

STUDENT STRESS AND ABSENTEEISM IN PRIMARY SCHOOLS

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Abstract

This paper presents a study of possible relationships between [stress](#) and absenteeism of [254 Year 5 and 6 students](#) in 19 classes at 6 Lower Hunter Valley primary schools. The [Quality of School Life](#) scales were used as indicators of student stress. Various student and teacher contextual variables were also investigated for their relationship with student absence. The teacher variables included [Teacher Satisfaction](#) and [Teacher Stress](#).

The [analyses](#) indicated a strong link between student perception of the quality of their school life and absenteeism. Where students felt less stress (as measured by higher satisfaction with their school life) they were absent less often than students who were more stressed (lower Satisfaction with their school life). When considering gender differences, although female students were generally more satisfied with school than male students, they were still more likely to be absent than males. Students taught by teachers who were more satisfied with their relationship with their students were themselves more satisfied (less stressed) and likely to be absent less often. The higher the overall level of stress teachers perceived in the current year of their teaching career, the lower the level of stress (higher the level of general satisfaction) of their students. Finally the potential for [future research](#) regarding the use of an appropriate stress management techniques within the classroom context is described.

Introduction

In recent decades there has been a considerable amount of research undertaken regarding the cause and effect of teacher and student stress in our schools. Somewhat paradoxically, however, it would appear that only a small portion of this research has addressed the stress dynamics of classrooms overall.

Leonard (1998) explored the concept that for primary school children the school environment they share with teachers resembles an actual workplace. Such an assumption is feasible, it was suggested, as students spend a similar number of hours each day at school as are spent at work by many members of the work force; they undertake mental and physical tasks of similar duration and intensity to many workers; their output is monitored by superiors; and, as with many workplaces, they have a regimented daily routine.

Whilst childhood is often perceived as a happy time (Ainley & Bourke, 1992; Leonard, 1998; Schofield & Bourke, 1997), Schofield and Bourke (1997) argued that the years spent by children in educational environments were also a time of considerable stress, as success or failure in this environment was a major determinant of future occupational status. Thus, it is possible to assume that those work, social, and environmental stresses which operate in the workplace may also operate within a school context.

Under the Occupational Health and Safety Act 1983 No. 20, employers are required to ensure the safety and welfare of their workers, while employees must take reasonable care of the health and safety of others (New South Wales Parliament, 1983). If students are performing as workers in our schools then it is important that their occupational health and safety be given greater consideration. Furthermore, the New South Wales Department of

Education and Training has stated that the duty of care owed by it to students, and carried out through its employees (teachers), involves teachers providing a safe learning environment for their students and taking reasonable measures to protect students against foreseeable risk and harm (New South Wales Department of Education and Training, 1998). This duty of care is derived from the special nature of the relationship between students and teachers and arises whenever a teacher/student relationship exists. Stress would certainly fit into the category of potential or foreseeable harm and thus teachers have a responsibility to minimise stress and hopefully prevent stress-related injuries or illness to their students.

Teachers and students function in the same environment. Many life experiences are shared, as are many potential stresses. It may well be that teachers who exhibit stress in the classroom intensify stress in the lives of their students through their actions, demeanour, emotions and personal behaviours. This transfer is important in itself but also a consequence of this can be deduced from other research which has propounded the hypothesis that stress leads to immunosuppression (Newberry, Jaikins-Madden, & Gerstenberger, 1991; Totman, 1988) which results in an individual being susceptible to viral disease, leading in some cases to a pattern of absenteeism (Donaldson, 1993; Galloway, Pankhurst, Boswell, Boswell, & Green, 1984a). In all work environments such a pattern of absenteeism is a major financial issue, but in a school setting there is also the added impact of a reduction in the quality of educational outcomes.

Some debate exists regarding the direction of causality between stress and absenteeism. For example, Firth and Britton (1989) proposed that stress led to absenteeism, while Manning and Osland (1989) argued that absenteeism led to increased stress and a cycle of deterioration. In educational environments such as schools, stress can have a negative impact on the health and well being of students. Kiecolt-Glaser and Glaser (1988) found that environmental stress in the form of examinations has a deleterious effect on the immune function of students. Hence it would appear logical to assume that in an educational context, stress leads to increased absenteeism. This hypothesis is supported by the findings of Reid (1983) that students identified institutional factors such as the difficulty of school work and teacher variables rather than factors related to their peers or home as reasons they did not attend school.

Some of the general important questions yet to be addressed fully are: Do happy teachers (less stressed and more satisfied teachers) have happier classes? Do students who perceive that the quality of their school life is high belong to classes which are generally more satisfied? Is it probable that classrooms displaying an overall pattern of dissatisfaction have higher rates of student absenteeism? What role do teachers play in determining student stress levels? And finally, do classrooms operate as complex work systems due to the interaction of various student and teacher variables?

