

## A CONTEXTUAL STUDY OF TEACHER STRESS, SATISFACTION AND WORKLOAD

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### INTRODUCTION

Stress is often accepted as an inescapable aspect of teaching. Teachers are willing to describe how their personal and professional lives are affected by work-related stress; it seems that all suffer to some extent and in the worst cases teachers fear they will be forced to leave the profession to escape the impact of teaching stress on their lives. The concern is justified by findings which show that teacher work-related stress is linked with physical ill-health (e.g. Otto, 1986), mental ill-health (e.g. Fletcher & Payne, 1982; Finlay-Jones, 1986), and reduced teacher commitment and effectiveness (e.g. Blase, 1984).

Considerable research has indicated that the sources of teacher stress are not clear cut. Kyriacou (1987, p.148-149), lists relationships with colleagues, conditions of work, pupil misconduct, salary, status and role conflict as major sources of stress but cautions that other factors have been found to be significant as well. The relative importance of such variables differs greatly for individuals and for whole staffs. Further he reports that differences due to characteristics such as sex, age, teaching experience and post held are also prone to cause inconsistent findings. What is clear is that biographical variables may have an important role in moderating the relationships between other variables. This paper concentrates on these and other contextual variables in an effort to demonstrate more clearly cause and effect in relationships described by other researchers.

### DEFINITION OF TEACHER STRESS

The definition of stress used here is confined in two ways. Firstly, the topic being examined refers to teacher work-related stress which excludes the stress arising from a teacher's non-work situation. The intention is to connect work-related stress with other elements of the work situation. Secondly, this study follows a widely used approach which views stress as a negative feeling or an unpleasant emotional state (Kyriacou, 1989, p.27). The definition of teacher stress also provided by Kyriacou states this notion clearly.

Teacher stress may be defined as the experience by a teacher of unpleasant emotions, such as tension, frustration, anxiety, anger and depression, resulting from aspects of his work as a teacher.  
(1987, p.146)

Galloway et.al. (1981) indicated that the most useful perspective on stress is one which investigates the interaction or "fit" between teachers and their work. Stress arises when there is a "lack of fit" between the needs and capacity of the individual and the conditions existing in their environment. Stress is an individual response - what one person finds stressful another may not. Individuals perceive potentially threatening situations according to their own needs, expectations and coping resources so that individual differences exist in the sources and degree of stress experienced.

## METHODOLOGY

### Purpose of the Study

This study presents a correlational analysis of the relationship between the work situation and teacher work-related stress. The specific purpose is to determine the nature of the relationships, both direct and indirect, which exist between perceived levels of work-related stress, the demands of teaching, teacher work satisfaction and background factors in the teaching environment. A causal model is proposed and used to investigate these relationships.

### The Sample

Using data collected from a self-report questionnaire, details of the working lives of 204 teachers in six Hunter Region state secondary schools were gathered in Term 2, 1989. Careful consideration was given to making the schools as representative as possible of government secondary schools in the Hunter Region. However, the six schools were finally chosen on the basis of their willingness to participate in the study and their accessibility, and as such do not constitute a random sample.

Response rates for the six schools varied considerably from a full 100 per cent to a low of 31 per cent in different schools, with an average response rate of 55 per cent. Fimian (1987, pp.6-7) reported moderate and varying response rates ranging between 46 per cent and 82 per cent, and averaging 62 per cent, as being typical of voluntary self-report stress studies.

### The Instruments

A background instrument collected demographic data including years spent at the present school, sex, employment status (full-time or casual), and the school in which one taught. Specific information on timetable allocation covering period load, year distribution of periods, subject area and the composition of classes was also sought. The composition of classes in this study refers to the way classes are organised into groups. "Streamed classes" were determined as those which were organised into groups according to academic ability. "Composite classes" were determined as those classes which contained students from more than one year group.

The questionnaire comprised four different instruments designed to collect information about work-related stress, workload and work satisfaction. The questionnaire, which took 20 to 30 minutes to complete, was structured to facilitate completion during the teachers' busy working hours. The teacher stress instrument was developed from Otto (1983). The teacher workload instrument was developed afresh using a similar approach to that used with the stress questionnaire. The final section of the questionnaire consisted of an 18 item scale designed to gauge teacher satisfaction which had been adapted and used by Bourke (1984). Through studies in Australia and overseas, this instrument is more developed than either the stress or the workload scales.

#### MEASUREMENT OF TEACHER STRESS

Four teacher stress scales were hypothesised. Factor analytic and reliability procedures were used to confirm and refine these scales. The analyses confirmed the existence of four latent stress variables which are described as follows.

1. Conflict: Stress arising from staff tensions and role conflict (having to do things which are inconsistent with an individual's expectations). e.g. Being given conflicting orders or being expected to do things incompatible with others.
2. Students and (Physical) Conditions: Stress arising from interactions with students and from the teaching environment in general. e.g. Students who are hard to motivate to be interested and involved.
3. Time Pressure: Stress arising from having to do too much in an insufficient time period and work intruding on home life. e.g. Having to do a lot of work in a limited time.
4. Rewards and Recognition: Stress arising from the lack of rewards, in terms of both money and status, and lack of recognition of teachers' professionalism within the education system. e.g. Lack of appreciation, respect and consideration shown by the Education Department.

TABLE 1: SCALE STATISTICS: TEACHER STRESS - SCALE MEAN SCORES  
(N=199 FOR ALL SCALES)

SCALE STATISTICS	CONFLICT	STUDENTS	TIME PRESSURE	REWARDS & RECOGNITN
MEAN	2.04	2.04	2.62	2.70
S.D.	0.636	0.561	0.795	0.640
NO. ITEMS	6	8	6	6

RELIABILITY            0.80                    0.79                    0.87                    0.78

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### Stress Scale Scores

Summary statistics for the stress scales are reported in Table 1. Reliability for the scales ranged from a high of 0.87 for time pressure to a satisfactory 0.78 for the rewards and recognition scale. Mean scores have a potential maximum of 4 indicating teachers experience 'a lot' of stress from the factor and a minimum of 1 indicating 'hardly any or no' stress derived from the factor. The mid-point of the scales is 2.5, indicating that moderate amounts of stress were derived from the factor.

