachers who provide students with positive responses to social behaviour (which is rare) may

respond to boys and girls in a similar way. There was a positive relationship between positive social responses and positive academic responses to boys ($r = .50, p < .01$), but the same did not apply to girls. Positive academic responses to girls were also positively correlated to positive social responses to boys ($r = .44, p < .01$). [The positive and significant relationship ($r = .39$) that exists between positive social responses to girls and negative social responses to girls is a relationship for which no explanation is obvious.]

Table 10.10

Relationships Among Teachers' Positive and Negative Responses to Boys' and Girls' Academic and Social Behaviour

| Teacher Response | P/A pbph | P/A pgph | P/S pbph | P/S pgph | N/A pbph | N/A pgph | N/S pbph |
|------------------|----------|----------|----------|----------|----------|----------|----------|
| P/A pgph | .83* | | | | | | |
| P/S pbph | .50* | .44* | | | | | |
| P/S pgph | .29 | .32 | .50* | | | | |
| N/A pbph | .22 | .27 | -.13 | -.09 | | | |
| N/A gph | .31 | .29 | -.04 | .08 | .21 | | |
| N/S bph | .10 | .07 | .23 | .27 | .02 | -.07 | |
| N/S gph | .09 | -.03 | 0.18 | .39* | -.05 | .04 | .57* |

Note. P/A = Positive Academic; P/S = Positive Social; N/A = Negative Academic; N/S = Negative Social; pbph = responses per boy per hour; pgph = responses per girl per hour; significance level $p < .01, r = .35, (df = 55)$; * $p < .01$.

10.5 Discussion

10.5.1 Secondary Teachers' Attention to Boys and Girls

In response to the question of whether secondary teachers in New South Wales respond differently to boys and girls in their classes, it has been shown in this study of 57 classes that teachers *do* respond differently to boys and girls, with boys receiving not only more attention overall (about two-thirds more) but also more of *both* positive and

negative attention. In response to the question, "Are any gender differences apparent in the responses of secondary teachers in terms of their students' academic and social behaviour?", certain gender differences were clearly evident in the types of feedback boys and girls differentially received. While there were no differences in the present study between girls and boys in terms of how much praise or approval they received for their *social* behaviour, boys did receive more praise than girls for their *academic* behaviour. Similarly, while there were no differences in the amount of disapproval or reprimands for *academic* behaviour between boys and girls, boys received significantly more reprimands or disapproval for their *social* behaviour.

The findings from the present study confirm much of our current understanding (based on three decades of research) of differential teacher attention to boys and girls. One simple observation is that not much appears to have changed in classroom interactions since 1970 when Brophy and Good reported that boys have more interactions with the teacher than girls and generally appear to be more "salient" to the teacher (1970, p. 373). The results of this study that show that boys receive more attention than girls overall from their teachers confirms the broad findings and conclusions of other researchers in a variety of countries and settings (Acker, 1988; Brophy & Good, 1970; French & French, 1984; Irvine, 1986; Kelly, 1988; Swann & Graddol, 1988; Younger et al., 1999).

It is worthwhile to compare the findings of the current research with Merrett and Wheldall's (1992) study of 38 British secondary school teachers since the present study closely resembles their study methodologically. Merrett and Wheldall also found that boys received more responses overall than girls. While some differences are apparent between the results in the current study and Merrett and Wheldall (to be discussed below), the broad finding that boys receive more attention from teachers than do girls is supported. In the present study, boys received 62% of all teacher responses, similar to

that found in Merrett and Wheldall where 60% of all teacher responses were directed at boys.

While not affecting the overall conclusions drawn from the research, there appears to be an error in the analyses of teacher behaviour presented by Merrett and Wheldall (1992). In describing their procedure (p. 75), Merrett and Wheldall make clear that each teacher and class was observed on three separate occasions for half an hour using the *OPTIC* schedule, teacher behaviours to boys and girls being differentiated and totalled and tabulated separately. (Since each observation session comprises 15 minutes of observation of the class and fifteen minutes of teacher observation, this yields 45 minutes of teacher observation time per teacher.) They then make the following procedural point which appears to be a logical error: "Each total was then divided by *the number of boys or girls who had been attending when the observations were made* [present author's emphasis] and multiplied by 4/3 to give the rate of responding to each individual per hour. The rates of teachers' responding per pupil per hour were then used as the basis for comparison" (p. 75). Totals should have been divided by class size (or average class size over the three sessions if class size varied over sessions) not "the number of boys or girls who had been attending when the observations were made" which is the number of students observed totalled over the three sessions. The effect of this is to reduce the hourly response rates (the unit of analysis) by a factor of three. That this is the case may readily be ascertained by comparing the rates reported in the Merrett and Wheldall (1992) gender paper with, for example, those reported earlier by Merrett and Wheldall (1987) and Houghton et al. (1988) regarding natural rates of teacher approval and disapproval in British primary and secondary school classrooms. After making an allowance for responses directed at groups of students or the whole class (rather than specifically to boys or girls), which are ignored for the purposes of gender comparisons, and recalculating overall rates per hour regardless of gender, then

it may be seen that the rates presented in the 1992 paper are about one third the rates reported in the earlier papers.

The findings of the present study confirm those of Merrett and Wheldall (1992) who also found that boys received significantly more praise for their *academic* work than did girls. Boys in the UK secondary study received 59% of all positive *academic* feedback, again, a very similar figure to that found in the present study, where boys received 57% of all teacher praise or approval for academic behaviour. Moreover, the rates of positive teacher responding to the academic behaviour of boys and girls (adjusted by multiplying the published rates by three to account for the class size anomaly described above) are very similar to those found in the present study. Boys in the UK sample received, on average, 1.38 positive academic responses per boy per hour, a very similar figure to that found here (1.32 per boy per hour, see Table 10.3). Similarly, positive academic responses to girls in both the UK and the present study were almost the same, with girls receiving, on average, 0.96 and 0.98 responses per girl per hour in the two samples, respectively.

Positive teacher responses to *social* behaviour were rare in both studies. Boys in the Merrett and Wheldall (1992) study received, on average, only 0.07 positive social responses per boy per hour from teachers, similar to their Australian peers who received 0.12 responses per boy per hour. The rates of positive responding for social behaviour to girls in the present study and the UK sample were identical at 0.08 responses per girl per hour, on average.

Negative responses to *academic* behaviour were also rare but more prevalent in the UK study (Merrett & Wheldall, 1992). Whereas Australian boys only received 0.13 (see Table 10.3) negative responses to academic behaviour per boy per hour, in the UK boys received 0.43 per boy per hour, on average. Similarly, the rate of negative responding to academic behaviour of girls was higher in the UK than in the present

study (0.08 per girl per hour), with girls receiving 0.29 negative responses for academic responses per girl per hour. In similar vein, negative *social* responses were higher for both boys and girls in the UK study in absolute terms, with boys receiving 1.45 per boy per hour, on average, compared to 0.93 per boy per hour in the present study. Girls received 0.89 negative social responses per girl per hour, on average, whereas in the present study they received 0.38 negative social responses per girl per hour.

As a consequence (and largely as a result of higher levels of negative responding to both academic and social behaviour to both boys and girls in the UK sample), the teachers in Merrett and Wheldall's (1992) study were more responsive overall than their Australian counterparts in the present study with 3.38 total responses per boy per minute on average, compared to 2.50 total responses per boy per minute. In terms of the girls, UK secondary teachers provided 2.23 responses per girl per minute, on average, compared to 1.52 per girl per minute in the present Australian study.

These variations notwithstanding, the general *pattern* of responding is very similar in the present study and the UK study on which it was modelled. In *both* studies, teachers were found to be more responsive overall to boys than to girls. Teachers in both studies gave significantly more positive responses to the *academic behaviour* of boys than girls. They also gave significantly more negative responses to boys than girls in terms of their *social behaviour*. In both studies there were no differences in the way teachers provided positive social responses to boys and girls (which were rare in both studies). The only point of difference between the two studies in terms of teacher responses (when gender of the teacher is not taken into account – see below) is that Merrett and Wheldall (1992) found that UK teachers also gave significantly more negative academic responses to boys (as well as more positive), a finding that was not replicated in the present study.

The finding in the present study that boys receive much more teacher attention than girls confirms the findings, not only of Merrett and Wheldall (1992), but other researchers. The paucity of specific research in the secondary area (see Chapter 9) limits direct comparison with many studies. Nonetheless, the resonating theme throughout the research literature is confirmed by the findings in the present study. While Irvine's (1986) findings in the USA relate to *initiations* by primary school students (whereas the present work details teacher *responses* to high school student behaviour, thereby creating a slightly different measure of classroom behaviour), she also found that boys initiated both more positive and negative interactions than girls. Findings from the present study where, overall, boys received more of both positive and negative types of teacher attention, confirm Irvine's findings that boys are engaged more frequently in interactions with the teacher, both positive and negative. (Irvine also found that boys received much more negative feedback than girls, another similarity to the findings of the present study, to be elaborated below). Similarly, in the UK, Younger et al. (1999), in a study of secondary school classes, found that more questions were directed to boys and were responded to by boys, but boys also received more negative attention than girls.

Methodological differences between studies notwithstanding (see Chapter 9), the message to be drawn from the variety of work in this area to date is that boys experience a disproportionate amount of teacher attention. The way this particular finding is interpreted is probably the largest point of difference between researchers. While some have interpreted teacher attention as being of benefit, or providing a preferential treatment to boys, it is by no means always the case that *more* teacher attention is better than less. It is important to take a more analytic approach to determine the *type* of attention rather than the quantity, a distinction cogently argued by Hammersley (1990), as well as the potential effects of that teacher attention on student

behaviour. As has been noted by others, it is largely a matter of supposition that more teacher attention produces more desirable outcomes (Kelly, 1988).

As well as confirming that boys receive more attention overall, the current study also confirms the view of other researchers (already noted above) that boys receive more negative attention than girls on average (Irvine, 1986; Kelly, 1988; Myhill, 2002; Younger et al., 1999). In their British observational study, Younger et al. found that 70% of all reprimands delivered by teachers included in the secondary comprehensive schools in their study were directed at boys. The same percentage was found in the current study (70%), indicating that boys receive the vast majority of teacher reprimands. These data from the UK and Australia confirm Irvine's (1986) findings in the USA that boys receive more negative attention than girls.

While there is broad support in the research literature for the notion that boys typically receive more teacher attention than girls, a few researchers have cautioned against interpreting classroom interactions along simple gender lines. Dart and Clarke (1988) argued that teacher attention is, in reality, much more evenly distributed than many assert (see Chapter 9). They found in an Australian secondary school context that it was *a few boys and a few girls* who were responsible for the majority of interactions in the class, not boys generally (Dart & Clarke, 1988). They identified, importantly, that in addition to a few boys, a few girls had more interactions with the teacher than the majority of the boys, thereby dispelling some of the emphasis on gender in classroom interactional research. While Merrett and Wheldall (1992) found that in their UK secondary sample boys received more attention than girls (described above), they found no such differences in their parallel study of 32 UK primary classes. Similarly, Croll (1985) found that while it appeared that boys attracted slightly more teacher interaction than did girls, it was probably an artefact resulting from students with learning

difficulties (who were mainly boys) attracting more teacher attention. It may be better to think of this issue as a few disruptive *students* rather than disruptive boys.

Younger et al. (1999) also observed that a small number of recalcitrant boys accounted for a sizeable proportion of the reprimands overall. Other researchers (Croll, 1985; French & French, 1984; Swann & Graddol, 1988) have drawn attention to the effect (not necessarily limited to negative interactions) of a small sub-set of boys who have a disproportionate impact on the dynamics of the classroom, an aspect not explored in the present study. Younger et al. noted that much of the attention directed to boys in their study was focussed on behaviour management rather than on teaching and learning, an important distinction when considering the academic achievement debate. Swann and Graddol also explained the apparent preferential attention to boys in terms of eye gaze direction and invitation to respond to questions as part of a scanning strategy which helped teachers monitor the class for signs of potential misbehaviour and discipline problems, that is, as a classroom behaviour management strategy. The results of the present study, with both more *positive academic* and *negative social* attention from teachers being directed to boys, confirms that the dynamics of secondary classrooms in New South Wales are similar to those described in classrooms elsewhere.

In Norway, Backe-Hansen and Ogden (1996) noted that teachers viewed 13 year-old boys and girls differently, mainly in relation to what they perceived as cooperation skills, a term operationally defined in their study to include the behaviour "complying with rules and directions" (p. 336). Boys were perceived by their teachers as being less compliant and less willing to follow directions and classroom rules. The results of the present study would lend support to the view that these attitudes are reflected in observed teacher behaviour, as teachers' negative responses to social behaviour were significantly higher to boys than to girls. This suggests that the incidence of behaviours to which teachers felt the need to respond was occurring at a

higher rate for boys than for girls. It may be that the nature of the off-task behaviour (which was found to be 5% lower for boys in the present study) is more overtly disruptive in the case of boys, eliciting higher levels of negative responses from teachers. The adolescent boys whose opinions and views were sought in the Australian study conducted by Trent and Slade (2001), agreed that classroom interactions tend to be negative for boys who are not able to “comply and conform” (p. ix) to the mores of the classroom.

10.5.2 *Do Male and Female Teachers Respond To Boys and Girls Differently?*

When the data were analysed according to teacher gender, both male and female teachers gave significantly more responses *overall* to boys, confirming the findings of Merrett and Wheldall (1992). Moreover, on each of the four specific teacher response variables *both* male and female teachers gave more responses to boys than to girls (positively and negatively) in terms of absolute rates.

There were no statistically significant differences in the rates of responding of male and female teachers when each variable was explored comparatively (Table 10.5). (Small to medium effects were evident for some variables, however.) This finding provides a point of difference from Merrett and Wheldall (1992), where teacher gender was found to be an important factor in the differential responding of male and female teachers (notwithstanding the *overall* finding described above). Merrett and Wheldall found that the response pattern of male and female teachers was different in a number of respects. While both male and female teachers in that study responded more to boys than to girls, the pattern of responses was quite different. Female teachers gave significantly more negative responses towards boys' social behaviour than to girls' social behaviour, a finding not evident in the responding of male teachers in that

sample. Male teachers, on the other hand, gave significantly more positive responses to boys' academic behaviour, whereas female teachers did not.