Review of Literature

Definition of Stress

For this study stress has been conceptualised as a nonspecific response of the body which is a natural and often essential reaction until it has accrued to a level that is beyond the individual's ability to cope, promoting reactions which are often abnormal and irrational (Alsop & McCaffrey, 1993; Gill, 1983; Greenhaus & Parasuraman, 1987; Lazarus & Folkman, 1984). The implications of this definition are that pressure and strain on the body induced by the reactions of the individual to stress accompany the response of the body to stress.

Further, the study was confined to the area of work-related stress and thus it was important to make the distinction between occupational stress and other forms of stress. As with all

forms of stress that exceed an individual's ability to cope, stresses which operate in the workplace pose a serious threat to the health of individuals in that organisation and hence to productivity. In the workplace, stress up to a certain level results in improved job performance, but after this point performance is diminished, and is often associated with a deterioration in worker health (Pelletier, 1984; Workcover Authority of New South Wales, 1996).

A job stressor is an event or environmental condition in the workplace that provokes tension or anxiety (Beehr & Franz, 1987). Three categories are often used to describe the sources of stress in the workplace:

1. Organisational demands - job role, relationships and interpersonal demands, career development, structure and climate;
2. Extra-organisational demands - interaction of life and work events; and,
3. Individual characteristics - physiological, psychological, and behavioural responses to stress.

(Groen & Bastiaans, 1975; Ianni & Reuss-Ianni, 1983; Sutherland & Cooper, 1988.) The nature of the individual and their occupation may impact on the symptoms of stress exhibited by that particular person. Sources of stress in a particular job, together with individual/personality characteristics may be indicators of the presentation of stress in a variety of forms. These forms include job dissatisfaction, mental ill health, physical ill health (including high blood pressure), burnout, cardiovascular disease, gastrointestinal disorders, accident occurrence, alcohol and substance abuse, social/emotional problems, reduced productivity and, importantly for this study, absenteeism. (Farber, 1983; Greenhaus & Parasuraman, 1987; Pelletier, 1984; Sutherland & Cooper, 1988). Similarly Johnson (1986) reported that occupational stress was linked to a wide range of physical problems, chronic illnesses, and importantly, the frequency of accidents.

A survey of almost 10 000 Australian workers found that one in four workers took time off due to stress at work in the twelve months preceding the study, while 60 percent of subjects reported symptoms such as headaches, tiredness, anger and sleep difficulties (Australian Council of Trade Unions, 1998). Males reported more indigestion, ulcers, distrustful feelings, increased blood pressure, increased smoking and/or alcohol abuse, while female workers reported significantly more continual tiredness, cramps, headaches, and sleeplessness. One in four workers identified management issues such as lack of communication and consultation, increased workload, restructuring and organisational change, and lack of job security as the most stressful conditions at work (Australian Council of Trade Unions, 1998). Whilst the relevance of these findings for teachers is obvious, what is not so obvious is the implication for students. Greater consideration of the impact on students of teachers exhibiting these stress symptoms in the classroom would appear vital. If students are considered to be surrogate workers and hence experiencing work related stress, the nature and symptoms of stress for students in the school environment would also appear to require further examination.

Student Stress, Satisfaction and Absenteeism

There is some research evidence to support the argument presented in the introductory section that school is a surrogate workplace for students (Forman & O'Malley, 1984; Schofield & Bourke, 1997). Student stress sources, identified in the literature, can be categorised into four categories: Physical Environment - ventilation, repetitive tasks, potential for violence, confined spaces (Workcover Authority of New South Wales, 1996); Assessment - school work, competition, tests (Dickey & Henderson, 1989; Elias, 1989;

Elkind, 1988); Management - daily structure, discipline (Elkind, 1988), and; Student-Teacher Interpersonal Relationships - peers, teachers, social interactions (Elkind, 1988). Student variables such as gender (Garton & Pratt, 1995; Longfellow & Belle, 1984), age (Carson & Bittner, 1993), and year of schooling (Waugh & Hyde, 1993), have also been found to affect students' reactions to school related stresses. [Student-teacher relationships](#) are a key focus of this paper and a detailed summary of the literature reviewed in this area is provided in a later section.