The lack of rewards and recognition scale had the highest mean scale score with a mean of 2.70 indicating the average experience of stress from this source in the range between 'sometimes' and 'a fair bit'. The "rewards" refer to the pecuniary and non-pecuniary rewards for teaching, while "recognition" refers to the acknowledgment of a teacher's professional skill and knowledge. Stress arising from Time Pressure had an average score of 2.62 which places this in a similar range. The two other scale averages were lower with stress arising from conflict and stress from students and conditions rounding out to an equal low of 2.04, indicating the experience of 'a little or some' stress from these factors.

The inter-correlations between the scales were significant, ranging from 0.26 between students and rewards and recognition, to a high of 0.44 between stress arising from conflict and rewards and recognition. However, even at the maximum, less than 20 per cent of the variance in one scale could be accounted for by another. Consequently, the scales are treated as independent measures of teacher work-related stress. The relationships in the causal model were tested separately for the four different stress outcomes (see Models 1 to 4). The relative importance of independent and intervening variables was expected to differ reflecting the complex nature of teacher stress.

### THE MEASUREMENT OF TEACHER WORKLOAD

The perceived level of demand associated with different teaching tasks has been recognised as a significant stressor in many specific studies (e.g. Fletcher & Payne, 1982; Albertson & Kagan, 1987), and in more general reviews of stress among teachers (e.g. Blase, 1986; Fimian, 1987; Kyriacou, 1987). This concept is referred to here as 'workload' and is measured by four variables concerning the perceived level of demand associated with different aspects of teaching.

The causal model of teacher stress being pursued here places considerable emphasis on the perceived workload of teachers. Several of the independent variables are related to teacher timetable loads: the teacher's faculty

area, class allocations and the composition of classes taught, for example. These variables provide information on aspects of the teaching context but cannot provide information concerning how teachers feel about their work. Consequently, the Teacher Workload variables are designed to assess the attitudes of teachers towards the demands of specific aspects of their work. They may be influenced by the actual allocations of teachers and in turn act upon the level of work-related stress experienced by teachers. In this way the inclusion of workload variables in the stress model provides a link between the background variables and the stress outcomes.

The selection of specific scales to measure teacher workload and the items for the scales were guided by the analysis of teachers' work provided from three different sources. The first source was the NSW Teachers' Federation's (NSWTF) submissions to the Industrial Commission in 1988 on matters concerning teacher workloads. The Federation had a sample of over 100 members prepare statements outlining the work of practising teachers to tender to the Industrial Commission in response to the Minister's Reference case, October 1988. Several examples of workload statements were provided to potential witnesses (NSWTF, 1988a), containing extensive data on what teachers' work entailed. These described tasks completed by teachers in the course of their normal duties and the typical time spent on various duties. The Federation also conducted a research project in the same year, which involved 93 secondary teachers in a cross-section of 15 schools in NSW, to assess workload and related matters (NSWTF, 1988b). A further submission to the Industrial Commission (NSWTF, 1988c) outlined increases in secondary teacher workload since 1980.

Youngman (1982) provided a second source in the form of a system for describing teachers' work which provided useful guide-lines for categorising the work teachers actually do. Youngman used a large check-list of work operations and cluster analysis to identify 14 areas of teacher activity. These included aspects of classroom, organisational and administrative procedures. The third source used was a description of the duties based approach to teacher appraisal provided by Scriven (1989, pp.117-131) which outlined the duties and areas of responsibility of the teacher. The framework which emerged from these three sources emphasises the actual activities involved in a teacher's work as opposed to a description of what duties should be carried out.

Data on the workload of teachers were gathered through a self-report questionnaire which was designed to check-list work operations. To evaluate Workload teachers were asked to indicate the level of 'work demand' associated with various tasks, duties and responsibilities on a four point Likert Scale. While no indication was given to guide respondents in the interpretation of the term 'demand', the items were designed to reflect the conceptualisation of demand used by Blase (1986, pp.23-24) in an analysis of teacher stress. This identified two areas of demand; quantitative demand which is the volume of demands to be met (e.g. Printing and copying) and qualitative demand which is the difficulty or complexity of tasks (e.g. Providing challenging tasks for your class). The

categories are not necessarily mutually exclusive since different teachers may have different experiences and levels of expertise which influence the way they see their work. It is possible that what would be a qualitative factor to one teacher may be a quantitative factor to a more experienced colleague.

Confirmatory factor analysis was used to refine the workload scales and internal consistency of the scales was assessed with reliability analysis. This process provided four workload variables:

1. Administration: Teachers' school level administration - the demands associated with duties beyond the classroom. e.g. Involvement with school-community activities.
2. Assessment: The demands of student evaluation, including formal examination and assessment. e.g. Marking examinations/assessment tasks.
3. Teaching: The demands associated with face-to-face teaching. e.g. Catering for talented students.
4. Resources: The demands associated with finding, developing and producing teaching resources. e.g. Learning to use new resources.

Table 2 reports summary statistics for the workload scales. Reliability ranged from 0.88 for administrative workload to 0.70 for teaching workload. Mean scores were calculated for each teacher on the four scales. A maximum possible score of 4 indicates teachers find their workload "very demanding" while the minimum score of 1 indicates tasks are "hardly ever demanding".

TABLE 2 : SCALE STATISTICS: TEACHER WORKLOAD - SCALE MEAN SCORES  
(N=199 FOR ALL SCALES)

SCALE STATISTICS	ADMIN	ASSESSMENT	TEACHING	RESOURCES
MEAN	2.01	2.56	2.29	2.52
S.D.	0.630	0.696	0.643	0.694
NO. ITEMS	11	7	5	5
RELIABILITY	0.88	0.85	0.70	0.82

Assessment created the greatest workload reported with a mean of 2.56 which falls close to the mid-point of the scale indicating Workload in this area is 'slightly' to 'quite' demanding. Workload associated with Resources is

in the same range (mean=2.52). The demands of face-to-face Teaching were reported as lower, having a mean of 2.29, indicating such tasks are a little more than 'slightly demanding'. Workload from Administration had the lowest average of 2.01.