While male and female teachers in the present study had similar response patterns to boys and girls, there were some differences in *degree* in terms of response. For example, while male and female teachers both provided more approval for the academic behaviour of boys than girls, female teachers provided *significantly* more of it to boys than male teachers. Conversely, and as already noted, Merrett and Wheldall (1992) found that *male* teachers used significantly more positive responses to boys' academic behaviour, a point of difference with the present study.

In terms of approval for social behaviour (positive social responses), the findings from the present study indicate there were no differences between the responses of male and female teachers to boys and girls, a finding consistent with that found in the parallel UK study (Merrett & Wheldall, 1992). Similarly, there were no differences in the present study in the responses of male and female teachers in relation to disapproval of the *academic* behaviour of boys and girls. Again, this replicated the findings of the UK secondary study.

In the present study, *both* male and female teachers gave significantly more disapproval (negative social responses) to boys than to girls, unlike the UK study, where female teachers gave significantly more negative responses to boys than to girls, but male teachers did not. Evidence of significant differential responding to the negative social behaviour of boys is reflected in the large effect sizes in the case of both female (0.82) and male (0.91) teachers in the present study. This was the only teacher variable where a large effect size in differential responding to boys and girls was evident.

These Australian data provide evidence that the pattern of responses for male and female teachers to boys and girls is broadly similar, with some minor variations.

Insofar as any differences between male and female teachers exist (vis-à-vis the *ratios* of particular responses to boys and girls) they are a matter of degree *only*. Female teachers appear to be more responsive (both positively and negatively) to boys than to girls in this Australian secondary study. For instance, female teachers gave a much greater percentage of attention overall to boys than did male teachers; specifically, 85% more responses to boys than to girls. While male teachers also gave more overall attention to boys, they gave 46% more attention to boys than to girls, the difference arguably being less dramatic.

By way of summary, Merrett and Wheldall (1992) found that female teachers used significantly more negative responses to boys' social behaviour whereas male teachers used significantly more positive responses to boys' academic behaviour, as mentioned above. In the present study, *both* male and female teachers were found to use more negative social responses to boys, but only *female* teachers used more approval to the academic behaviour of boys. The differential responding by *teacher gender* observed by Merrett and Wheldall (1992) was not replicated in this study conducted in Australian secondary schools.

The findings in the present study that male and female teachers responded in much the same ways to boys and girls (with both giving boys more attention than girls) confirms Brophy's analysis (1985b) that sex differences in students' classroom experiences are not due to the sex of their teacher. Kelly (1988) proposed a different view, whereby she claimed that male teachers directed fewer of their interactions to girls than did female teachers, but she conceded that the differences were relatively minor and based on only a few studies. Kelly argued that male teachers directed substantially less of their classroom interaction to girls than female teachers, particularly in relation to praise and criticism, "where male teachers virtually ignore their female pupils" (1988, p. 18). The findings of the present study indicate that there

were no significant differences in approval provided for academic work by male teachers to boys or to girls. Similarly, there were no significant differences in terms of approval by male teachers for the appropriate social behaviour of boys and girls, or disapproval for the negative academic behaviour of boys and girls. The only specific teacher variable where male teachers directed more attention to boys than girls was in relation to negative responses to social behaviour. [The disproportionate amount of negative attention boys receive as a result of their inappropriate social behaviour is a well-established finding in the literature (Brophy, 1985b; Kelly, 1988)].

Kelly's (1988) finding that girls received less teacher attention than boys with "both male and female teachers (although more with males)" (p. 20), is only partially supported by the findings in the present study. There is, in fact, evidence of greater differential attention in favour of boys being provided by *female teachers* in this study rather than male teachers. For example, female teachers gave significantly more positive attention to boys in response to their academic behaviour, whereas male teachers did not. As outlined above, in the current study, both male and female teachers were more responsive to boys than to girls, both positively and negatively, in terms of academic and social behaviour. But it was female teachers who tended to be *much more* responsive to boys, rather than male teachers.

10.5.3 *On-Task Levels of Boys and Girls and Teacher Behaviour*

For this sample of Australian secondary school teachers and their classes, we may conclude, that the boys spent significantly more time off-task than the girls, about 5% more. (When the data were analysed separately for male and female teachers, the on-task levels of boys and girls were found to be significantly different in the classes of female teachers but this was not the case for the classes of male teachers.) This difference may not seem very much but, as already discussed, it could be that the nature

of being off-task differs between boys and girls and that it is this that causes boys to be identified as more troublesome. While Merrett and Wheldall (1992) also found that boys received more responses overall than girls (see above), they found *no* differences in on-task behaviour between boys and girls, unlike the findings in the current study.

The relationship between on-task behaviour and teacher behaviour in the current study appears to be somewhat idiosyncratic and equivocal. While teacher responses relating to reprimands for social behaviour appear to be related to the on-task behaviour of girls (even when directed at boys), the same is not the case for boys. In the present study, girls spent less time on-task in classes where teachers reprimanded boys and/or girls at higher rate, but this was not true for boys.

Teacher responses to student *academic* behaviour appear unrelated to on-task behaviour of either boys or girls in the present study. These results notwithstanding, the finding that on-task behaviour levels are highly correlated (i.e., in classes where there is a higher level of on-task behaviour for boys there is also a higher level of on-task behaviour for girls), suggests that levels of on-task behaviour may be class specific, and may be more the result of the behaviour of the class teacher than the gender of students. Similarly, the correlation between teacher responses to boys and girls found in the current study provides further evidence of possible teacher or *class* effects rather than *gender* effects operating within classrooms. Teachers who gave high rates of negative responses to boys *also* gave high rates for girls.

The finding that levels of on-task behaviour are more likely to be associated with differences among classroom *teachers* than the gender of the students was found by Dart and Clarke (1988), who noted that behavioural interactions were not evenly distributed across the four classes in their study. Six boys and four girls from *one class* were responsible for 49% and 41% respectively of all interactions recorded in the study. The powerful interaction effects between teachers and their students may be masked in

the minds of teachers by an over-emphasis on the impact of student gender on classroom interactions. The findings of the current study lend support to the view that teacher behaviour is related to student behaviour and vice versa, and that this relationship should not be overlooked as a potential area for improving on-task behaviour and reducing disruptive behaviour in classrooms.

The results of the present study also have implications for the debate on the underachievement of boys. One explanation for these secondary school teachers giving more praise to boys for their academic work than they give to girls could simply be that they think that the boys need more encouragement. In other words, these teachers may already be attempting to redress the gender imbalance in academic achievement by their discriminative use of praise. They still, however, appear to see the need to reprimand the inappropriate social behaviour of boys, which may be reflected in lower levels of on-task behaviour. This assumes, of course, that the social reprimands are precipitated by the higher levels of inappropriate off-task behaviour and are reactive to that off-task behaviour (rather than precipitating or causing it). Again, it may be the nature of the off-task behaviour that results in the higher levels of reprimand to boys. The fact that boys engage more in externalising behaviours (see Chapters 2 and 9) means that their off-task behaviour is much more likely to be noticed and responded to by the teacher.

By way of example, calling out behaviour was identified as a problem behaviour of underachieving boys in Myhill's (2002) study. From the data presented in Chapters 2 and 4 we know that teachers find "talking out of turn" (a category within which calling out behaviour is subsumed) is the most troublesome classroom behaviour, not only for the class as a whole, but also for the most (and next most) troublesome students in the class. We also know that around four students in the class, on average, are considered by the teacher to be troublesome (in studies in both the UK and Australia) and that most of these students are boys.

In addition, in the Australian context (see Chapter 4), 88% of teachers (male and female teachers alike) nominated a boy as the most troublesome student in the class. Similarly, 71% of UK teachers nominated a boy as the most troublesome student in the class regardless of the sex of the teacher or the subject they taught (Houghton et al., 1988). The presence of a vocal minority of boys could account for much of the disruption in classrooms. This specific situation needs to be addressed more fully and directly in the Australian context. While we can speculate with a degree of accuracy (from various data sets) as to who the likely culprits are in terms of negative interactions in the classroom, this needs to be determined explicitly and empirically. The findings from the present study, while isolating boys' social behaviour in class as attracting a high level of reprimand from their teachers, are not sufficient to clarify whether or not it is the actions of a *few* boys that are causing the high level of teacher response. Boys per se may not be the problem but rather a small sub-set of boys (and to a lesser extent girls). This then presents as less of an issue relating to the gender of students and more as an issue relating to the behaviour of a few students (mainly boys).

Having said this, Myhill (2002) noted that in high school, high-achieving boys do not participate in positive classroom interactions in the same way as high-achieving girls. Other researchers have also identified that girls experience more *quality* interactions with their teachers (Dart & Clarke, 1988; Myhill, 2002; Younger & Warrington, 1996; Younger et al., 1999) even if their male counterparts experience a greater quantity. Evidence of male disengagement from positive learning experiences could be reflected in the lower on-task levels of boys found in the present study. If boys generally perceive the classroom as highly punitive owing to the high level of negative responses they receive, there would not appear to be much benefit or advantage being derived from the preponderance of teacher attention they experience. If the classroom

environment data (see Chapter 6) had been collected by gender, this could have been explored.

10.5.4 *Contribution of the Current Study*

This study provides a replication of the work of Merrett and Wheldall (1992) in the context of Australian secondary school classrooms. Apart from the obvious desirability of replication of research in order to confirm (or otherwise) the findings of other researchers, there is value in the same instrument being used in subsequent studies for the purposes of direct comparison. One of the difficulties in determining whether a general pattern of teacher responses to student behaviour exists is that nearly every study employs a different methodology in exploring the issue. It is very difficult to draw conclusions from a variety of studies when different aspects of the complex of interactions that make up the classroom environment are focused on (e.g., conversational turn-taking versus teacher approval/disapproval). The findings from the present study, at the very least, lend themselves to comparison to Merrett and Wheldall (1992).

Furthermore, the data adds to the research literature on differential attention to boys and girls in secondary classrooms generally, an education sector less well researched than the junior and primary school areas. Howe (1997) observed that the most relevant studies in her exploration of gender and classroom interaction were carried out in Australasia, the US and the UK. She also noted that while the studies involving primary aged students typically covered the full range of activities students were likely to participate in, at the secondary level the studies had largely been focused on mathematics and science (Howe, 1997). Kelly (1988), in her meta-analysis of studies detailing gender differences in teacher-student interactions, had also noted that there was an interesting anomaly in the research into gender differences in the classroom. She

observed that, given much of the work (in the eighties) stemmed from a feminist concern with girls' underachievement, which typically begins to become apparent in adolescence, it was odd that so few studies had dealt with teenagers. Rather, the research focus had been on primary school children (Kelly, 1988). Her call for more work in the upper secondary years was accompanied by the observation that there was a need for more detailed analyses of possible variations in gender differentiated attention across different subject areas (Kelly, 1988). This study explored differential teacher attention to students across a range of disciplines including the humanities and the social sciences, thereby adding data from a broad range of discipline areas to a relatively restricted body of research in terms of subject area.

Moreover, the findings from this study add to the data available for Australian secondary schools. Kelly (1988) identified very few Australian studies [e.g., there were only three Australian studies identified which provided data in her category "number of studies providing data on all interactions" (p. 9) compared to 53 American studies in this category]. Kelly also noted that the biggest gender differences in classroom interactions (favouring boys) in her meta-analysis were found to exist in Australia and Sweden. Given this finding, the importance of both more, and more recent, Australian data in this area is manifest.

The study is also valuable because of its size. With a data set of 57 teachers and their classes, this study provides a substantial amount of new data for consideration in the classroom interaction and gender debate. Howe (1997) stated that British studies were typically small scale, with samples rarely attaining double figures. [This cannot be said of Croll (1985) or Merrett and Wheldall (1992).] She noted that the Australasian and American studies seldom involved fewer than 20 teachers/classrooms and reached up to 60 (Howe, 1997). Research by Dart and Clarke (1988) has been widely cited in this, and the previous, chapter; theirs is an important study in the current context.

Notwithstanding its significance, it is a relatively small-scale secondary school study. While the results detail 24 Year 8 Science lessons, there are only three teachers and four Year 8 classes involved. In the 57 cases included in the current study, each teacher and class were observed on three separate occasions for half an hour on each occasion, a total of 171 lessons (or parts thereof) being observed. This represents a substantial and significant contribution to the research literature in the secondary gender and classroom interaction debate, not only in the Australian context but more generally. Another significant aspect of the study is that almost equal (and sufficient) numbers of male and female teachers in the sample provided a means of exploring whether male and female teachers responded differently to boys and girls.

10.5.6 *Further Research*

As the current study did not take account of the incidence of “repeat offenders” in terms of negative responses from the teacher, this is an area that could usefully be pursued in further studies. The role of a few (usually but not exclusively) male students should be explored. Similarly, the impact of the students with special learning needs on differential teacher attention (as explored in Croll, 1985) could be incorporated into further Australian research in this area.

10.6 Conclusion

The findings from the present study broadly confirm the conventional wisdom in the research literature that boys attract more attention in the classroom overall than girls. Moreover, this study details the *types* of attention they attract, specifically more positive attention in terms of their *academic* behaviour and more negative attention in terms of their *social* behaviour. These findings highlight the differential negative attention directed towards boys in New South Wales’ secondary classrooms by both male and female teachers. Moreover, these results cast doubt on the popular proposition

suggested by some researchers, that teacher attention to boys amounts to the educational advantage.

High levels of reprimand could be making the classroom an unnecessarily aversive environment, not only for the students to whom the teacher is responding but for the whole group. Disengagement from the teaching and learning process is a serious threat to the educational outcomes of students. As this has currently been identified as an issue for boys, the implications of providing a clear picture of the realities of the classroom, then offering support to teachers in how to minimise the negative impact of disruptive students, is an important next step in improving the classroom environment for all, students and teachers alike. Providing teachers with more effective ways to deal with a vocal minority of disruptive students has the capacity to change the interactional dynamics and climate of the classroom.