A relationship between student satisfaction, stress and absenteeism is evident. Increased stress has been linked to absenteeism (Kasl, 1980), poor self concept has been strongly connected to increased susceptibility to school related stress (Barker, 1987; Reed, 1984) while student absenteeism has also been associated with poor self-concept. Both male and female students with persistent patterns of absenteeism have been identified as having significantly lower self-concepts than that of their peers (Reid, 1982). Lower levels of student satisfaction with school are also identified as resulting in students being more likely to be absent (Reid, 1986; Schofield & Bourke, 1997).

The nature of assessment, reporting and intervention strategies for dealing with absenteeism utilised by the New South Wales Department of Education and Training point to a possible inconsistency in the consideration of stress as a source of truancy and absenteeism (New South Wales Department of Education and Training, 1997a). Students who want to learn have been described as the Department's primary responsibility whilst the Director-General has stated that schools are not welfare agencies (New South Wales Department of Education and Training, 1997b, p.26). These statements appear to overlook the antecedents that may be affecting students' willingness to learn such as increased stress (Dubow & Tisak, 1989; Schofield, 1995), the role schools may be playing in increasing student stress (D'Aurora & Fimian, 1988; Paykel, 1978; Phillips, 1993), and the wide reporting of the negative effect of increased stress on absenteeism in the literature (Le Riche, 1995; Leonard, 1998, Miller, 1995; Reed, 1984; Reid, 1982; Reid, 1985; Schofield & Bourke, 1997). The importance of investigating this link unequivocally as intended in this paper is both lucid and pertinent. Furthermore a [model of analysis](#) has been developed, and presented below involving the investigation of various student and teacher background variables and questionnaire measures, which, it is expected, will provide valuable information regarding both student and teacher stress, satisfaction and absenteeism.

Teacher Stress, Satisfaction and Absenteeism

There is little doubt that teaching is a stressful occupation (Laughlin, 1984; McCormick & Solman, 1993; Otto, 1986). Compared to other occupations, some of the contemporary evidence suggests that teaching is becoming increasingly stressful and is one of leading occupations for work related stress (Australian Council of Trade Unions, 1998; Bransgrove, 1991; Johnstone, 1993).

Individual characteristics, environmental factors and organisational structure have been identified in the literature as being the three affective domains of teacher stress (Groen & Bastiaans, 1975; Ianni & Reuss-Ianni, 1983; Monfries & Hazel, 1995; Sutherland & Cooper, 1988). In terms of teacher stress research in Australasia, environmental and organisational stress sources are well reported (Australian Council of Trade Unions, 1998; Cavanaugh, 1997; Chiu, Hosking, Fitzwater, & McKenzie, 1986; Dewe, 1986; Galloway, Pankhurst, Boswell, Boswell, & Green, 1984b; Jongeling & Lock, 1993; O'Connor & Clarke, 1990; Schofield & Bourke, 1997; Smith & Bourke, 1992; Van Schoubreck & Tuetteman, 1986). A surprising result, however, is the lack of reporting by teachers of individual characteristics as a source of increased stress.

A number of researchers have attempted to classify occupational stress sources in teaching (Farber, 1983; Johnstone, 1993; Laughlin, 1984; McCormick & Solman, 1993; Salo, 1995). Stress sources identified include: interpersonal relations (Farber, 1983; Salo, 1995), environmental conditions (Laughlin, 1984; Salo, 1995), time pressures (Johnstone, 1993; McCormick & Solman, 1993), role ambiguity and conflict (McCormick & Solman, 1993), and lack of appropriate training (Farber, 1983; Laughlin, 1984). Of these, time pressures and organisational change have emerged in recent literature as the most significant sources of teacher stress (Australian Council of Trade Unions, 1998; Cavanough, 1997; Schofield & Bourke, 1997).

A complex and often contradictory pattern regarding the effect of individual characteristics on teacher stress was identified in some of the teacher stress literature reviewed. Laughlin (1984), for example, found individual teacher characteristics such as gender, age, teaching orientation, position held, and qualifications to be significant predictors of occupational stress; while Kyriacou and Sutcliffe (1978) reported little association between these variables and teacher stress. Fimian and Blanton (1987) and Kieffer (1994) both identified lack of experience as a significant predictor of increased teacher stress. In contrast, Malik, Mueller and Meinke (1991) found that experience did not account for much variation in teacher stress, while Schofield and Bourke (1997) identified that more experienced teachers perceived higher levels of stress from student sources, and that males and teachers with higher teaching loads had higher stress levels. Teaching role has also been reported as having a significant impact on teacher stress, again with varying results from different researchers (Bourke & Smith, 1993; Gorrell, Bregman, Hunter & Lipscomb, 1985; Malik et al., 1991; McCormick & Solman, 1992; Moracco, D'Arienzo & Danford, 1982; Pierce & Malloy, 1990; Smith & Bourke, 1992). Whilst it is unlikely that the present paper will solve this complex issue, it will certainly add another voice to the debate.