The four scales were found to be significantly correlated with each other, the strongest relationship ( $r=0.54$ ) being between assessment and resources workload. The lowest correlation ( $r=0.40$ ) was between the assessment and administration scales. In fact, teachers' perceptions of work demands were reasonably strongly inter-related in all four areas. However, even at the highest level, less than 30 per cent of the variance in any variable can be accounted for by another. Accordingly, the four workload variables were used as separate measures within the models being analysed.

### THE MEASUREMENT OF TEACHER SATISFACTION

The model being pursued examines the possible mitigating influence of job satisfaction on stress. Kyriacou (1987, p.148), in a review of the international stress literature, indicated that self-report stress is only moderately negatively associated with job satisfaction and that some teachers report high stress and high satisfaction. Manthei & Solman (1988, p.150-151) found this to be the case, as did Mykletun (1985, p.67). Otto (1982 pp.54-56) reported that while highly stressed teachers are likely to experience less job satisfaction than other teachers, nearly 50 per cent of highly stressed teachers in her Victorian study found teaching to be moderately to highly satisfying.

The response format of the satisfaction questionnaire was modified from that used by Bourke (1984) in which a six-point Likert scale was used. For consistency with the other sections of the questionnaire, a four-point scale was used, and the results seemed to be comparable. The three scales developed by Bourke were as follows.

1. Satisfaction with relationships with students
2. Satisfaction with workload and conditions
3. Satisfaction with relationships with administration and senior staff

Scale means were computed and compared (Table 3). A score of 4 indicates 'a lot' of satisfaction arising from the source in question, while a score of 1 indicates satisfaction was experienced 'hardly or not at all'.

TABLE 3 : SCALE STATISTICS: TEACHER SATISFACTION - SCALE MEAN SCORES (N=199 FOR ALL SCALES)

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SCALE	RELATIONSHIPS	WORKLOAD &	ADMIN. & SENIOR
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STATISTICS	WITH STUDENTS	CONDITIONS	STAFF
MEAN	2.38	2.02	2.77
S.D.	0.602	0.611	0.571
NO. ITEMS	5	4	5
RELIABILITY	0.83	0.71	0.74

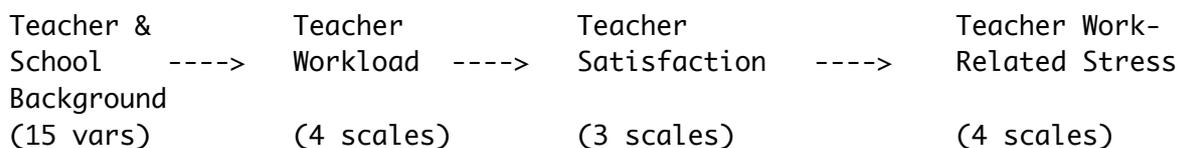
Satisfaction with relationships with administration and senior staff recorded the highest mean scale score of 2.77, indicating a fairly high level of satisfaction. Satisfaction with relationships with students was lower, being slightly below the mid-point of the scale (mean=2.38). The lower level for satisfaction with workload and conditions (2.02) means that in general teachers derive only a little satisfaction from this source. Inter-correlations were significant between the satisfaction with workload and conditions and satisfaction with student relationships scales ( $r=0.29$ ) and between administration and relationships with students ( $r=0.46$ ).

#### THE MODEL FOR ANALYSIS

A sequential path model was developed to demonstrate the hypothesized relationships between the variables under consideration. This was a saturated three stage model in which each variable is potentially influenced by all prior variables. The pattern of causation moves from left to right, meaning that teacher stress is potentially influenced by all variables to the left. Teacher workload may be influenced by background variables alone. Teacher satisfaction is potentially influenced by workload and/or the background variables which may work either directly or indirectly through workload. Thus, background variables may be either directly related to stress outcomes or indirectly related to stress through the workload and/or satisfaction variables. The model was tested and refined using multiple linear regression analysis. In general, situational factors were expected to have a strong influence over the experience of stress amongst teachers.

The model contains five groups of independent variables representing the background aspects of the teaching context. Teacher workload and teacher satisfaction act as two intervening stages in the model between the background variables and stress outcomes. Teacher workload is measured by variables representing the perceived workloads in four domains: the workload associated with school-wide administrative duties, the workload associated with assessment of students, the workload associated with face-to-face teaching duties, and the workload associated with teaching resources. Teacher satisfaction was measured by three scales concerning satisfaction with administration and senior staff, satisfaction with students, and satisfaction with workload and conditions.

Figure 1: SEQUENTIAL PATH MODEL - TEACHER WORK-RELATED STRESS  
SUMMARY MODEL



(A copy of the complete model is appended to the conference paper. Readers using the disk file may contact Dr Sid Bourke, Faculty of Education at the University of Newcastle for copies of this and other figures referred to in the paper.)

A separate form of the model was tested for each of the four teacher stress variables. The three stage models were refined using multiple linear regression analyses. Standardised partial regression coefficients (beta coefficients) were used to indicate the strength of causal paths within each form of the model. Because of the lack of a random sample and the low response rate in some schools, it acknowledged that the 0.05 per cent confidence level could be used only as a guide to significance of the beta coefficients. The following discussion is restricted to consideration of paths found to be significant according to this criterion.

As school and subject area are nominal variables, it is necessary to consider the method of treatment of these variables in the model before proceeding to a presentation of results of the analyses.

#### School and Subject Area Effects

As there were six schools involved and six subject areas identified, these variables needed to be represented in regression analyses by five "dummy" variables in each case (see Williams et al, 1980, pp.33-34). The initial analysis revealed that when the 10 dummy variables were included in analyses they tended to mask other small, but significant, relationships in the models. To overcome this problem each of these groups of variables was combined into a composite variable designed to control for the effects of school and subject area.

For school, this process consisted of converting the dummy variables into a composite variable related to the overall experience of stress (an average of stress in all four models). An ANOVA of overall stress by school, with a multiple classification analysis, was used to obtain the adjusted deviation from the grand mean for each school (Williams et al, 1980). The deviation scores were then used as weights in the construction of a composite variable. The composite variable created in this way provided a means of reducing the number of variables in the regression analyses and thus the complexity of the causal models.