SECTION C

PERCEPTIONS VERSUS REALITY IN THE CLASSROOM —

WHAT THEY SAY, WHAT THEY DO

CHAPTER 11

PERCEPTIONS VERSUS REALITY: BEHAVIOURAL INTERACTIONS BETWEEN TEACHERS AND STUDENTS IN NEW SOUTH WALES SECONDARY CLASSROOMS

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CHAPTER 11

PERCEPTIONS VERSUS REALITY: BEHAVIOURAL INTERACTIONS

BETWEEN TEACHERS AND STUDENTS

IN NEW SOUTH WALES SECONDARY CLASSROOMS

11.1 Overview

In this chapter, possible relationships among the teacher and student perceptions presented in Section A and observed teacher and student behaviour presented in Section B are explored in three studies. There were data available for approximately 60 teachers and their classes for the purposes of three inter-relationship studies.

The first study relates to the relationship between teachers' perceptions of the extent of troublesome classroom behaviour and observed classroom behaviour, and included 62 teachers and their classes. The second study explores the relationship between teacher perceptions of stress associated with managing classroom behaviour and observed classroom behaviour, and included 57 teachers and their classes. The third study explores the relationship between student perceptions of the classroom environment and observed classroom behaviour, and included 61 teachers and their students.

11.2 Background

In Section A of this thesis, secondary teachers reported the types of classroom behaviours they find to be most troublesome, along with the extent of behaviour problems in their classes. By means of a questionnaire, teachers provided information on the typology, frequency and severity of problem behaviour in their secondary classes (see Chapters 3, 4, & 5). In addition, the stress teachers experience as a result of having to deal with student misbehaviour was explored in a supplementary questionnaire.

Taking the students' perspective into account, a classroom environment scale (the *ICEQ – Individualised Classroom Environment Questionnaire*, Fraser, 1990) was employed to gather data on the classroom environment (see Chapter 6). The students in the classes of the teachers who had reported their own perceptions of troublesome classroom behaviour and stress were included in this part of the study. Therefore, in Section A, the views of both teachers and students were elicited using three questionnaires (two for teachers and one for students). Some of the relationships between and among these data were explored in Section A.

In Section B, the emphasis shifted from teacher and student perceptions (by means of self-report data) to observed classroom behaviour of both teachers and students. Using the *OPTIC (Observing Pupils and Teachers In Classrooms)* observation schedule (Merrett & Wheldall, 1986), teacher responses to the academic and social behaviour of students were recorded, as was student on-task behaviour (see Chapter 8). The relationships between these two areas of study, which in previous research have tended to be treated discretely, will now be considered. In their extensive research in the area of classroom behaviour, Wheldall and Merrett and colleagues did not directly relate their teacher questionnaire data on troublesome classroom behaviour (see Houghton et al., 1988; Merrett & Wheldall, 1984; Wheldall & Merrett, 1988) to their observational studies of natural rates of teacher approval and disapproval in the classroom (see Merrett & Wheldall, 1987b; Wheldall et al., 1989). In this chapter, teacher reports of troublesome classroom behaviour are related to observed classroom behaviour, arguably enabling the testing of perceptions against reality. Moreover, the additional dimension of teacher stress in relation to managing student behaviour has been added to provide more information about this aspect of classroom interaction research, as well as a consideration of the student perspective on the classroom environment, an often neglected perspective.

Such an approach may provide answers to the following question: To what extent is what teachers and students say about their classroom experience reflected in aspects of observed classroom behaviour? Specifically, the following research questions will be addressed:

- 1) Do teachers who report a higher percentage of the class as troublesome, or say they spend more time on problems of order and control in the classroom, respond to students in different ways from their colleagues who do not? Are there any differences in the on-task levels of the students in classes of teachers who experience more difficulties with classroom behaviour management compared to those who do not?
- 2) Are differences in observed teacher responses to student behaviour reflected in differential teacher stress levels? For instance, do teachers who employ more negative responses to student social behaviour experience more stress as a result of their classroom teaching, as we might expect?
- 3) Do students report a more favourable classroom environment when more positive teacher responses are evident? Are there any relationships between teacher behaviour and student perceptions of the classroom environment?

11.3 The Relationship Between Teacher Perceived Extent of Troublesome Classroom Behaviour and Observed Classroom Behaviour

In Section A, the analysis of troublesome behaviour included a question asking “In general terms, do you think that you spend more time on problems of order and control that you ought?” (referred to as Question 1 or Q1). The response to this question was treated as a dichotomous variable used to explore other aspects of troublesome classroom behaviour (see Chapter 4). Teachers were also asked to state how many students in their respective target classes they would rate as troublesome. This figure was converted into a continuous variable known as “percentage troublesome”, taking

into account class size, and was also expressed as a dichotomous variable: less than 10% of the class as troublesome (denoting low incidence troublesome classroom behaviour) or 10% and greater (denoting moderate-high incidence troublesome classroom behaviour - see Chapter 3). These three variables may be denoted as the three troublesome behaviour (TB) variables.

11.3.1 *Sample and Procedure*

Of the 79 teachers and classes on whom *OPTIC* observational data were available (see Chapter 8), smaller data sets were also available which included the three TB variables. For teachers who responded to Q1 and in whose classrooms observations had been conducted, there was a subset of 62 teachers (of whom 52% were male) and their classes. For the two remaining TB variables (the percentage of the class indicated as troublesome and the above/below 10% of the class considered troublesome), there were 57 cases, being a slightly smaller subset of the 62 teachers who responded to Q1.

Analysis of these data sets thus allows the relationship between aspects of *perceived* troublesome classroom behaviour (the three TB variables) and *actual* observed classroom behaviour to be determined. In the subset of 62 teachers, only 37% responded in the affirmative to Q1, compared to 53% reported in the larger sample ($n = 143$) described in Chapter 4. This suggests that in this incidental sample, teachers who were more confident of their classroom management skills were the teachers who had agreed to being observed. Means, standard deviations, *t*-test values and effect sizes for the *OPTIC* variables broken down by the two TB dichotomous variables were calculated. The continuous TB variable was correlated with the *OPTIC* variables using Pearson's product-moment correlation. As multiple comparisons on the same sample were conducted (where different dependent variables may well be correlated), an attempt to control for so-called "family-wise error rate" could have been made by using a Bonferroni correction. As has been described in previous chapters, one way of

achieving this goal more simply is to set a more conservative alpha level (e.g., a 1% level rather than 5% level) (Howell, 1997, p. 362). This approach as been adopted in these studies. For a relationship to be considered statistically significant in this instance where there were 60 degrees of freedom (*df*), *r* must equal (or exceed) .325 to be significant at the 1% level.

11.3.2 Results and Discussion

11.3.2.1 Response to Question 1 and Observed Behaviour

Means, standard deviations, *t*-test values and effect sizes for the *OPTIC* variables analysed according to the response to Q1 are shown in Table 11.1.

Table 11.1

OPTIC Variables (rates per 45 minutes) and the Response to Question 1

| <i>OPTIC</i> Variables | Yes to Q1 | | No to Q1 | | <i>t</i> | <i>p</i> | | <i>d</i> |
|------------------------|-----------|-----------|----------|-----------|----------|----------|----|----------|
| | Mean | <i>SD</i> | Mean | <i>SD</i> | | | | |
| Positive Academic | 14.30 | 14.93 | 19.85 | 16.40 | -1.33 | .19 | NS | 0.35 |
| Positive Social | 1.70 | 1.99 | 3.21 | 7.83 | -0.90 | .37 | NS | 0.24 |
| Negative Academic | 1.61 | 1.99 | 2.15 | 2.92 | -0.79 | .43 | NS | 0.21 |
| Negative Social | 18.70 | 16.70 | 12.15 | 9.45 | 1.98 | .053 | NS | 0.52 |
| On-Task Behaviour | 82.93 | 11.18 | 88.91 | 7.89 | -2.25 | .017 | NS | 0.65 |

Note. N = 62

Looking at the absolute rates of approval and disapproval, teachers who reported that they do not have classroom behaviour management problems (i.e., those who answer no to Q1) provided more positive responses, both for academic and for social behaviour, than their peers who have more difficulties in this area. They also provided fewer negative social responses (about one third fewer, on average). A larger number of negative academic responses was also provided by those teachers who considered they had fewer problems with classroom behaviour management, perhaps

denoting more feedback generally to student academic behaviour in those classes. Reference to the t values, however, shows that none of these differences are sufficiently strong to be statistically significant, nor do the effect sizes in most cases provide any evidence of substantial differences between teachers who respond yes to Q1 as opposed to teachers who respond no. The only exception to this is in the case of teacher responses to negative social behaviour where, although the difference was not sufficiently strong to produce a statistically significant difference, the effect size analysis showed a medium effect. This difference between teachers who consider they spend more time than they ought on problems of order and control in the classroom and those who do not is both understandable and to be expected. The typical teacher response to problems of order and control is to attempt to manage the situation by providing negative responses to the inappropriate social behaviour of their students.

While it is important not to over-claim here (as no statistical difference was found notwithstanding the medium effect size that was evident), caution should also be exercised in accepting that *no* differences were found between teachers who responded yes or not to Q1 and teacher negative social responses. It should be contemplated that the limited sample size in this aspect of the current study and concomitant lack of statistical power may be responsible for a false negative result (Type 11 error) here.

There was no statistically significant relationship between student on-task behaviour and teacher response to Q1. The effect size of 0.65 was, however, medium in size suggesting that a statistically significant result may have been evident in a larger sample. The average lower mean on-task behaviour levels of students in the classrooms of teachers who consider they spent more time than they ought on problems of order and control (6% lower) appears to be logical. Such a finding would confirm that the teachers who reported more problems with classroom behaviour management in this sample in fact had classes who were on-task less often. This finding, however, may not

apply to other teachers and classes. A larger sample might reveal significant findings. The caution regarding a Type 11 error and statistical power referred to above should be borne in mind here given the effect size that was evident.

11.3.2.2 *Percentage of the Class Considered Troublesome and Observed Classroom Behaviour*

The results of the correlation of the *OPTIC* variables and the percentage of the class considered troublesome are shown in Table 11.2.

Table 11.2

Correlations Between OPTIC Variables and Percentage of the Class Considered Troublesome

| <i>OPTIC</i> Variables | % Class Troublesome (<i>N</i> =57) |
|------------------------|--|
| Positive Academic | -.329* |
| Positive Social | -.195 NS |
| Negative Academic | -.368* |
| Negative Social | .061 NS |
| On-Task Behaviour | -.104 NS |

Note. **p* < .01

The relationships between teacher responses to both positive academic and negative academic behaviour (i.e., a teacher providing academic praise and correction) and the percentage of the class considered as troublesome were significant at the 1% level. No other relationships were statistically significant. These statistically significant results suggest a relationship between the percentage of the class considered by the teacher to be troublesome and the rate of both positive and negative academic responses to student behaviour on the part of the teacher. That is, the greater proportion of the class considered troublesome by the teacher, the lesser the amount of academic praise or approval and reprimands (correction) is given. The meaning of this is unclear, but may suggest that where there is a higher proportion of the class considered troublesome

the teacher rewards and corrects academic effort less frequently. The provision of reinforcement of appropriate academic behaviour and corrective feedback for academic work is reduced in classes where more disruption is apparent. One possible reason for this is that the teacher may be spending more of his or her time correcting inappropriate social behaviour, but this is not evident in these data. The critical role of teacher feedback in student achievement has been well established in the research literature. As noted in Chapter 7, teacher feedback is the most powerful single moderator that has been found to enhance student achievement (Hattie, 1992). If the presence of disruptive students in the classroom results in lowered academic feedback to students, then the teacher's central instructional function is severely compromised.

11.3.2.3 *Perceived Low Incidence/Moderate-high Incidence Troublesome Behaviour and Observed Behaviour*

Means, standard deviations, *t*-test values and effect sizes for the *OPTIC* variables analysed according to the dichotomous TB variable of below or above 10% of the class as troublesome are shown in Table 11.3.

Table 11.3

OPTIC Variables (mean rates per 45 minutes) and the <10% or 10%+ Troublesome Variable

| <i>OPTIC</i> Variables | < 10% | | 10%+ | | <i>t</i> | <i>p</i> | <i>d</i> |
|---------------------------|-------|-----------|------|-----------|----------|----------|----------|
| | Mean | <i>SD</i> | Mean | <i>SD</i> | | | |
| Positive Academic | 22.9 | 17.5 | 13.6 | 13.3 | -2.23 | .030 NS | 0.57 |
| Positive Social | 3.77 | 8.78 | 1.15 | 1.35 | -1.53 | .13 NS | 0.41 |
| Negative Academic | 2.73 | 2.95 | 1.19 | 2.04 | -2.28 | .026 NS | 0.60 |
| Negative Social | 12.3 | 12.4 | 16.4 | 13.9 | 1.18 | .24 NS | 0.31 |
| On-Task Behaviour | 89.34 | 7.83 | 84.9 | 10.3 | -1.85 | .070 NS | 0.49 |

As may be seen, a similar pattern of teacher responses is evident when the teacher variables were analysed by the low incidence/moderate-high incidence troublesome behaviour criterion (as we would expect given these data derive from those reported in 11.3.2.2. but are a dichotomised version here). Teachers with fewer troublesome students in the class (i.e., less than 10% of the class) provided more positive responses to both the academic and social behaviour of their students than their colleagues who reported that 10% or more of the class was troublesome. As was also the case with teachers who responded no to Q1 (see 11.3.2.1), teachers with less than 10% of the class as troublesome used more negative academic responses than their peers with more troubled classrooms. Again, this could be seen as a characteristic of classrooms where feedback is more evident, and the business of academic learning is being carried out, rather than in classrooms where the management of (social)

behaviour is to the fore. Likewise, a smaller number of negative social responses was evident in the classes where less than 10% were troublesome, as we might expect.

These distinctions notwithstanding, there were no statistically significant differences between teacher responses in this study. Effect size analysis, however, shows medium effects for the teacher responses to positive academic and negative academic behaviour at 0.57 and 0.60 respectively. This may provide support to the view expressed above that in classrooms where disruptive behaviour is relatively under control, academic learning and feedback (both positive and negative) is allowed to flourish. Differences in on-task behaviour levels (of about 5%) were evident, and while not statistically significant in this sample, were approaching a medium in terms of effect size (0.49). This is another example in the current study of the possibility of Type II errors due to lack of statistical power. The strength of some of the effect sizes would suggest that in a larger sample statistically significant results might be found.

11.4 The Relationship Between Teacher Perceived Degree of Behaviour Related Stress and Observed Classroom Behaviour

In similar vein, it was possible to examine the degree to which teacher stress levels in relation to classroom behaviour problems were associated with differences in observed classroom behaviour.

11.4.1 *Sample and Procedure*

Of the 79 teachers and classes on whom *OPTIC* observational data were available, data were also available on the teacher stress measure for a subset of 57 teachers (51% of whom were female) and their classes. Analysis of this data set thus allows the relationship between aspects of perceived teacher stress related to managing classroom behaviour and actual observed classroom behaviour to be explored. The teacher stress variable was correlated with the *OPTIC* teacher and student variables using Pearson's product-moment correlation and the results are shown in Table 11.4.

For this sample of teachers where there were 55 degrees of freedom (*df*), *r* must be or exceed .339 to be statistically significant at the 1% level.

11.4.2 Results and Discussion

Table 11.4 shows that there were no statistically significant relationships between the stress reported by teachers associated with managing classroom behaviour and the responses teachers made to student behaviour as measured by *OPTIC*. Similarly, there were no significant relationships between student on-task levels and the stress teachers reported as being associated with their classroom teaching in relation to student behaviour.

Table 11.4

Correlation of OPTIC Variables and Teacher Stress Score

| <i>OPTIC</i> Variables | Stress Score (<i>N</i> = 57) |
|------------------------|----------------------------------|
| Positive Academic | -.035 NS |
| Positive Social | -.045 NS |
| Negative Academic | -.042 NS |
| Negative Social | -.119 NS |
| On-Task Behaviour | .248 NS |

The absence of any apparent relationship between observed teacher and student behaviour and the stress reported by teachers may be explained in part by the nature of this subset of teachers. Only 37.5% (or 21 teachers) of the 56 teachers who responded to Question 1 in this subset (1 missing value), answered in the affirmative compared to 53% in the larger sample of described in Chapter 4 (*N* = 143). Similarly, whereas in the larger study reported in Chapter 4 only 37% of teachers reported that less than 10% of the class was troublesome, in this smaller subset, nearly half of the teachers (49%) indicated that less than 10% of the class was troublesome (6 missing values). It follows

then, that with fewer disruptive students and with teachers who were relatively more confident of their behaviour management skills (as attested to by their response to Q1), we would expect classroom management to be less of a stressor in these classes. Reference to the mean stress score of the 57 teachers in this subset, however, reveals that the teacher stress score for these teachers ($M = 40.04$, $SD 7.93$) was very similar to that found in the larger study of 127 teachers reported in Chapter 4 ($M = 41.62$, $SD 9.18$). While the teachers in this subset appear to have fewer classroom behaviour problems (by their own self-reports), they still experience very similar stress levels to the larger group of teachers reported in Chapter 4 whose stress associated with managing student behaviour was regarded to be in the mild to moderate range.

Another explanation for the absence of any discernible relationships between the observed teacher (and student) behaviour variables and teacher reported stress levels could be that managing classroom behaviour does not cause large variations in the way teachers experience stress. This suggestion flies in the face of much of the research literature that often identifies managing student behaviour as one of the key stressors for teachers (see Chapter 2). Some, however (e.g., Cooper, 1995), have argued that the manner in which teacher stress research is conducted is problematic, in that it relies almost, if not exclusively, on teacher self-report data. Clearly, this study has too small a sample to challenge the body of research attesting to the role of student misbehaviour in the stress teachers experience, but it does provide some support to the view that more objective measures of teacher stress and its causes are warranted.

11.5 The Relationship Between Student Perceptions of the Classroom Environment and Observed Classroom Behaviour

By combining aspects of the data reported in Chapter 6 and Chapter 8, it was possible to examine the degree to which student perceptions of the classroom environment were associated with differences in observed teacher and student classroom behaviour.

11.5.1 Sample and Procedure

Of the 79 teachers and classes on whom *OPTIC* observational data were available, data were also available on the classroom environment measure for a sub-set of 61 teachers and their classes. Analysis of this data set thus allows the relationship between aspects of perceived classroom environment and actual observed classroom behaviour to be explored. The classroom environment variables were correlated with the *OPTIC* variables using Pearson's product-moment correlation. In this sample of 61 cases where there are 59 degrees of freedom (*df*), *r* must equal or exceed 0.328 to be significant at the 1% level. The results are shown in Table 11.5.

11.5.2 Results and Discussion

Table 11.5 shows that only one classroom environment dimension was related to observed teacher behaviour or student on-task behaviour. The relationship between the *ICEQ* dimension *participation* (*pa*) and negative teacher responses to student social behaviour is statistically significant at the 1% level and accounts for 12% of the variance for this dimension in this sample of teachers and their classes. No other apparent relationships are evident in Table 11.5. One might have expected some relationship between the teacher response variables and the dimension *personalisation* (*pe*), which assesses the emphasis on opportunities for individual students to interact

with the teacher and on concern for the personal welfare and social growth of the individual (Fraser, 1990).

Table 11.5

Correlations of OPTIC Variables and ICEQ Dimensions

| <i>OPTIC Variables</i> | <i>ICEQ-pe</i> | <i>ICEQ-pa</i> | <i>ICEQ-id</i> | <i>ICEQ-v</i> | <i>ICEQ-d</i> |
|------------------------|----------------|----------------|----------------|---------------|---------------|
| Positive Academic | .038 | .025 | -.157 | .136 | .017 |
| Positive Social | .144 | .068 | -.070 | -.040 | .077 |
| Negative Academic | .140 | .026 | -.101 | .163 | -.014 |
| Negative Social | -.208 | -.345* | -.289 | -.158 | .193 |
| On-Task Behaviour | .159 | .163 | .034 | .165 | -.214 |

Note. * $p < .01$

Similarly, and given the findings in Chapter 6 in relation to *differentiation (d)*, one might have expected some relationship between this particular dimension and the teacher response variables. As discussed in Chapter 6, *differentiation* assesses the selective treatment of students on the basis of ability, learning style, interests, and rate of working, and, according to Moos' schema, is a system maintenance dimension measuring the extent to which the environment is orderly, clear in expectations, and maintains control (Fraser, 1990). As *differentiation* relates to the extent of classroom order and control exercised by the teacher, it could have been anticipated that variations in teacher responses to students' social behaviour may have been detected in this dimension of the classroom environment. No such statistically significant relationships were found, however.

The implication of the single statistically significant finding is that in classes where there were fewer negative social teacher responses to student behaviour, there was a perception by students of higher levels of student participation. This is a not unexpected finding. *Participation* assesses the extent to which students are encouraged

to participate rather than be passive listeners (Fraser, 1990). It would appear that greater student involvement (or the perception of this by students) was evident where teachers limited disapproval to student social behaviour. This finding has educational significance given that student engagement (particularly of boys, see Chapter 9) is a major issue in contemporary educational debates. Alerting teachers to the effects of using excessive negative social responses in an attempt to manage the inappropriate behaviour of their students (and providing them with more positive alternatives for managing classroom behaviour) is important if we are to optimise student engagement in the classroom.

This finding is arguably even more robust than it first appears. As already discussed in Chapter 6, the test/re-test reliability for the dimension or sub-test *participation* was a little low. The relationship in the present study between teacher negative social responses and participation was found despite the low reliability for this particular sub-test of the scale. This suggests that with a more reliable sub-test this relationship may have been even more pronounced since the error variance would have been reduced.

As reported in Chapter 6, Burnett (2002) observed a relationship between teacher-student relationships and students' perceptions of the classroom environment in his survey of 747 Australian primary aged students. He found that students who perceived that they had positive relationships with their teachers were also found to perceive the classroom environment in a more positive way. Moreover, he found that negative feedback impacted on students' relationships with their teachers, reporting that, "Students who perceived that their teachers frequently provided negative feedback in the classroom reported a more negative relationship with their teachers" (2002, p. 13). The findings in the present study in respect of the inverse relationship between negative teacher responses to social behaviour and the *ICEQ* dimension *participation*

may lend support to Burnett's contention. Similarly, in her study of excluded secondary school students in the UK, Pomeroy (1999) found that student perceptions of the quality of teacher-student relationships was identified as one of the most "salient features" (p. 468) of these students' (negative) educational experience, with discipline techniques being reported as "a central aspect of teacher-student relations" (p. 472). Clearly, and even more so for those students most at-risk, the way teachers engage with, and respond to, students has a powerful impact on their perception of the classroom environment.

11.6 Conclusion

In this chapter the extent to which what teachers and students say about their classroom experience (via self-reports) is reflected in aspects of observed classroom behaviour has been explored. While there may be an appealing logic in the notion that teachers who say they experience more difficulties in terms of managing student misbehaviour would have discernibly different classrooms from those who say they do not, the broad finding, in this study at least, is that this is generally not the case. With very few exceptions (to be reiterated below), and in terms of statistically significant findings, there appears to be very little to distinguish the classrooms of those teachers who experience more difficulty with classroom behaviour management from those who do not.

While certain patterns of teacher and student behaviour were evident (and predictable), the variations were not of a magnitude to produce results signifying statistical significance. The small sample size in this study may have contributed to a loss of statistical power, as in certain cases effect size calculations indicated medium effects where tests of statistical significance failed to find any differences. A larger study may find that there are patterns of behaviour in the classrooms of those teachers who consider that they spend more time than they ought on problems of order and control in the classroom. They may be found to have higher levels of negative social

responses to student behaviour, and the students in their classes may have lower on-task levels than their peers in classes where teachers report fewer problems with classroom behaviour management. Similarly, where teachers report more than 10% of the class as troublesome (indicating moderate-high incidence troublesome behaviour), we might find reduced academic feedback (fewer positive and negative teacher responses to student academic behaviour) and lower on-task behaviour. Such findings have been suggested in the current study but have not been confirmed.

In response to the research questions posed at the beginning of this chapter, regardless of whether teachers said they spent more time on problems of order and control than they ought or not, there were no statistically significant differences in the way teachers responded to students in their classes. One of the (only) two statistically significant findings in this study relates to teacher responses, however. It would appear that the higher the proportion of the class reported as troublesome (the continuous variable “percentage troublesome”), the fewer teacher responses to student academic behaviour (both positive and negative) were given. This seems like an odd relationship and it was suggested earlier that academic feedback (both approval and correction) may have been sacrificed at the expense of management of inappropriate social behaviour. This, however, is only conjecture. Further, it would seem that there were no discernible differences in the mean on-task levels of students in classes of teachers who experienced more difficulties with classroom behaviour management compared to those who did not.

While we might expect, for example, that teachers who employ more negative responses to student social behaviour would experience more stress as a result of managing student misbehaviour, there was no evidence in the current study to support such a view. In fact, there were only very minor relationships between the reported

stress of teachers and the types and quantity of responses teachers used (and none that were statistically significant).

The only other statistically significant finding in this study related to student perceptions of the classroom environment. Where teachers used fewer negative social responses (reprimands or disapproval), students perceived that there was more participation in the classroom. No other significant relationships were found, however, between teacher responses and the other four classroom environment dimensions measured. This single finding is, however, educationally significant. The reliance by teachers on excessive negative social responses to student behaviour as a means of attempting to manage student behaviour is common practice (see Chapter 8). This finding, where fewer negative social responses positively influenced students' perception of their classroom environment in terms of engagement and participation, is one that should be highlighted and communicated to teachers who are frustrated by students' lack of participation in secondary classrooms.

Another important message to be taken from this study is that teacher self-reports alone should be viewed with a degree of caution. The verification of what teachers and students report to be the case in classrooms, by direct observation or other objective forms of assessment, is an important part of classroom interaction research and more generally, in any educational research agenda. The implications of the findings of the three studies detailed in this chapter are discussed further in the following and concluding chapter (Chapter 12).

CHAPTER 12

OVERVIEW OF THE RESEARCH, SUMMARY OF ISSUES AND CONCLUSION

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CHAPTER 12

OVERVIEW OF THE RESEARCH, SUMMARY OF ISSUES AND CONCLUSION

12.1 Overview

In this final chapter, the research presented in this thesis will be reviewed by way of brief summary. Inter-relationships among the findings from each area of study will be discussed and conclusions drawn from key findings. Future research directions arising from the discussion will also be articulated.

12.2 Background

In the 1980s in the United Kingdom, Wheldall and Merrett conducted an extensive program of behaviourally oriented research dealing (among other things) with the prevalence, severity, and typology of classroom behaviour problems in schools; the natural rates of teacher approval and disapproval in classrooms; and, differential teacher attention to boys and girls. Subsequently, Houghton worked with Wheldall and Merrett and extended this work to secondary school investigations. Some of this research was subsequently replicated elsewhere, but not in Australia until very recently, for example, by Little (2005) in reference to troublesome classroom behaviour in Victoria. A major aim of the current research was to extend the work of Wheldall, Houghton, and Merrett in an Australian context. Further, additional dimensions were added to the enquiry into the behavioural interactions of teachers and students in secondary school contexts.

12.3 Overview of the Research

The research presented in this thesis comprised a number of studies dealing with student-teacher classroom interaction in secondary classrooms in New South Wales as

reported by teachers and students, and through direct observation of classroom behaviour. These studies were divided into three parts following a brief Introduction (Chapter 1).

Section A (Chapters 2-6) dealt with the questionnaire data of teachers reporting troublesome classroom behaviour, with subsidiary areas of teacher-reported stress arising from managing student behaviour, and students' perceptions of the classroom environment. The relevant literature for the main focus area of teacher perceptions of troublesome classroom behaviour was reviewed in Chapter 2, with minor reviews only of the teacher stress and classroom environment literature in Chapters 2 and 6, respectively.

Section B (Chapters 7-10) comprised direct observational studies investigating the naturally occurring (i.e., not experimentally manipulated) rates of teacher approval and disapproval and student on-task behaviour in New South Wales secondary classrooms, as well as an exploration of differential teacher attention to boys and girls and their associated on-task levels. The relevant reviews of each literature were presented in Chapters 7 and 9 respectively, the studies being presented in Chapters 8 and 10.