As a consequence, it should be noted that the paths in the models relating to school and subject area represent only broad general effects, which may then be compared with the effects of other variables in analyses. In the case of school, the composite path coefficient represents the effect of working in a high or a low stress school. In the case of subject area, the path relates to working in a high or a low stress subject area. One would need to return to the multiple classification analyses to determine which schools and which subject areas were notable in their relationships with teacher stress.

#### MODEL 1: STRESS ARISING FROM CONFLICT

This model displays the complex of relationships which exist between the background contextual variables, the intervening variables and stress due to conflict (See Table 4). This area of stress concerns staff tensions and having to do things inconsistent with one's expectations. Teachers' perceptions of conflict related stress had an average level in the range 'a little or sometimes'. It is clear that, while some contextual variables have a direct effect, the workload variables and satisfaction with administration play important mediating roles. Overall, more than a third of the variation in stress from conflict can be explained by variation of the independent variables in the model.

Five direct effects on the dependent variable, stress arising from conflict, are apparent. Satisfaction with administration and senior staff has a negative effect (i.e. a stress reducing effect) of  $-0.29$  on stress from conflict. Satisfaction with administration recorded the highest average satisfaction score (mean=2.77) and it is clear that positive feelings towards senior colleagues leads to less conflict-related stress.

Administrative workload has the largest single effect on stress in this model ( $\beta=0.32$ ). This quite strong positive relationship indicates that greater school-wide responsibilities are linked with a greater degree of stress from conflict, which may arise from having to work with other staff members or from having to follow an ideology inconsistent with personal viewpoints. Administrative workload is in turn increased by teacher status ( $\beta=0.30$ ), years spent teaching at a school ( $\beta=0.16$ ), and by period load ( $\beta=-0.16$ , the latter indicating that more senior staff have lower teaching allocations).

Resources workload has a direct effect on stress arising from conflict which is consistent with theory ( $\beta=0.15$ ). A stronger effect exists between subject area and resources workload ( $\beta=0.31$ ), indicating that subject area has a considerable influence over the demands of providing resources for teaching. The number of periods spent with composite classes reduces resources workload ( $\beta=-0.16$ ). The other effects on resources workload are interesting in themselves. The path from sex to resources workload ( $\beta=0.16$ ) indicates that females see themselves as engaged in more resource intensive forms of teaching. A similar effect exists between

status and resources workload, where a coefficient of 0.18 indicates that full-time staff have higher demands in this area than part-time staff.

The effect of years at present school on conflict related stress (beta = 0.18) indicates that longer term residents at a school are more frustrated in their work and/or more inclined to experience interpersonal conflict. School has a quite strong effect on stress from conflict (beta = 0.24) which indicates that the school worked in is an important contributing factor to stress from conflict. Subject area influences resources workload in a similar way, and so has an indirect effect on conflict related stress.

TABLE 4: PATH COEFFICIENTS FOR OUTCOME VARIABLES - STRESS FROM CONFLICT MODEL abc (R=0.59, R squared=0.35)

DEPENDENT VARIABLES					
INDEPENDENT VARIABLES	STRESS CONFLICT	SATIS ADMIN	WLOAD TEACHING	WLOAD RESOURCES	WLOAD ADMIN
SEX	.	.	15	16	.
SCHOOL	24	.	.	.	.
YRS AT SCHOOL	18	.	.	.	16
STATUS	.	.	.	18	30
Y8 PERIODS	.	.	13	.	.
Y10 PERIODS	.	.	.	-14	.
Y11 PERIODS	.	.	.	.	-19
PERIOD LOAD	.	.	.	.	-16
STREAMED PERS	.	.	18	.	.
COMPOSITE PERS	.	.	.	-16	.
SUBJECT AREA	.	.	.	31	.
SATIS ADMIN	-29	n/a	n/a	n/a	n/a
WLOAD TEACHING	.	-13	n/a	n/a	n/a
WLOAD RESOURCES	15	.	n/a	n/a	n/a
WLOAD ADMIN	32	.	n/a	n/a	n/a

- All coefficients have been multiplied by 100.
- Only paths significant at the 0.05 confidence level have been shown.
- Only variables applicable to the model in question are shown; "n/a" indicates a path not applicable to the model due to the pattern of causation; and a dot indicates a path not significant at 0.05 confidence level.

Teaching workload has a small, positive, indirect effect on stress in this domain which operates through satisfaction with administration. Teaching workload is higher for female teachers ( $\beta=0.15$ ), for those teaching larger numbers of Year 8 classes ( $\beta=0.13$ ) and for those teaching larger numbers of streamed classes ( $\beta=0.18$ ).

Summary. The effects depicted in the Stress from Conflict model show consistent patterns of causation. The school one teaches in and the number of years spent teaching at that school have significant effects on stress from conflict. Two workload variables, the demands of administrative duties and teaching resources have direct positive effects on stress from conflict. Satisfaction with administration and senior staff has a mitigating effect on the experience of stress arising from conflict. Other background variables have small but significant indirect effects on stress in this domain.

## MODEL 2: STRESS ARISING FROM STUDENTS AND CONDITIONS

Stress arising from students and conditions was concerned with the teacher's interaction with students and the physical conditions existing in the teaching environment. Such areas of concern are almost universally reported as a major stressors in the teaching profession. The level found here indicated that teachers suffered stress from this source 'a little or sometimes'. This area of stress was represented in the questionnaire by items such as 'The school being overcrowded', 'Class control difficult' and 'Lack of available help or advice in case of problems.'

The students and physical conditions model shows a more complex pattern of causation explaining 43 per cent of the variation in stress arising from students and conditions is explained by variables included in this model (See Table 5). The direct effects on stress in this model are from satisfaction with students ( $\beta=-0.32$ ), resources workload ( $\beta=0.24$ ), teaching workload ( $\beta=0.19$ ), school ( $\beta=0.20$ ), Year 8 periods ( $\beta=0.12$ ), periods spent with Composite Classes ( $\beta=0.16$ ), and years spent at the school ( $\beta=-0.12$ ).