Section C (Chapter 11) explored inter-relationships between the teacher and student report data presented in Section A and the direct observation studies presented in Section B, thereby attempting to assess the extent to which *perceptions* of classroom interactions (measured by the questionnaire data) were reflected in *observed reality* (measured by direct observation). Relationships among the data were explored to provide further insight into the dynamic of classroom interaction.

12.3.1 *Classrooms, Behaviour and Teacher Stress: The Perceptions of Teachers and Students in New South Wales Secondary Classrooms (Section A)*

12.3.1.1 *Troublesome Classroom Behaviour in New South Wales Secondary Schools Including Teacher Stress Arising from Managing Student Behaviour*

The aim of this study was to establish the prevalence, severity and typology of classroom behaviour problems experienced by secondary teachers in New South Wales classrooms. The *Classroom Teaching and Behaviour Problems Questionnaire* (Houghton et al., 1988) was completed by 145 secondary teachers in New South Wales. Teachers were asked if they thought that they spent more time on problems of order and control in the classroom than they ought. They were also asked to nominate the number (prevalence) and sex of troublesome students in the class. Questions relating to the severity (most troublesome) and frequency (most frequent) of problematic behaviour were asked, as was the nature of the most troublesome behaviour of the most troublesome students. Teachers were also asked the sex of the most (and next most) troublesome individual student.

This study sought to replicate the UK study of Houghton et al. (1988) in an Australian context. The incidental sample included secondary teachers from metropolitan and country New South Wales. A supplementary questionnaire eliciting information about the level of stress teachers experience associated with managing student behaviour was also included in this study. A sub-group of 127 secondary teachers comprised the latter sample.

12.3.1.1.1 *Proportion of the class considered troublesome by New South Wales secondary teachers.* The first research question asked what proportion of the class was considered to be behaviourally troublesome by New South Wales secondary teachers. In an average class of 21.1 students, 4.04 or 20% were considered by their teachers to be behaviourally troublesome.

12.3.1.1.2 *Proportion of teachers who consider they spend more time than they ought on problems of classroom order and control.* The second research question sought to establish the proportion of teachers who considered that they spent more time on problems of classroom order and control than they ought. This question was directly related to the initial question of the *Classroom Teaching and Behaviour Problems Questionnaire* (referred to as Question 1 or Q1 throughout this thesis). Fifty three per cent (53%) of teachers in the current study answered yes to the question, "Do you consider that you spend more time on problems of order and control than you ought?".

12.3.1.1.3 *Sex of the most troublesome students in the class.* The third research question asked if boys or girls were the most troublesome students in the class and what were the behaviours of the most difficult students. Gender differences were clearly evident in terms of troublesome classroom behaviour. Boys accounted for a much higher proportion of troublesome students than girls. In the present study, of the 4.04 students in the class who were considered by their teachers to be troublesome, 2.8 were boys, representing about 70% of all troublesome students. Moreover, when teachers were asked to nominate the sex of the most troublesome individual student, teachers nominated a boy 88% of the time.

12.3.1.1.4 *Most troublesome and most frequent types of classroom behaviour, including the behaviour of the most troublesome students.* The fourth research question asked what the most troublesome types of classroom behaviour were and whether they differed from the most frequent troublesome behaviour. The findings in the present

study replicated those of others in that it was the trivial and persistent misbehaviours that were the main cause of disruption to teachers. The most troublesome behaviour of the class as a whole was found to be *talking out of turn* (TOOT), with 40% of teachers making this their first choice of ten specified behaviours. TOOT was followed by *idleness/slowness* (22%) and *disobedience* (11%) as the most troublesome behaviour of the class as a whole. No other categories exceeded 10%.

When asked the next most troublesome behaviour of the class as a whole, teachers chose *hindering other children* (HOC) (23%) followed equally by TOOT and *idleness/slowness* (both 21%). The most frequent troublesome classroom behaviour was the same as the most troublesome, namely, *talking out of turn* (47%) followed by *idleness/slowness* (21%). No other categories of behaviour scored above 10%. Similarly, the most troublesome behaviour of the most troublesome student was TOOT (41%), followed by HOC (18%), and *idleness/slowness* (13%). The most troublesome behaviour of the second most troublesome student was also TOOT.

12.3.1.1.5 *The role of teacher gender in perceptions of troublesome classroom behaviour.* The fifth research question asked if there were any gender differences in teacher perceptions of troublesome classroom behaviour. There were no differences in terms of how male and female teachers responded to Question 1, “Do you consider that you spend more time on problems of order and control than you ought?”. Moreover, male and female teachers alike found “talking out of turn” to be the most troublesome (and most frequent) classroom behaviour and both found boys to be the most problematic students.

12.3.1.1.6 *The influence of the age or experience of the teacher on the way teachers reported troublesome classroom behaviours.* The sixth research question asked if the age of the teacher or the amount of teaching experience had any influence on the reporting of troublesome classroom behaviour. There were no differences in whether

teachers thought they spent more time on problems of order and control than they should when the data were analysed according to teacher age and experience. Nor did these factors appear to influence the choice of the most troublesome behaviour of the class, with *talking out of turn* remaining prominent as the most troublesome classroom behaviour irrespective of the age or experience of the teacher.

12.3.1.1.7 *The influence of the subject or year taught on the way teachers reported troublesome classroom behaviours.* The seventh research question asked if the subject or year level taught influenced the way teachers reported troublesome classroom behaviour. Data from the present study showed that neither the subject taught nor the year they taught appeared to be a factor in whether or not teachers reported students to be troublesome. In terms of whether teachers thought they spent more time than they ought on problems of classroom order and control, there were no differences when the data were analysed according to the subject or year they taught.

12.3.1.1.8 *Differences in classrooms where behaviour management is more problematic.* The eighth research question asked if teachers who perceived themselves as spending too much time on problems of order and control in the classroom reported a higher prevalence of troublesome behaviour (larger numbers of troublesome students) compared to those who did not. A further part of this question asked if these teachers reported different *types* of behaviour as being problematic.

For teachers who answered “no” to the question, “Do you consider that you spend more time on problems of order and control than you ought?”, it was found that only 10% of the class was considered troublesome, whereas for teachers who responded yes, this figure rose to 30%. This difference was statistically significant. Regardless of which of these two groups the teachers were in, the types of behaviour they found to be both most troublesome and most frequent were the same. *Talking out of turn* was the first choice of teachers regardless of whether they responded yes or no to Question 1, or

whether they experienced a low incidence (defined as less than 10% of the class considered troublesome) or moderate-high incidence (defined as 10% or more of the class considered troublesome) of troublesome classroom behaviour. *Talking out of turn* was followed by *idleness/slowness to respond* in all cases, following the pattern of responses evident in the general analysis of the data reported earlier.

While female teachers in the present study were much *less likely* than male teachers to report a *low incidence* of troublesome classroom behaviour (10% and 31% respectively), this variation was not sufficiently great to produce a statistically significant difference between male and female teachers in this respect. Again, boys were nominated by teachers as the most troublesome student in the class regardless of whether they experienced a low or moderate-high incidence of troublesome classroom behaviour or whether teachers responded yes or no to Question 1. *Talking out of turn* was the dominant problem behaviour of the most troublesome individual student across all groups.

Another point to note is that there appeared to be some evidence for a reduction in the rate of moderate-high troublesome classroom behaviour as students get older. The data showed that teachers who taught Years 8 and 9 were more likely to report higher levels of troublesome classroom behaviour than those teaching older students. Troublesome classroom behaviour appeared to diminish in the post-compulsory years of schooling in the present study.

12.3.1.1.9 *The impact of managing troublesome classroom behaviour on teacher stress levels.* The ninth research question asked if managing troublesome classroom behaviour caused teachers to experience increased stress. Overall, teachers in the present study were found to experience a mild to moderate level of occupational stress arising from managing student behaviour. There were no differences between the stress levels experienced by male and female teachers, nor were any differences evident when

the variables of teacher age, experience, year taught or subject taught were taken into account.

There were differences in stress levels, however, when the data were analysed according to the response to Question 1 of the questionnaire. Teachers who thought they spent more time than they ought on problems of order and control in the classroom experienced statistically significant higher stress scores than their colleagues who did not. Statistically significant differences were also evident when the data were analysed by the low incidence/moderate-high incidence troublesome classroom behaviour variable. Teachers who reported a low incidence of troublesome classroom behaviour had a significantly lower mean stress score than their colleagues who reported more than 10% of the class as being behaviourally troublesome (moderate-high incidence of troublesome behaviour). This key finding of this aspect of the present study, that teachers who experienced more difficulties in terms of classroom behaviour management also reported statistically higher stress levels, confirms the view of many researchers in the field that student misbehaviour is one of the main causes of teacher stress.

12.3.1.2 *Student Perceptions of the Classroom Environment in New South Wales Secondary Classrooms*

Students in New South Wales secondary classes provided information on their perceptions of the classroom environment. A study involving the classes of 79 teachers was detailed in Chapter 6. These classes were also a sub-set of the classes of teachers who had participated in the larger troublesome classroom behaviour study reported in Chapters 3-5. The data in both the classroom environment study (Chapter 6) and the troublesome classroom behaviour study (Chapters 3-5) were self-report data, and can therefore be seen as providing *perceptions* of aspects of the same classrooms. As has been noted earlier in this thesis, for the students these perceptions related to the

classroom environment; for the teachers these perceptions related to the extent of troublesome classroom behaviour in their classes, as well as the stress associated with managing student behaviour. Using the *Individualised Classroom Environment Questionnaire (ICEQ)* (Fraser, 1990), students from 79 secondary classes provided responses on 50 items eliciting information on five dimensions of the classroom environment, namely, *participation*; *personalisation*; *differentiation*; *individualisation*; and, *independence*. (Observational data detailing teacher responses to student behaviour as well as student on-task behaviour were also available on most of the classes involved in this study - see Section B.)

12.3.1.2.1 *Descriptive data on the classroom environment in New South Wales secondary classes.* Descriptive data of student perceptions of the classroom environment in secondary classes in New South Wales in terms of teacher demographic variables such as teacher age and sex, as well as the year and subject taught, were presented. These data suggest that student perceptions of their classroom environment are not influenced by whether they have a male or female teacher, whether their teachers are younger or older, are more or less experienced, or according to what subject they teach. This in itself is noteworthy.

The only variation evident in these data was for the year the teacher taught (age of students) where one dimension, *independence*, was sensitive to differences in the environment. *Independence*, defined as “the extent to which students are allowed to make decisions and have control over their own learning and behaviour” (Fraser, 1990, p. 5), was found to be more evident in the senior school years (Years 11 and 12). These students perceived higher levels of independence in their classrooms. As explored in Chapter 6, this is a not unexpected finding due to the increasing maturity of students and the fact that Years 11 and 12 are the senior and post-compulsory years of schooling in New South Wales.

12.3.1.2.2 *Classroom environment and teacher perceptions of adequate order and control.* The first research question asked if there were any student perceived differences in the classroom environment of classes whose teachers answered “yes” to the question, “In general terms do you think you spend more time than you ought on problems of order and control in the classroom?”. The only difference found was in terms of the dimension *differentiation*. Where teachers indicated that they spent more time than they ought on problems of order and control, students perceived more emphasis on “the selective treatment of students on the basis of ability, learning style, interests, and rate of working” (Fraser, 1990, p. 5).

12.3.1.2.3 *Classroom environment where teachers report a higher percentage of the class as troublesome.* The second research question asked if there were any differences in the classroom environment of classes whose teachers reported a higher percentage of the class as behaviourally troublesome. Again, the dimension *differentiation* was sensitive to differences, with significantly higher scores on this dimension in the classes where teachers reported a higher percentage of the class as troublesome.

12.3.1.2.4 *Relationship between student perceptions of the classroom environment and teacher stress.* The third research question asked if any relationship existed between student perceptions of the classroom environment and the stress reported by teachers associated with having to manage student behaviour. There was no relationship evident in the present study between student perceived classroom environment and teacher reported stress, a finding of interest in its own right, particularly in light of some of the criticism of the veracity of the findings of the teacher stress literature. There is no evidence in the current research that suggests that students in the classes of teachers who are experiencing stress arising from the management of

student misbehaviour perceive their environment any differently from those students whose teachers are apparently not experiencing undue stress.

12.3.2 Observed Behavioural Interactions Between Teachers and Students in New South Wales Secondary Classrooms (Section B)

12.3.2.1 Natural Rates of Teacher Approval and Disapproval in Secondary Schools in New South Wales

In this study of New South Wales secondary teachers and their classes, classroom observations were carried out to establish the naturally occurring rates of teacher approval and disapproval in response to student academic and social behaviour. Student on-task behaviour was also a focus of the observations. The aim of this study was to replicate the UK secondary school study of Wheldall et al. (1989) in an Australian context. Using the *OPTIC (Observing Pupils and Teachers In Classrooms)* schedule (Merrett & Wheldall, 1986), 79 classes were observed on three separate occasions by trained observers.

12.3.2.1.1 Approval and disapproval in New South Wales secondary classrooms. The first research question asked if secondary teachers in New South Wales were more approving than disapproving of their students. In line with findings from around the world, these New South Wales teachers were more approving than disapproving overall (53% approving), a consistent feature of classroom practice evident in the research literature since the mid 1980's.

12.3.2.1.2 Rates of teacher approval and disapproval in New South Wales and compared to teachers elsewhere. The second research question asked if secondary teachers in New South Wales responded in similar ways to teachers reported in the research literature in relation to their *rate* of responses to student behaviour. In the present study, teachers, on average, made 0.45 approving responses per minute (to both academic and social behaviour combined) and 0.40 disapproving responses per minute

(to both academic and social behaviour combined). As mentioned above, these teachers were slightly more approving than disapproving.

These absolute rates of teacher responsiveness were lower than in the study by Wheldall et al. (1989). In the UK, teachers approved (of both academic and social behaviour combined) at the rate of 0.65 responses per minute on average, while they disapproved (of both academic and social behaviour combined) at the rate of 0.53 responses per minute on average. In a more recent British study that included secondary classrooms, Harrop and Swinson (2000) found that teachers approved at a mean rate of 1.30 responses per minute and disapproved at a mean rate of 0.58 responses per minute, indicating twice as much approval as that found in the UK study of Wheldall et al. (1989). These findings provide even more contrast with the results found in the present Australian study. This would lead us to the conclusion that these Australian teachers were less responsive in absolute terms than their British counterparts.

While mean rates of teacher responsiveness have been the focus of the discussion here, it should be noted that in the present research there were very large standard deviations evident for the teacher response variables. (This was also the case in UK study on which this was based.) This high level of variability of teacher responses should not be overlooked or lost in the analysis of what is occurring in classrooms.

12.3.2.1.3 Differential teacher approval and disapproval to academic and social behaviour. The third research question asked if teachers responded differentially in relation to academic and social behaviour and the similarity of their responses to teachers elsewhere. Teachers in the present research offered slightly more responses to academic behaviour (52%) than to social behaviour. Similarly, and in line with teacher practice elsewhere, most of the teacher approval was in response to student academic

behaviour and most of the disapproval was related to classroom conduct or social behaviour.

Teachers in the present study, on average, gave more than seven times more approval than disapproval to academic behaviour. When it came to responding to students' social behaviour, they gave nearly six times more disapproval than approval. The direction of these findings replicated those of Wheldall et al. (1989) in the UK. The magnitude of the ratios for both approval and disapproval were more pronounced, however, in this Australian study. Whereas in the UK study the ratio of teachers' approval to disapproval for student academic behaviour occurred at the rate of 3:1, in the Australian study presented in this thesis the ratio was more than 7:1. Similarly, while in the UK the ratio of teachers' approval to disapproval for student social behaviour was the inverse of their responses for academic behaviour (1:3), in this New South Wales sample teachers gave nearly six times as much disapproval as approval to student social behaviour (1:6).

The relationship between the four discrete teacher response variables in the present study (positive academic; positive social; negative academic; negative social) indicated that teacher approval to academic behaviour was related to teacher disapproval to academic behaviour (at the 1% level), suggesting that teachers who were more approving were also more disapproving in terms of the academic behaviour of their students. No other relationships between the teacher response variables were found. In the parallel UK study of Wheldall et al. (1989), approval to academic behaviour was also significantly related to disapproval of academic behaviour ($p < .001$), as was the case in the present study. In Wheldall et al. there were also relationships between approval of academic behaviour and approval of social behaviour. In addition, disapproval of academic behaviour was also significantly related

to approval of social behaviour, but as already noted, no such relationships were found in the present study.

Generally, teacher sex did not appear to be a determining factor in teacher responsiveness. There was one exception, however. Male teachers were found to be more disapproving in terms of academic behaviour than their female colleagues [$t(73) = 3.32, p < .01$]. A medium (approaching large) effect was evident for this form of responding ($d = 0.71$), where male teachers were more than three times more disapproving of the academic behaviour of their students than female teachers. It should be noted, this difference notwithstanding, that negative academic responding occurred quite infrequently.

12.3.2.1.4 The relationship between student on-task behaviour and teacher behaviour. The fourth research question asked how student on-task behaviour might be related to teacher behaviour in terms of the preponderance of approval and disapproval. Student on-task levels were quite favourable at 86%, on average, and higher than in the UK study on which this study was based. Again there was a high level of variability, with levels ranging from 51% to 99%. In terms of the distribution of mean on-task levels, the middle 50% of scores ranged from 80% to 93%.

The only relationship between student on-task behaviour and the teacher response variables was between negative social responses and on-task behaviour. Negative teacher response was relatively strongly inversely related to on-task behaviour ($r = -.43, p < .01$), indicating the higher the number of negative social responses of the teacher, the lower the on-task levels of the students. There were no other relationships between teacher behaviour and student behaviour in the current study. This single statistically significant finding from the present study was also found by Wheldall et al. (1989), but in their study there was also a relationship between approval to academic behaviour and approval to social behaviour. There were no differences in the on-task

behaviour levels in the classes of male and female teachers in this study, a finding also replicating that found in the UK.

12.3.2.2 *Differential Teacher Attention to Boys and Girls in New South Wales Secondary Classrooms*

The purpose of this study was to explore whether there were any differences in the way New South Wales secondary teachers delivered approval and disapproval differentially to the boys and girls in their classrooms. A subset of 57 teachers from the group involved in the study of natural rates of approval and disapproval described above were included in this study. The on-task behaviour levels of boys and girls were also investigated.

12.3.2.2.1 *Teacher attention to boys and girls in New South Wales secondary classes.* The first research question asked if teachers gave more attention to boys than to girls, and also how attention was directed to their students' academic and social behaviour. In terms of total teacher responses, boys received significantly more responses overall than girls, about *two-thirds* more. The effect size for this difference in teacher responding was medium ($d = 0.62$). Expressed as a percentage of teacher responses, boys received 62% of all responses. Finer analysis showed that while boys received 58% of all approval or praise responses (to academic and social behaviour combined), they also received 70% of all disapproval or reprimand, principally in response to their social behaviour.

Further analysis of these data provides more interesting information regarding the manner in which teachers respond differentially to boys and girls. Boys received significantly more positive responses for *academic* behaviour than girls, about 30% more responses. Expressed as a percentage, boys received 57% of all approval for academic behaviour directed at individual students. The magnitude of the difference on this dimension was, however, found to be only small ($d = 0.27$). Positive responses to

students' social behaviour were very rare and there was no significant difference in the number received by boys as against girls. Similarly, negative teacher responses for students' academic behaviour were also rare and there was no statistically significant difference between teacher responses to boys as against girls.

For teacher disapproval of *social* behaviour, however, a clear difference was apparent. Boys received significantly more reprimands or disapproval for social behaviour than girls, more than twice as many. In this sample, on average, each boy received 0.9 negative social responses per hour, whereas each girl received only 0.4. Expressed as a percentage, boys received 70% of all reprimands for social behaviour, the magnitude of this difference being large ($d = 0.83$). Of the 57 teachers observed, 23 (40%) gave no reprimands for social behaviour to girls whereas only three teachers (5%) gave no such reprimands to boys. Moreover, of the 34 (60%) teachers who ever reprimanded girls for social behaviour, 19 of these gave at least 50% more social reprimands to boys as to girls, and 15 gave *at least* twice as many. Combining these figures, two-thirds (67%) of teachers either gave no social reprimands to girls or gave boys twice as many as girls. Boys clearly inhabit a more punitive environment than girls.

12.3.2.2.2 Male and female teacher responses to boys and girls. The second research question asked if male and female teachers responded differently to boys and girls. While it was found that male and female teachers responded to the boys and girls in their classes in broadly similarly ways, there were some differences of degree in terms of how differentially boys and girls were treated by male and female teachers. Male teachers provided significantly more responses to boys than girls overall (2.2 per boy per hour compared to 1.5 per girl per hour), indicating a medium effect ($d = 0.64$). The higher responding to boys was probably due to the fact that male teachers provided significantly more disapproval to social behaviour to boys, with a large effect being

evident ($d = 0.91$) for this type of responding. No other responses to boys and girls (positive academic; positive social; or, negative academic) were sufficiently different for them to be statistically significant at the 1% level in the case of male teachers. Notwithstanding the fact that there were no statistically significant differences in the on-task behaviour levels of boys and girls in the classes of male teachers (although the effect size was approaching medium, $d = 0.46$), male teachers gave more than twice as many reprimands to boys as girls (0.77 to boys per hour compared to 0.31 to girls per hour). (There were differences in the on-task behaviour of boys and girls when the data were analysed overall — see below.)

For female teachers, the pattern of differential treatment of boys and girls was clearer still. Like their male counterparts, female teachers responded significantly more frequently to boys than to girls (2.8 responses per boy per hour compared to 1.5 per girl per hour), indicating a medium effect ($d = 0.64$). Similarly, they also responded more frequently with disapproval to the social behaviour of boys with a large effect size for this differential responding ($d = 0.82$). Female teachers gave twice as many negative social responses to boys than to girls (1.09 per boy per hour compared with 0.45 per girl per hour). Unlike their male colleagues, female teachers gave significantly more approval to the academic behaviour of boys, but the effect was relatively small ($d = 0.33$). There was also a significant difference in the on-task behaviour of boys and girls in the classes of female teachers, with boys being on-task significantly less than girls.

12.3.2.2.3 On-task levels of boys and girls and the relationship with teacher attention. The third research question asked if there were any differences in the on-task levels of boys and girls in secondary classrooms and, if so, how this may be related to teacher attention. Perhaps not unsurprisingly given the high-level teacher attention to boys' inappropriate classroom social behaviour described above, on-task levels were significantly different for boys and girls in this study. While girls were on-task 88% of

the time, for boys the figure was lower at 83%. The size of this difference was found to be approaching medium ($d = 0.46$).

When relationships among the variables were explored, it was found that on-task levels of boys and girls were highly correlated ($r = .79, p < .01$) suggesting that levels of on-task behaviour may be class specific, and may be the result of the behaviour of the class teacher rather than the gender of the students. In classes where the on-task behaviour of girls was high, it was also high for boys. Total teacher responses to boys and girls were also highly correlated ($r = .82, p < .01$), providing further evidence of possible teacher or class effects rather than gender effects operating within classrooms.

The only relationship found between the teacher response variables and the on-task behaviour levels appeared to be in relation to negative social teacher responses and girls' on-task behaviour. Higher numbers of negative social responses to girls was associated with lower on-task levels. A parallel relationship was not found for boys. Curiously, there was also a relationship between teachers' rates of negative social responses to boys and the on-task behaviour of girls (which is identical to the relationship between social reprimands to girls and girls' on-task behaviour). There was *no* relationship between social reprimands to girls and the on-task behaviour of boys.

12.3.3 Perceptions Versus Reality in the Classroom: What They Say, What They Do (Section C)

12.3.3.1 The Inter-Relationships Between Teacher and Student Self-Reports and Observed Teacher and Student Behaviour

Throughout this thesis attempts have been made to relate findings from individual data sets to others (e.g., in Section A some data from the *Classroom Behaviour Problems Checklist and Questionnaire* were related to the student perception data garnered from the *Individualised Classroom Environment Questionnaire — ICEQ* in Chapter 6). The matching of student and teacher self-reports (albeit addressing

different aspects of the classroom) was attempted to throw some light on how students and teachers perceive the same environment. An extension of this exploration dealing with relationships among variables not hitherto examined in the thesis was presented in Chapter 11. By relating the self-report data from teachers and students in Section A to the observational study of teachers and students in Section B (in particular Chapter 8), this exploration attempted to provide further insights into the dynamic of teacher-student interaction which so strongly influences the classroom environment, in turn influencing the cognitive, affective and social outcomes for students.

The series of studies described in Chapter 11 considered the relationships between the two areas of study in Sections A and B, which in previous research have tended to be treated discretely. In their extensive research in the area of classroom behaviour management, Wheldall, Merrett, and colleagues did not directly relate the data from their teacher questionnaire on troublesome classroom behaviour (see Houghton et al., 1988; Merrett & Wheldall, 1984; Wheldall & Merrett, 1988a) to their observational studies of natural rates of teacher approval and disapproval in the classroom (see Merrett & Wheldall, 1987b; Wheldall et al., 1989).

In this study, teacher reports of troublesome classroom behaviour were related to observed teacher and student classroom behaviour, arguably enabling the testing of some of the perceptions held by teachers against observed behaviour in the classroom. Moreover, the additional dimensions of the effects of teacher stress in relation to managing student behaviour was added to provide more information about this aspect of classroom interaction research, as well as a consideration of student perspectives on the classroom environment, an often neglected perspective. Data were available for inter-relationships analysis on around 60 teachers and their classes (numbers varied according to the relationships being explored).

12.3.3.1.1 *Teacher responses and student behaviour in more troublesome classes.* The first research question asked if teachers who said they spent more time on problems of order and control in the classroom responded in different ways from their colleagues who did not. It also asked if there were any differences in the on-task levels of the students of teachers who experienced more difficulties with classroom behaviour management compared to those who did not.

In a group of 62 teachers (52% of whom were male), just over one third (37%) indicated that they spent more time on problems of order and control than they ought. (This represented a much smaller proportion of teachers admitting to problems of classroom management than in the larger study described in Chapters 3-5 where 53% of teachers responded in the affirmative.) Clearly this sub-sample of teachers perceived fewer problems with troublesome classroom behaviour than their peers in the larger study (of which they are also a part).

Very little in the way of significant relationships among the data was evident. While the relationship between those teachers who responded “yes” to the question “Do you think you spend more time on problems of order and control than you ought?” and the number of negative social responses to student behaviour produced a moderate effect ($d = 0.52$), the relationship was not sufficiently strong to be statistically significant. This was a surprising finding. It would have been expected that teachers who said they had more behaviour management problems may also have made an increased number of negative social responses to student behaviour. It may be that the size of the sample in this study was a factor, indicating a lack of statistical power given the moderate effect size.

One statistically significant finding was evident in the data, however. The greater the number of troublesome students reported, the fewer academic responses (both positive and negative) were made by the teacher. It would appear that where

teachers were concerned with managing inappropriate student behaviour there were fewer opportunities for academic feedback. No other relationships between teacher reports of troublesome behaviour and teacher behaviour, were found in the present study.

Similarly, while a medium effect was found in the relationship between those teachers who reported that they spent more time than they ought on problems of order and control and student on-task behaviour (on-task behaviour being lower in classes of teachers who responded yes to Question 1), the difference was not sufficiently great to produce a statistically significant difference. Again, this may be a result of small sample size and lack of statistical power.

Further exploration of these relational aspects with larger numbers of teachers and their classes may provide more definitive conclusions regarding the relationships between teacher perceptions of problems of order and control, the pattern of teacher responses to student behaviour and the on-task behaviour of their students.

12.3.3.1.2 Teacher responses and teacher stress. The second research question asked if differences in observed teacher responses to student behaviour were reflected in differential teacher stress levels. For example, do teachers who employ more negative responses to student social behaviour experience more stress as a result of their classroom teaching, as we might expect? There were classroom observation data for 57 teachers who had completed a *Teacher Stress and Classroom Teaching Questionnaire*, 51% of whom were female.