Satisfaction with students decreases stress arising from students and conditions. Relationship with students is also emphasised by the strong link of  $-0.48$  between school and satisfaction with students. This translates into an indirect positive effect of  $0.15$  for school on stress outcomes. The direct and indirect effects of school in this model show that school background factors have a large impact on the feelings of teachers towards their students. There are two other negative paths leading to satisfaction with students. First, higher teacher workload reduces satisfaction, which in turn increases stress. This is consistent with the direct positive path from teaching workload to stress, and adds another dimension to the teachers' feelings towards their students. The number of periods spent with Year 10 classes also has a negative effect on satisfaction with students, both directly, and indirectly operating through

administrative workload. Those with administrative responsibilities have more positive feelings of satisfaction towards students ( $\beta=0.13$ ).

Another path shows that the number of periods spent with composite classes has a positive impact on the experience of stress. Composite periods negatively affect resources workload, indirectly producing a small reduction in stress, while at the same time they have a larger direct effect increasing stress. This demonstrates the complex nature of the teacher's work environment and the need for management to probe cause and effect relationships carefully to ensure that actions produce the intended outcomes.

A teacher's experience at working in a particular school is found to reduce student-related stress. The established teacher has the opportunity to develop personal relationships with the students and to develop effective discipline structures. The longer serving members of staff also have more administrative responsibilities, such as year co-ordinators positions, and consequently have more ascribed status within the school community.

TABLE 7: PATH COEFFICIENTS FOR OUTCOME VARIABLES - STRESS FROM STUDENTS AND PHYSICAL CONDITIONS abc ( $R = 0.66$ ,  $R^2 = 0.43$ )

DEPENDENT VARIABLES					
INDEPENDENT VARIABLES	STRESS STUDENTS	SATIS STUDENTS	WLOAD TEACHING	WLOAD RESOURCES	WLOAD ADMIN
SEX	.	.	15	16	.
SCHOOL	20	-48	.	.	.
YRS AT SCHOOL	-12	.	.	.	16
STATUS	.	.	.	18	30
Y8 PERIODS	12	.	13	.	.
Y10 PERIODS	.	-15	.	.	-14
Y11 PERIODS	.	.	.	.	-19
PERIOD LOAD	.	.	.	.	-16
STREAMED PERS	.	.	18	.	.
COMPOSITE PERS	16	.	.	-16	.
SUBJECT AREA	.	.	.	31	.
SATIS STUDENTS	-32	n/a	n/a	n/a	n/a
WLOAD TEACHING	19	-15	n/a	n/a	n/a
WLOAD RESOURCES	24	.	n/a	n/a	n/a
WLOAD ADMIN	.	13	n/a	n/a	n/a

a. All coefficients have been multiplied by 100.

- b. Only paths significant at the 0.05 confidence level have been shown.
- c. Only variables applicable to the model in question are shown; "n/a" indicates a path not applicable to the model due to the pattern of causation; and a dot indicates a path not significant at 0.05 confidence level.

The pattern produced in the Stress Arising from Students and Conditions model is one of interaction between the two factors of what is taught and who is taught. Clearly, the school setting is instrumental in determining the conditions under which teachers work and the quality of their working lives. Although other factors have been found to play a part, the findings indicate that school size is also related to the experience of teacher stress and satisfaction. The relationships, which indicate that conditions in larger schools generate more stress, are complex and worthy of detailed consideration in future studies.

Summary. This model shows the importance of teacher/student relationships in determining the level of teacher work-related stress. Contextual factors such as the characteristics of the school in which one works, the years spent at this school, and the nature of classes taught, also have direct effects on student-related stress. Resources and teaching workload have direct effects with this model as well. Behind the direct effects there is a complex network of interactions at work.

### MODEL 3: STRESS ARISING FROM TIME PRESSURE

Stress arising from time pressure concerns having too much to do in too little time and work intruding on home life. The level of stress arising from time pressure was the second highest recorded by the teachers in this study, falling slightly below that for lack of rewards and recognition but still in the moderately high range. Stress in this area was typified by such items as 'Having to do a lot of work in a limited time', 'Insufficient time to talk to colleagues during working hours' and 'Work making it difficult to complete home duties'. Just over 50 per cent of the variance in this type of stress is explained by variation in the dependent variables included in the model. Table 6 summarises this model.

TABLE 6: PATH COEFFICIENTS FOR OUTCOME VARIABLES - STRESS FROM TIME PRESSURE MODEL abc (R = 0.71, R squared = 0.51)

DEPENDENT VARIABLES				
INDEPENDENT VARIABLES	STRESS TIME PR.	SATIS WLOAD	WLOAD RESOURCES	WLOAD ASSESSMENT

SEX	18	.	16	13
SCHOOL	11	-18	.	.
STATUS	.	-12	18	17
Y12 PERIODS	.	.	.	18
PERIOD LOAD	.	.	.	28
STREAMED PERS	.	.	.	21
COMPOSITE PERS	.	.	-16	.
SUBJECT AREA	.	.	31	30

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SATIS WLOAD	-23	n/a	n/a	n/a
WLOAD RESOURCES	25	-16	n/a	n/a
WLOAD ASSESSMENT	36	-34	n/a	n/a

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- All coefficients have been multiplied by 100.
- Only paths significant at the 0.05 confidence level have been shown.
- Only variables applicable to the model in question are shown; "n/a" indicates a path not applicable to the model due to the pattern of causation; and a dot indicates a path not significant at 0.05 confidence level.

The largest direct effect on teacher stress in this model is from assessment workload (beta=0.36). The demands of assessment on teachers' time have traditionally been high and several respondents indicated that they considered it to be increasing with the introduction of school based assessment in the senior years. This notion is supported in part by the path (beta=0.18) from Year 12 periods to assessment workload.

Other effects, acting indirectly on stress through assessment workload, are from teaching subject (beta=0.30), total period load (beta=0.28), streamed periods (beta=0.21), sex (beta=0.13) and status (beta=0.17). Assessment workload has a strong negative effect on satisfaction with workload and conditions of -0.34. In this model satisfaction with workload and conditions has a mitigating effect on stress (beta=-0.23). Tracing this path shows that assessment workload has the effect of increasing stress due to time pressure. School, status and resources load also have the effect of increasing stress from time pressure.