There were no relationships evident between teacher stress scores and teacher responses to student behaviour or to student on-task behaviour. The lack of any apparent variations in the data *may* be accounted for by the nature of this particular sub-sample. Only 37.5% of these teachers responded “yes” to Q1, whereas in the larger group the figure was 53%. Moreover, nearly half of this sub-sample (49%) indicated

that less than 10% of the class was troublesome, compared to only 37% of the larger group reported in the large study Chapters 3-5. This would appear to be a more confident group of teachers when it comes to classroom behaviour management.

Having identified this sub-group as experiencing fewer difficulties in terms of behaviour management, the mean stress score of 40.04 (as well as the variability) was very similar to that of the larger group (41.62) of 127 teachers reported in Chapters 3-5 considered to be mild to moderate. This would suggest that the level of stress these teachers experienced was not related to differences in their responses to students, nor were any variations in stress levels related to student on-task behaviour. If teachers were stressed, there was no evidence of it being related to their responses to students or the on-task behaviour levels in their classes.

12.3.3.1.3 Teacher responses and student perceptions of the classroom environment. The third research question asked if there were any relationships between teacher responses to student behaviour and student perceptions of the classroom environment. For instance, do students report a more favourable classroom environment when more positive teacher responses are evident? There were classroom environment data for 61 of the classes where observations of teacher and student behaviour were made. There was one statistically significant finding. The relationship between negative social teacher responses and the classroom environment dimension *participation (pa)* was significant at the 1% level. Where there were fewer negative social responses from the teacher there was also a higher perceived level of classroom participation on the part of students. This is an educationally significant finding. It would appear that student perception of engagement or involvement (even if not reflected in on-task levels) is stronger where teachers limit their use of negative social responses to students. Given that this particular teacher response is one that is featured frequently in

the repertoire of most teachers, there are lessons to be learned from how students perceive an environment where this is less of a feature.

12.4 Issues Arising

12.4.1 *The Nature and Incidence of Troublesome Classroom Behaviour*

Time and location notwithstanding, the findings of much of the present research have replicated those found by Wheldall and his colleagues. The results of the troublesome classroom behaviour study (reported in Chapters 3-5) bear remarkable resemblance to those found by Houghton et al., (1988). In line with other researchers (e.g., Crawford, 1993; Little, 2005; Merrett & Wheldall, 1984; Wheldall & Beaman, 1994), around half of all teachers (at least) considered that they spent more time than they ought on problems of order and control in the classroom. This is a consistent and almost universal finding in the research literature and one not to be dismissed. Clearly, teachers perceive that their instructional time is compromised and eroded by having to deal with disruptive classroom behaviour. This is just as much the case in New South Wales as in other parts of Australia, and the world.

But just how much of a problem is it in Australia? Again, similar results were evident in this New South Wales secondary study as was the case in the UK (Houghton et al., 1988), with 20% of the class, on average, being reported by the teacher as troublesome in both studies. Similar prevalence rates in recent studies were evident in Victoria, Australia (Little, 2005) and in Hong Kong (Ho & Leung, 2002).

It would appear then, as a general rule, that about half of all teachers (at least), irrespective of whether they are teaching at the primary or secondary levels (and irrespective of geographical location) consider that their instructional time is reduced by having to deal with troublesome students. Moreover, about one-fifth of all secondary students are reported as being troublesome in class; a sizeable minority of students. This is clearly a state of affairs in need of amelioration. The loss of effective

instructional time, not to mention the wear and tear on teachers due to the stress associated with having to manage troublesome classroom behaviour, is not something that parents, educational bureaucracies, teachers' unions, not to mention students who are keen to get as much out of school as possible, should tolerate. The preponderance of teachers believing they spend more time than they ought on problems of order and control, in addition to the sizeable proportion of the class considered to be troublesome, leads us to enquire about the *nature* of the disruption in classrooms that causes so many teachers angst.

While the detail of teachers' responses reported in Chapter 4 is somewhat tedious, a very clear message emerges from these data. The three major disruptive behaviours in secondary classrooms have been identified: students *talking out of turn*; students *hindering other children*; and, students *being idle or slow to respond to the teacher's instructions*. The replication of the findings of Houghton et al. (1988) and others (Conway et al., 1990; Crawford, 1993; Haroun & O'Hanlon, 1997; Ho & Leung, 2002; Johnson et al., 1993; Jones et al., 1995; Leung & Ho, 2001; Little, 2005; Merrett & Wheldall, 1984; Nicholls et al., 1991; Wheldall & Merrett, 1988a) serves to confirm that these are the issues we need to address in terms of classroom behaviour management. If we can assist teachers to reduce these irritating, high frequency, but not particularly serious behaviours, then the toll on teachers in the course of their daily work would be considerably reduced. More importantly, the opportunities for attention to instructional tasks for students would be greatly enhanced.

Talking out of turn has consistently been found to be the behaviour causing most concern to teachers, both in terms of severity and frequency. The present study has been no exception. Moreover, *talking out of turn* is the main behaviour problem for teachers, whether you ask them to nominate the most troublesome behaviour of the class as a whole or of the most troublesome individual students. This latter finding is surprising

given that one would expect that the more violent and serious misdemeanours we hear about in the media would feature more prominently in the catalogue of misbehaviour reported by teachers. While the more serious behaviours like *physical aggression* and *verbal abuse* were reported when teachers were asked the most troublesome behaviour of the most troublesome student in the present study (3% and 8% respectively), *talking out of turn* was still the clear first choice at 41% of teacher responses. The research literature testifies to the universality of this finding irrespective of level of schooling or location.

12.4.2 Teacher Approval and Disapproval – Where a Balance is Not Enough

The data from the present study, that teachers are generally more approving than disapproving when it comes to responding to their students, confirms all the research evidence since the mid 1980s when the shift from more teacher disapproval to more teacher approval first became apparent. Similarly, the current research supported the findings of other researchers (Brophy, 1981; Harrop & Swinson, 2000; Heller & White, 1975; Merrett & Wheldall, 1987b; Wheldall et al., 1989; White, 1975; Winter, 1990; Wyatt & Hawkins, 1987) that, most teacher approval was in response to student academic behaviour and most teacher disapproval related to classroom conduct or student social behaviour. That these Australian teachers very rarely approved of or praised appropriate social behaviour in the classroom adds even further weight to the research evidence from around the world (e.g., Brophy, 1981; Harrop & Swinson, 2000; Merrett & Wheldall, 1987b; Wheldall et al., 1989; Winter, 1990; Wyatt & Hawkins, 1987) that teachers infrequently use this type of response in the classroom. It is with a degree of certainty then that we can expect teachers to be more approving than disapproving of the students in their classes. It is also with a degree of certainty that we can assume that most approval will be in relation to academic work and most disapproval will be in relation to student social behaviour.

But how do Australian teachers rate in terms of absolute responsiveness? The data from these secondary teachers show that they may be both less approving and less disapproving when it comes to the rate of their responses to their students than their peers in the UK (e.g., Harrop & Swinson, 2000; Wheldall et al., 1989) and elsewhere (Winter, 1990). The reason for this is unclear. Moreover, while a trend appears to be evident in the research literature that absolute rates of approval have generally increased over time in secondary aged classes (Harrop & Swinson, 2000; Nafpaktitis et al., 1985; Winter, 1990; Wheldall et al., 1989), the relatively lower rates found in the present study seem to interrupt the apparently increasing rate of approval evident in classrooms. This may be an idiosyncratic feature of this particular sample, or could be a real cultural difference. Further research on larger samples of Australian teachers is required to confirm or refute this contention.

One other point to note is that the ratios of approval to disapproval employed by these Australian teachers are more dramatic than their UK colleagues, at least. The high ratio of approvals to disapprovals for academic behaviour is encouraging, and could account in part for the relatively favourable on-task levels in the present study, but is arguably overshadowed by the concomitant high ratio of disapproval to approval for social behaviour. It bears repeating that in these Australian data the ratio for approval to disapproval to student social behaviour was nearly 1:6 compared with the parallel secondary study of Wheldall et al. (1989) where the ratio was 1:3, the former being much more pronounced than that of UK teachers, for example.

Researchers (Flora, 2000; Merrett & Wheldall, 1990; Shores et al., 1993; Walker et al., 1995; Wheldall & Merrett, 1989) indicate that ratios of approval to disapproval in the order of 3:1, 4:1 and preferably 5:1 are required to create positive classroom environments. These Australian data are a far cry from this preferred situation. We know that powerful interactional relationships exist between teacher and

student behaviour. We also know that teacher behaviour, specifically how teachers respond to students, can be changed to bring about changes in student behaviour (see e.g., Alber & Heward, 2000a, 2000b; Alber, Heward, & Hippler, 1999; Becker et al., 1967; Craft, Alber, & Heward, 1998; Ferguson & Houghton, 1992; Madsen et al., 1968; Merrett & Wheldall, 1987a, 1988; Merrett & Blundell, 1982; Nicholls & Houghton, 1995; Swinson & Harrop, 2005; Ward, 1971; Wheldall & Glynn, 1989; Wheldall & Merrett, 1985, 1987a, 1987b, 1988b, 1989). If teachers are experiencing so much difficulty in managing classroom behaviour (so that more than one in every two teachers report they spend too much of their time doing this), then perhaps more attention (and training) could be focussed on teacher behaviour itself rather than on the irritating, frequent and largely trivial behaviours that are causing them to respond in such negative ways.

12.4.3 *The Nature of On-task Behaviour*

It would appear from the data in the present study that these Australian students spent a good deal of the time on-task, or getting on with what the teacher wanted, given the average on-task level of 86% (which was higher than in the UK study). It is important to note, however, that the figure of 86% does not relate to an average *individual student* being on-task for 86% of the time, which would be quite favourable. What it does mean is that in any given observation period (in this case 15 x 3 minute periods, totalling 45 minutes over three separate occasions), 14% of the class were *not* getting on with what was required, on average, at the time of the observation. This arguably could amount to a high level of disruptive behaviour sustained over the period of a whole lesson.

In Chapter 10, where the on-task behaviour of boys and girls was explored separately, it was found that the on-task behaviour of boys and girls was strongly correlated. That is, in classes where girls had higher levels of on-task behaviour, so did

boys. Similarly, where girls' on-task levels were low, they were also low for boys. These data suggest a class effect, rather than gender effect, perhaps pointing more to the behaviour of the teacher in maintaining either higher or lower on-task levels, rather than the impact of a proportion of disruptive (usually male) students.

In much of the discussion about troublesome classroom behaviour, the focus is on what the troublesome students (usually boys) are doing (or not doing). Perhaps more time and attention should be devoted to understanding how negative patterns of behaviour on the part of teachers and students alike are being maintained. The only relationship found in the study reported in Chapter 8 between on-task behaviour and teacher responses was the relatively strong and inverse relationship between on-task behaviour and negative teacher responses. This indicated the higher the number of negative social responses of the teacher, the lower the on-task levels of the students (or vice versa). Without making inferences about causality, clearly the higher levels of negative teacher responding were not associated with increased on-task behaviour. This type of teacher attention certainly does not improve classroom behaviour in terms of students getting on with their work.

12.4.4 The Trouble With (For) Boys – Gender and the Classroom Behaviour of Students and Teachers

Some of the most compelling data emerging from the program of research comprising this thesis is the role of student gender in troublesome classroom behaviour and its influence on the nature of teacher attention in the classroom. Gender differences were clearly evident in terms of troublesome classroom behaviour. Seventy per cent of all troublesome students were boys, and a boy was nominated as the most troublesome *individual* student by nearly 90% of teachers. While the findings in the present research are consonant with the extant literature, they suggest that the perception of boys being

the “trouble-makers” in the classroom may be even more pronounced in these New South Wales data than in the UK study of Houghton et al. (1988).

The fact that boys are to the fore in terms of teachers’ *perceptions* of their classroom behaviour difficulties is reflected in the *reality of observed* teacher behaviour. Boys elicit more of all teacher attention (about two-thirds more) from male and female teachers alike. While this may appear to constitute an advantage (and thereby arguably being a disadvantage to girls), a closer look at the nature of the attention belies this perception. The clear difference in the data relating to differential teacher attention to boys and girls is that boys receive significantly more disapproval for social behaviour than girls, more than twice as much. It could be argued that this is a logical consequence of the high frequency disruptive behaviour in which boys engage. It may be, however, that high levels of teacher attention (albeit negative) could be serving to *maintain* the disruptive behaviour of boys in some instances.

Perhaps not surprisingly, and given the high-level teacher attention to boys’ inappropriate classroom social behaviour described above, on-task levels were significantly different for boys and girls in the present study. (While girls were on-task 88% of the time, for boys the figure was lower at 83%.) Although significantly different, it could be argued that the magnitude of the difference in the on-task levels of boys and girls does not appear to be in proportion to the vastly different levels of negative teacher attention typically directed at boys. It could be that the off-task behaviour of boys is different to that of girls, and is more overt and apparently requiring of comments to desist by the teacher.

Boys are not just affecting their own learning by their classroom misconduct. In the present study there was evidence for a relationship between social reprimands to boys and girls’ on-task behaviour in a way that was not evident for boys. Girls appeared to spend less time on-task in classes where teachers reprimanded boys and/or girls at

higher rates but this is not true for boys. Negative teacher responses to boys appeared to impair the learning environment for girls, an unexpected side effect of teachers attempting to limit the disruptive influence of boys in the classroom. Boys did not appear to be affected in this way when girls' were the focus of negative teacher attention, however.

The earlier discussion regarding the nature of on-task behaviour is relevant here. In the present research there was evidence of class effects for on-task behaviour. In classes where girls were more on-task, so were the boys. This finding suggests that teacher behaviour may have a more powerful effect on on-task behaviour levels in the classroom, rather than the presence or absence of a few unruly "lads". The successful management of the high frequency but relatively trivial classroom behaviours boys engage in would improve the classroom environment for boys and girls alike, not to mention reducing the "wear and tear" on teachers.

The data in the present research relating to the position of boys in both the perceptions of teachers and the observed realities of the classroom provides strong evidence that the current forms of dealing with the disruptive behaviour of boys is not working. Issues of male disengagement in school are frequently raised in contemporary educational debates. The data relating to the relationship between the level of negative teacher responding and perceived participation in the classroom environment found in the present study are particularly pertinent when it comes to boys. In the UK, 80% of permanently excluded secondary students are boys (Pomeroy, 1999). As clearly demonstrated in the present study, the vast majority of negative teacher responses are directed at boys. Why, then, are we surprised when we find them disengaging from the educational experience of school?

12.4.5 Troublesome Classroom Behaviour and Its Impact

Turning to other possible impacts of troublesome classroom behaviour, in the present study it was found that those teachers who considered they spent more time on problems of order and control than they ought had significantly higher stress scores than those who did not. Similarly, those teachers who indicated that they experienced a moderate-high incidence of troublesome classroom behaviour were found to have significantly higher stress scores than their peers who reported a low incidence. As far as the students were concerned, their perceptions of the classroom environment did not appear to be affected by whether their teachers experienced stress associated with their classroom teaching or not.

Students did, however, detect differences in the classroom environment in terms of the selective treatment of students (*differentiation*) where teachers reported larger numbers of troublesome students in the class. Similarly, in classes where the teacher had answered “yes” to the simple question, “Do you think you spend more time on problems of order and control than you ought?”, students also perceived higher levels of *differentiation*. Clearly, having a number of troublesome students in the class, and/or having a teacher who perceived that classroom order and control was a problem may be associated with a class effect for *differentiation*. In the present study, where teachers confirmed that they spent more time than they ought on problems of order and control, and where more than 10% of the class was considered troublesome, students in these classes indicated that there was a higher level of selective treatment of students. It would seem that there is evidence in the current research to show that the classroom environment (as perceived by students) is sensitive to the perceived reality of teachers.

In terms of observed teacher behaviour, in classes where there was a lower number of negative social responses from the teacher, there was a perception of increased *participation* by students. This is a significant educational finding from the

current research. In addition, where teachers reported a greater number of troublesome students in the class, the number of academic responses made by the teacher was significantly reduced. This finding provides some evidence for the negative effect on the instructional function of teachers of having troublesome students in the class. Having to deal with troublesome students not only reduces the quality of the classroom environment as perceived by students, causes teachers to feel stressed, but also compromises the academic feedback cycle in the classroom.

12.5 Limitations of the Research

There are a number of limitations of the current research as described below.

12.5.1 *The Incidental Nature of the Sample*

As was stated in the Introduction (Chapter 1), the current research draws on an incidental sample of secondary teachers in New South Wales. The questionnaire data for the troublesome classroom behaviour study (including the teacher stress questionnaire) presented in Chapters 3-5 were drawn from metropolitan and country secondary schools in New South Wales. The data from the observational studies reported in Chapters 8 and 10 were collected in metropolitan schools in Sydney (although across *all* metropolitan educational regions). The student questionnaire data relating to the classroom environment (*ICEQ*) reported in Chapter 6 were collected in most of the same classes as the observational studies. The high levels of replication with the findings of Houghton et al. (1988), in which a stratified random sample was employed, provides some confidence for the representativeness of the sample in the current study, however.

12.5.2 *Student Gender Information for the Individualised Classroom Environment Questionnaire (ICEQ)*

The student reports of the classroom environment did not include information relating to the gender of the students completing the forms. As the questionnaires were

answered anonymously (with the class code only) there was no means of identifying the responses of boys and girls separately. Having gender data for the classroom environment questionnaires would have added further valuable information to the study concerning the differential teacher attention to boys and girls reported in Chapter 10. Had gender information been available, it would have been possible to ascertain if boys perceived the classroom environment differently from girls. This would have been particularly interesting given the classroom experience of boys and girls in relation to how teachers respond differentially to boys and girls reported in Chapter 10.

12.5.3 *A Few Troublesome Boys?*

Given the nature of the observation schedule (*OPTIC*) used in the study of differential teacher attention to boys and girls reported in Chapter 10, there was no way of determining if the high levels of teacher negative social responses directed at boys were due to a large number of different boys or a few recalcitrant boys who persistently engaged in disruptive behaviour. Any future research in this area should take into account the need to determine whether it is a few boys or boys more generally who are responsible for the disruption in classrooms.

12.5.4 *Small Sample Size Reducing Statistical Power*

In the inter-relationships study reported in Chapter 11, the size of the sample may have been responsible for a couple of findings appearing to be non-significant where, had a larger sample been available, a significant difference may have been found (in other words, the possibility of a Type II error). For example, in the exploration of the relationship between teacher perceptions and observed teacher behaviour a medium effect was found. Those teachers who had indicated that they spent more time on problems of order and control than they ought appeared to make a larger number of negative responses to social behaviour when they were observed (a finding we might expect). While a medium effect was evident the finding was not statistically significant.

This could be explained by an absence of statistical power due to sample size. Similarly, teachers who reported that they spent more time than they ought appeared to have much lower on-task levels in their classes (again a finding we might expect). While a medium effect was evident in the data, the result was not statistically significant. Asraf and Brewer (2004) have recently highlighted the problems of inadequate sample size and statistical power in educational research. Had a larger sample been available for this aspect of the research, the findings may have been different. The absence of statistical power should be recognised where effect size indicates a possible relationship, and the possibility considered that these non-significant results are, in fact, false negatives in the present research.

12.6 Contribution of the Research and Future Research Directions

A major aim of the present research was to replicate the work of Wheldall, Houghton, and Merrett in the UK in the 1980s in an Australian context. This aim has been achieved in relation to the studies of troublesome classroom behaviour, the natural rates of teacher approval and disapproval, and differential teacher attention to boys and girls, all in the secondary school area. Specifically, data relating to New South Wales secondary teachers and their classes has been added to these areas of research endeavour.

Moreover, attempts were made in the present research to extend some of the earlier work of Wheldall, Houghton, and Merrett by including additional dimensions to the enquiry, such as the inclusion of the students' perceptions of the classroom environment and an exploration of the issue of the stress teachers experience in relation to having to manage student behaviour, an often discussed issue. Inter-relationships hitherto unexplored among these data were also included in the present research, arguably providing further layers of information about the interaction between teachers and students in classrooms.

Some of the findings in this thesis, however, perhaps give rise to more questions than they have answered. To this end, further research in the following specific areas could usefully be pursued to clarify some tentative findings found in the course of these studies. Moreover, those questions where limited sample size may have reduced statistical power (see 12.4.4) could usefully be investigated further with larger numbers to see if differences suggested by effect size analysis could be confirmed or refuted.

In relation to the findings about the prevalence of troublesome boys, one important question is, is it boys generally who cause disruption in the classroom or is it just a few boys who are attracting the high levels of negative teacher attention? Are a handful of boys giving boys *per se* a “bad name”? This is particularly pertinent given the increasing interest in boys’ education – it could be that a whole gender is being pathologised for the behavioural excesses of a few. Similarly, any differences in the nature of the off-task behaviour of boys and girls should be explored. Are girls more likely to be passively off-task while boys tend to be disruptively off-task, thereby attracting the attention and censure of the teacher. Both types of off-task behaviour, however, pose threats to the educational outcomes of students. Observational studies focussing on these issues would provide further information in these areas.

Further investigation of the optimal rates of approval and disapproval could usefully be explored. The relatively high on-task levels in the current research were associated with lower absolute rates of responding relative to those in the more recent research literature. As already alluded to, it would be useful to see if there were a cultural difference with Australian teachers or an idiosyncratic characteristic of the sample used in the present research. Is there an optimal amount (i.e., quantity) of approval and disapproval? Similarly, what ratios of approval to disapproval for academic and social behaviour are indicated to create optimal learning environments? A related question could be whether there is ever a circumstance where there is too much

praise or approval, which may lead to a reduction in the desired behaviour rather than an increase? Is it quantity, quality or ratios that are important in the “praise game”? A lot of teachers claim, “I am a positive teacher”. But how many carefully manipulate the powerful behavioural tools at their disposal when it comes to bringing about changes in student behaviour?

The nature of the relationship between teacher behaviour and student on-task behaviour is an area in need of more systematic research effort. In the present research only one (inverse) relationship was found between negative teacher responding and on-task behaviour. High levels of teacher approval to academic behaviour may have maintained relatively high on-task levels in this present study, but this was not established statistically. The role of non-contingent approval and disapproval and its relationship with on-task behaviour could also usefully be explored further.

In order to address some of the questions arising out of the current research the following study is proposed. In order to limit the variables under study and to have a sufficiently large sample to ensure statistical power, a study of at least 50 male and 50 female teachers of English and Mathematics teaching, say, Year 9 is envisaged. Teachers would be asked to identify the troublesome students in a particular class and their most troublesome behaviours using a modified form of the *Classroom Behaviour Problems Checklist and Questionnaire* used in the present research. Classroom observations would be carried out using a modified *OPTIC* schedule noting where teacher responses were made to nominated and other students. In addition, the on-task behaviour of the nominated students as well as all other class members (by gender) would be recorded (as in Chapter 10). Moreover, the nature of the off-task behaviour of all students, being either passive or disruptive off-task, would be recorded, as would recording of non-contingent teacher responses. Further, a group reading test would be

administered to each class to determine if there was any relationship between poor academic skills and troublesome classroom behaviour.

The aim of such a study would be to resolve the issue of whether it is boys generally who are the problem for teachers or just *a few boys* only that are the main cause of disruption in classrooms. In addition, the nature of the off-task behaviour of boys and girls could be explored more systematically. Much of the discussion around how boys and girls behave in classrooms is anecdotal. Passive off-task behaviour, while being less disruptive to the teacher and other students, is a real threat to academic learning. With all the attention on the disruptive behaviour of boys, girls could be practising their own forms of quiet disengagement.

12.7 Conclusion

The data presented in the series of studies that comprise this thesis, point to the enduring fact that both teachers and students continue in patterns of behaviour that at best do not maximise the learning environment in classrooms and at worst, compromise it. Students, mainly boys, persist in engaging in frequent, irritating, but relatively trivial misbehaviours, namely *talking out of turn, hindering other children* and *idleness*. Teachers in turn continue to focus their classroom management attempts on responding to the negative aspects of students' (mainly boys') social behaviour (perhaps even increasing the incidence of the misbehaviour). Rather than taking more positive steps to manage student misbehaviour and to shape more appropriate classroom behaviour, many teachers rely on ineffective methods of classroom behaviour management that are exhausting and that generate, for some, unacceptable levels of occupational stress. This reactive rather than pro-active approach on the part of teachers fails to take advantage of the considerable body of research evidence testifying to the effectiveness of applied behaviour analytic approaches that promote more positive ways of bringing about behaviour change.

While the preponderance of teacher approval to student academic behaviour found in the present research (in common with other studies from around the world since the mid 1980s) is a situation to be celebrated, the enduring problems with the inadequate management of students' inappropriate classroom social behaviour is a cause for concern. The findings relating to students' perceptions of enhanced participation in classrooms where negative social responding on the part of teachers is less evident is an important one. Issues of engagement in school, particularly for adolescent males, are frequently to the fore in contemporary educational debates. Boys, in particular, appear to inhabit a punitive environment that may have serious implications in terms of their levels of engagement. As has been shown in the current study, however, girls are not immune from the negative effects of boys being the focus of the teacher's attention (with reduced on-task levels for girls in classes where this is more apparent).

The replication of so many of the findings of the UK studies by Wheldall, Houghton, and Merrett in an Australian context provides further evidence of the enduring nature of the classroom behaviours of students and teachers. A further observation is that, in some areas, the data from these Australian studies give rise to even more concern. For example, the magnitude of the ratio of teacher disapproval to approval for social behaviour is quite alarming, as is the very high percentage of teachers (both male and female) who nominate a boy as the most troublesome student in the class.

The importance of teachers incorporating empirically supported classroom management strategies evident in the research literature is fundamental in redressing the negative aspects of having behaviourally troublesome students in the class. MacAulay (1990) has argued the importance of a classroom climate that emphasises structure, order, rule clarity, and organisation, while Ridley and Walther (1995) found that clearly

defined rules and structure were common desires of students and teachers alike. Moreover, teacher characteristics of fairness, consistency and equity have been reported by students as important in their appraisal of their school experience (Ridley & Walther, 1995), not least in relation to how teachers manage classroom interactions. Wittrock (1986) asserts that students' perceptions of their teachers and the differential attention they receive from them mediate their school achievement. Given the centrality of the teacher in creating the classroom environment (Fraser, 1986; MacAulay, 1990), it is incumbent upon them to ensure that expectations for appropriate classroom behaviour are made clear and that classroom behaviour management is exercised with fairness and consistency to all participants in the classroom.

There are strong, often generative, links between effective instruction and special education, most notably in the work of applied behaviour analysts. That we have the evidence for best practice in classrooms does not necessarily mean that this is what is occurring. Maag (2001) has argued, for instance, that "techniques based on positive reinforcement have been, and continue to be ignored and misunderstood" (p. 175). The findings from the present research tend to support this contention. Skinner and Hales (1992) have explored why, despite its effectiveness, educators have been slow to accept the principles of applied behaviour analysis in producing academic and social behaviour change. They suggested that "teachers, and society in general, are conditioned to view behavior in terms of psychodynamic, developmental, and physiological explanations" (p. 219).

There are, however, encouraging signs that some educators are adopting more behaviourally oriented approaches in classrooms. The lack of appropriate naturally occurring teacher behaviour in terms of *reinforcement*, for instance, has led to strategies being devised for those students most educationally at-risk. Teaching students with learning disabilities and emotional and behavioural disorders to *recruit* positive teacher

attention has become a renewed research focus in recent years (Alber & Heward, 1997, 2000a, 2000b; Alber, Heward, & Hippler, 1999; Craft, Alber, & Heward, 1998). Moreover, the current interest in, and implementation of, school-wide positive behavioural support (known as PBS) (Bryer et al., 2005; Strout, 2005) as an “alternative to traditional disciplinary practices” (Safran & Oswald, 2003, p. 361) is also encouraging. The findings from the present research point to the need to redouble our efforts in imparting sound behaviourally inspired management skills in the preparation programs for new teachers and in professional development programs for existing teachers. Equipping teachers with the knowledge and skills to deal more positively with the inevitable challenges of classroom teaching is an essential element in improving the educational environment for students and teachers alike.