Resources workload is also an important contributor to feelings of time pressure. The relationships between the independent variables and resources workload are identical in this model and the Stress Arising from Conflict model. Sex has a direct effect of 0.18 on stress from time pressure indicating that females are generally more stressed by this factor. The school variable also directly influences stress in this model.

To a considerable extent, managing stress for the individual and for the school comes down to a matter of managing time. The manifestations of

stress tend to interfere with time which could be used more directly on instruction-related tasks or tend simply to waste time. Tasks need to be prioritised, unnecessary tasks eliminated and basic tasks dispensed with expediently. This leaves more time to spend on important student centred activities. The management of time related stressors is a skill which should be taught to teachers and educational managers through pre-service and inservice training. School practices seem to be important for reducing or increasing stress due to time pressures.

The educational costs of time pressure are potentially high. Blase (1986, p.30-32) used the term 'performance adaptation syndrome' to describe the maladaptive cognitive and behavioural ways teachers cope with stress. Teachers often deal with stressors in the work place ineffectively, diverting time and energy away from their classes and effectively reducing their creativity, emotional concern, enthusiasm and flexibility. Blase explained that, while under stress, teachers are less tolerant, less patient, less caring, and less involved in their work. Mastering the skills of time management at the personal and organisational levels promises to minimise demands on teachers and maximise interaction with their students. The effects of resource related workloads and assessment workloads on the experience of time pressure are indicated by this study to be important aspects of the school's organisational framework.

Summary. Workload from assessment and resources have direct effects on the experience of stress from time pressure. School and the sex of teacher also have significant causal paths to stress in this model. Satisfaction with workload and conditions has a mitigating effect on time pressure. The model clearly demonstrates that aspects of the teaching context act both directly and indirectly on experience of teacher stress.

#### MODEL 4: STRESS ARISING FROM LACK OF REWARDS AND RECOGNITION

The highest levels of teacher stress were found to be those arising from lack of rewards and recognition where teachers reported a moderately high average level of stress. This refers to stress arising from the lack of rewards in terms of such considerations as money, status and recognition of professional worth. Within the study, this area of concern was typified by such items as 'Lacking the chance of promotion', 'Lack of appreciation, respect and consideration shown by the Education Department' and 'Pay not in line with skills and responsibilities'.

This model produced a total of seven direct effects on the stress outcome (See Table 7). These were from satisfaction with administration (beta=-0.21), administrative workload (beta = 0.28), assessment workload (beta=0.23), school (beta=0.12), years at present school (beta=0.22), sex (beta=-0.18, i.e. females experience less stress in this domain) and Year 10 periods (beta=0.12).

Satisfaction with administration reduces this type of stress, as would be expected. Administrators have the ability to provide recognition and

rewards which can diminish feelings of frustration amongst the staff. However, teachers with administrative responsibilities also suffer from stress in this domain.

TABLE 7: PATH COEFFICIENTS FOR OUTCOME VARIABLES - STRESS FROM LACK OF REWARDS AND RECOGNITION abc (R = 0.60, R squared = 0.36)

DEPENDENT VARIABLES					
INDEPENDENT VARIABLES	STRESS REWARDS	SATIS ADMIN	WLOAD TEACHING	WLOAD ADMIN.	WLOAD ASSESS
SEX	-18	.	15	13	.
SCHOOL	12	.	.	.	.
YRS AT SCHOOL	22	.	.	16	.
STATUS	.	.	.	30	17
Y8 PERIODS	.	.	13	.	.
Y10 PERIODS	12	.	.	-14	.
Y11 PERIODS	.	.	.	-19	.
Y12 PERIODS	.	.	.	.	18
PERIOD LOAD	.	.	.	-16	28
STREAMED PERS	.	.	18	.	21
SUBJECT AREA	.	.	.	.	30
SATIS ADMIN	-21	n/a	n/a	n/a	n/a
WLOAD TEACHING	.	-13	n/a	n/a	n/a
WLOAD ADMIN	28	.	n/a	n/a	n/a
WLOAD ASSESS	23	.	n/a	n/a	n/a

- All coefficients have been multiplied by 100.
- Only paths significant at the 0.05 confidence level have been shown.
- Only variables applicable to the model in question are shown; "n/a" indicates a path not applicable to the model due to the pattern of causation; and a dot indicates a path not significant at 0.05 confidence level.

School influences the level of stress from lack of rewards and recognition. Management styles and administrative structures differ from school to school and teachers can feel more or less supported as a result. This may also indicate that some aspects of teaching satisfaction, independent of extrinsic rewards, may differ from school to school. More generally, male teachers suffer more stress related problems rising from lack of rewards and recognition. The path from Year 10 Periods is also noteworthy because

it indicates that teachers find this year level less rewarding than other years. Assessment is also indicated as being an unrewarding task. There is evidence that this is related to teaching subject area and the nature of the teacher's allocation.

Teachers' concerns about rewards and recognition were no doubt intensified at the time of this study by the reform agenda of the day. Staffing ratio reductions impacting on schools at the start of the 1989 school year and confrontation between the government and the teachers were key issues at that time. If staffing ratios are reduced teacher workloads must increase. Cutting staff implies that some form of 'excess capacity' exists, and teachers interpret this as a lack of appreciation of what they do. The arguments in favour of such cuts have no educational pretensions, being budgetary in nature. Higher workloads have been shown to be linked to more stress and less satisfaction for those engaged in the profession. Both are factors which can result in less effective teaching.

Another factor affecting such feelings is associated with the presentation of the agenda for reform. Comments of teachers in the open-ended sections of the questionnaire indicated that the system has generally failed to communicate effectively to teachers the ideals and, more importantly, the actuality of proposed changes to the education system. Under these circumstances, regardless of the merits of the proposed changes, teachers are likely to continue to suffer from anxiety and their needs for security and recognition of professional worth will be unfulfilled.

The aging of the teaching service means that the particular problems of experienced classroom teachers are likely to become of increasing importance. Promotion provides intrinsic motivation and job enrichment prospects for teachers, but it is only available to a minority (Telfer & Swann, 1986). Lack of promotional prospects has been found to be associated with stress in many studies (e.g. Otto, 1986; Loudon, 1987; Manthei & Solman, 1988), and it is apparent that alternative ways of recognising the status of senior teachers need to be examined. The proposed introduction of advanced skills teachers, who would be class-based teachers with additional staff development, pupil welfare and curriculum responsibilities, is a positive move but the working conditions associated with such positions are not as yet clear.

A school's internal organisation may also be an important consideration in terms of rewards. It was suggested by Sarros & Sarros (1987, p.226) that teachers in schools which employ collaborative decision-making structures may feel sufficiently challenged and rewarded to mediate their stressful experiences. This possibility seems particularly applicable to schools, such as those in this study, which have large numbers of experienced staff members. These teachers often carry additional responsibilities which increase stress due to the lack of rewards and recognition. More collaborative decision-making structures would allow the school to benefit by the teachers' inputs and allow the teachers to benefit personally from their participation. The opportunity to share in formulating policy in

appropriate situations promises to boost the morale and commitment of staff members and to reduce levels of stress related to the lack of rewards and recognition, and possibly at the same time to reduce levels of conflict.

Cole (1989), reporting on the British situation in the 1980's which closely paralleled the current period of change in NSW, claimed that it is in times when intrinsic pedagogical rewards are low that extrinsic rewards such as pay become predominant. If wage rates appropriately reflect conditions of work, qualifications and experience of teachers they may mitigate frustrations arising in this domain. Inadequate remuneration is interpreted by teachers as a lack of recognition of their professional skills. One must share Cole's concern for a profession in which intrinsic and extrinsic rewards are under attack.

Summary. The rewards and recognition model explained 36 per cent of the variance in stress in this domain. Satisfaction and workload are important factors in determining stress from lack of rewards and recognition. The number of years spent in a particular school has a bearing on stress outcomes. Sex of teacher and the amount of time spent with Year 10 classes are other direct effects. This model further demonstrates the nature of background influences and teaching context on teacher stress. The lack of rewards and recognition is a frequently reported source of stress (e.g. Laughlin, 1984; Manthei & Solman, 1988) but its prominence here is not so typical. Kyriacou's (1987) caution that each study should be placed in its own context is important in this case.

## TEACHER WORKLOAD AND TEACHER SATISFACTION

### Perceived Teacher Workload

The proposition that teacher stress is closely related to what teachers actually do in the work place has been pursued at length in this analysis and some small but significant effects were discovered. However, workload as interpreted by the teacher was of greater importance in demonstrating the role of contextual factors in determining the experience of stress. Workload also provided the mechanism through which background variables can indirectly influence satisfaction and stress. For instance teacher subject area, while not acting directly on stress outcomes, produced quite strong paths to assessment and resource related workloads.

Higher assessment workloads were related to being female, having full-time employment status, teaching more periods, teaching larger numbers of Year 12 periods, teaching larger numbers of academically streamed classes, and the teacher's particular subject area. The Humanities, Social Sciences, Home Science and Industrial Arts teachers perceived the highest workloads.

The task of evaluating students was shown to reduce satisfaction with conditions of work and to increase the stresses associated with time pressure and the lack of rewards and recognition. The progressive

assessment principles associated with the external certificate courses would have added considerably to these demands in recent years. Most recently, the introduction of a restructured grading system for School Certificate courses added yet another dimension to these demands (Board of Secondary Education, 1990). The demands of assessment were also found to decrease satisfaction with workloads and conditions. Such trends must be recognised as having a substantial impact on teacher welfare and be recognised as a cost to the profession which must be weighed against the benefits of recent assessment changes.

The workload associated with providing teaching resources was higher for females, those having full-time employment status, and for teachers in particular subject areas (Social Science, Home Science, Industrial Arts and some Humanities). Resources workload was reduced for teachers who encountered higher numbers of composite (mixed year group) classes.

The workload associated with face-to-face teaching was related to being female, teaching larger numbers of Year 8 periods, and teaching larger numbers of academically streamed classes. The workload associated with face-to-face teaching duties was found to be moderately related to stress arising from students and conditions. The negative impact of teaching workload on satisfaction with students can not be overlooked in this area.

Administrative workload was increased with years spent in the current school and full-time status, and decreased with higher total period loads, and teaching larger numbers of Year 10 and Year 11 classes.

### Teacher Satisfaction

Teacher satisfaction was found to mitigate teacher work-related stress. Satisfaction with workloads and conditions was reduced by having full-time status, teaching in higher stress schools, having higher resource workloads, and having higher assessment workloads. Satisfaction with relationship with students was reduced by teaching in a high stress school, teaching larger numbers of Year 10 classes and by having higher perceived teaching workloads. Higher administrative workloads increased satisfaction with students. Satisfaction with administration and senior staff decreased as face-to-face teaching workloads increased.

More importantly, particular aspects of satisfaction are seen to influence particular aspects of stress. Satisfaction with workload and conditions diminished stress arising from time pressure. Satisfaction with relationships with students diminished stress arising from students and conditions. Satisfaction with administration and senior staff diminished stress arising from lack of rewards and recognition, and stress arising from conflict. This may help to explain the puzzle behind the coexistence of high stress and high satisfaction reported by Kyriacou (1987). A teacher may experience satisfaction in one dimension but still experience stressful working conditions in another. This notion is supported by Farrugia (1986) whose findings indicated that the sources of satisfaction

and frustration for the Maltese teachers in his study were the same for all. However, the success or failure of attempts to reconcile these forces depended on the level of the teacher's commitment to work. The more committed teachers were able to use intrinsic forms of satisfaction to overcome frustrating factors, while the less committed were not.

#### TOWARDS AN ORGANISATIONAL COPING

The degree of concern about the growing problem of teacher stress shown by the educational community would seem to be warranted by the levels of stress found. School-wide and system-wide responsibilities are too often overlooked in favour of individual coping responses. If the beast copes with the load there is a tendency to increase its burden. The tendency of those who are unaware of the causes and consequences of stress is to pass responsibility over to individuals or, even worse, blame them for their plight. This study has demonstrated that workload plays a significant role in determining the experience of teacher work-related stress. The responsibility for the load lies beyond the teachers', and often the schools', sphere of influence. The necessity for the individual to acquire knowledge and skills as a personal defence against stress is heightened by these demands but so is the necessity at the school and system wide levels for educational managers to realise that they too can reduce or increase stress through their activities. There are lessons in industry of what van Dijkhuizen, about a decade ago, referred to as 'organisational coping'.

The aim of organisational coping is to reduce stress in work situations, more specifically to attune the organisation's demands to the individual's skills and abilities, and the organisation's possibilities or reinforcements to the individual's needs. .... What we must aim at is to diminish the amount of stress to a level equal to the tolerances and needs of the exposed individuals.  
(1981, p.209)

This is a challenge for education in the years to come. To meet this challenge educators will need to analyse the context in which teaching takes place. The causal models developed in this study go some way towards portraying the complex multidimensional nature of the teacher's work situation and its relationship to the experience of stress.

#### REFERENCES

- Albertson, L.M. & Kagan, D.M., (1987), 'Occupational stress among teachers', *Journal of Research and Development in Education*, Vol.21, No.1, pp.69-75.
- Blase, J.J., (1984), 'A data based model of how teachers cope with work stress', *The Journal of Educational Administration*, Vol.22, No.2, pp.173-189.

Blase, J.J., (1986), 'A qualitative analysis of sources of teacher stress: consequences for performance', *American Educational Research Journal*, Vol.23, No.1, pp.13-40.

Board of Secondary Education, (1990), *The school certificate grading system*, Newsletter No.1, BSE, North Sydney.

Bourke, S.F., (1984), *The Teaching and Learning of Mathematics*, (ACER Research Monograph No.25), ACER, Hawthorn, Victoria.

Cole, M., (1989), 'The Politics of Stress in Teaching', in Cole, M. & Walker, S. (eds.), *Teaching and Stress*, Ch.9, Open University Press, Milton Keynes, Stony Stratford, UK.

Farrugia, C., (1986), 'Career-choice and sources of occupational satisfaction and frustration among teachers in Malta', *Comparative Education*, Vol.22, No.3, pp.221-231.

Fimian, M.J., (1987), 'Teacher stress: an expert appraisal', *Psychology in the School*, Vol.24, No.1, pp.5-13.

Fimian, M.J. & Blanton, L.P., (1986), 'Variables related to stress and burnout in special education teacher trainees and first year teachers', *TESE*, Vol.9, No.1, pp.9-21.

Finlay-Jones, R., (1986), 'Factors in the teaching environment associated with severe psychological distress among teachers', *Australian and New Zealand Journal of Psychiatry*, Vol.20, pp.304-313.

Galloway, D. Boswell, K., & Pankhurst, F., (1981), 'Stress in Teaching', *National Education*, Dec. 1981.

Kyriacou, C., (1987), 'Teacher stress and burnout: an international review', *Educational Research*, Vol.29, No.2, pp.146-152.

Kyriacou, C., (1989), 'The Nature and Prevalence of Teacher Stress', in Cole, M. & Walker, S. (eds.), *Teaching and Stress*, Ch.2, Open University Press, Milton Keynes.

Laughlin, A., (1984), 'Teacher stress in an Australian setting: the role of biographical mediators', *Educational Studies*, Vol.10, No.1.

Leach, D.J., (1984), 'A model of teacher stress and its implications for management', *The Journal of Educational Administration*, Vol. 22, No.2, pp.157-172.

Louden, L.W., (Chairman), (1987), *Western Australia Joint Committee of Inquiry into Teacher Stress.*, *Teacher Stress - Summary Report*, W.A. Dept. of Education.

Manthei, R. & Solman, R., (1988), 'Teacher stress and negative outcomes in Canterbury state schools', *New Zealand Journal of Educational Studies*, Vol.23, No.2, pp.145-163.

Metherell, T., (1989), *Excellence and Equity: A White Paper Curriculum Reform in New South Wales*, NSW Ministry of Education and Youth Affairs, Sydney.

Mykletun, R.J., (1985), 'Work stress and satisfaction of comprehensive school teachers: an interview study', *Scandinavian Journal of Educational Research*, Vol.29, pp.57-71.

NSW Teachers' Federation, (1988a), Letter to potential witnesses, preparation of statements of evidence, federation's response to minister's reference case. (Reference No. J.1524/88/CR/CT).

NSW Teachers' Federation, (1988b), Submission to the Industrial Commission on the secondary workload research project between May 18th and August 22nd 1988. (Reference No. B18AAE).

NSW Teachers' Federation, (1988c), Submission to the Industrial Commission on increase in teachers workload since 1980, October, 1988. (Reference No. B18AAB).

Otto, R., (1982), *Occupational Stress Among Teachers in Post-Primary Education: A Study of Teachers in Technical Schools and Some Comparative Data on High School Teachers*, Department of Sociology, La Trobe University, Victoria.

Otto, R., (1983), *Structural Sources of Teacher Stress in State High Schools*, (La Trobe University Sociology Papers, No.12), La Trobe University, Victoria.

Otto, R., (1986), *Teachers Under Stress: Health Hazards in a Work Role and Modes of Response*, Hill of Content, Melbourne.

Sarros, J.C. & Sarros, A.M., (1987), 'Predictors of teacher burnout', *The Journal of Educational Administration*, Vol.25, No.2, pp.216-230.

Scott, B.W. (Director), (1989), *School Renewal, Management Review: NSW Education Portfolio*, Milsons Point (North Sydney).

Scriven, M., (1989), 'The State of the Art in Teacher Evaluation', in Loken, J. & McKenzie, P. (eds.), *Teacher Appraisal: Issues and Approaches*, (Australian Education Review No.28), ACER, Hawthorn, Victoria.

van Dijkhuizen, N. (1981) *Towards Organisational Coping with Stress*, in Cooper, C.L. & Marshall, J., (eds.) *Coping with Stress at Work: Case Studies from Industry*, ch.11, Gower, New York.

Youngman, M.B., (1982), 'A system for describing teachers' jobs',  
Educational Studies, Vol.8, No.1, pp.23-30.