Teacher illness has been found to increase as job stress increases (Dworkin, Haney, Dworkin & Telschow, 1990; Finlay-Jones, 1986; Fletcher & Payne, 1982; Galloway et al., 1984b; Hipps & Halpin, 1991, Otto, 1986), and to result in increased absenteeism (Schofield & Bourke, 1997). Importantly, increased teacher satisfaction has been found to have the power to mitigate the effect of increased teacher stress (Barkdoll, 1991; Hipps & Halpin, 1991; Mykletun, 1985; Smith & Bourke, 1992).

The Link between Student and Teacher Stress, Satisfaction and Absenteeism

The research suggested that a link between student and teacher stress exists because students and teachers operate in the same environment and many potential stresses and life experience are shared. Teachers, through their personal behaviour and responses, have been described as having a considerable impact on their students' stress levels (Bauwens & Hourcade, 1992; Gray, 1993; Kyriacou, 1987; Schultz & Heuchert, 1983). This is a significant and relevant finding with regard to the present paper as it is postulated that teacher variables, such as stress and satisfaction levels, will be causally related to student satisfaction, stress and absenteeism.

Le Riche (1995) suggested student-teacher relationships have a major impact on absenteeism. If this is the case then this area would appear to require immediate attention. The need for further investigation of stress and absenteeism in a large study in the school context is apparent. This finding was supported by Ainley and Bourke (1992) who identified significant class and school differences with regard to student satisfaction.

Stress is clearly a source of potential or foreseeable harm and thus teachers have a responsibility to minimise stress and hopefully prevent stress-related injuries or illness to their students. [The Occupational Health and Safety and Duty of Care ramifications](#) of this

important, yet perhaps overlooked, role of teachers were highlighted in the introductory section.

Educators need to better understand how occupational stress is operating in classrooms to enable the development of classroom environments that are accommodating, yet at the same time have a strong work ethos. The model for analysis and research procedures presented below provides a possible method for pursuing this goal.

Instrumentation and Method

The set of research questions on which this paper is based relate to a proposed model of causation between student and teacher background variables and student absence.

- 1. Which, if any, student and teacher variables impact on student general satisfaction levels?*
- 2. Which, if any, student and teacher variables influence students' perceptions that school is a negative and uninviting place?*
- 3. Which, if any, student and teacher variables impact on student absenteeism?*

The Student Sample

There were 254 students at six schools in the total sample with slightly more male students than females. Almost one third of the sample were in Year 5, 42 per cent were in Year 6, and one quarter were members of composite Years 5/6 classes. The average number of days absent for students over the three-term period of the study (approximately 30 weeks) was 5.6 days. While 50 percent of the students involved in the study were absent for up to five days, less than 10 per cent of students were absent for more than ten days. Analysis of these background variables indicated that this was a representative sample of students in the Lower Hunter Valley. Students were asked to complete the primary school version of the Quality of School Life questionnaire, the use of which was reported by Ainley and Bourke (1992). [Results for the present study](#) are tabulated and briefly described below.

Table 1 Means and standard deviations (in parentheses) for QSL Scales by School and QSL Scale Correlations with Absence (N=254)

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QSL SCALES	SCHOOL						TOTAL (N=254)	Correlation with Absence
	School 1 (N=49)	School 2 (N=33)	School 3 (N=34)	School 4 (N=33)	School 5 (N=14)	School 6 (N=91)		
General Satisfaction	2.73 (0.72)	2.90 (0.67)	3.24 (0.55)	2.73 (0.65)	2.88 (0.56)	2.92 (0.72)	2.91 (0.69)	-0.32 **
Negative Affect	1.75 (0.61)	1.90 (0.57)	1.49 (0.44)	1.70 (0.68)	1.51 (0.55)	1.60 (0.67)	1.66 (0.62)	0.28 **
Teacher	3.06 (0.85)	3.15 (0.83)	3.44 (0.67)	2.91 (1.04)	3.44 (0.57)	3.16 (0.74)	3.16 (0.81)	-0.17 **
Opportunity	3.52 (0.46)	3.43 (0.47)	3.56 (0.36)	3.40 (0.62)	3.61 (0.42)	3.42 (0.48)	3.47 (0.48)	-0.17 **
Achievement	3.04 (0.79)	3.38 (0.79)	3.49 (0.51)	3.28 (0.53)	3.36 (0.48)	3.29 (0.57)	3.28 (0.60)	-0.18 **
Social Integration	2.89 (0.73)	3.07 (0.53)	3.29 (0.52)	2.88 (0.67)	3.15 (0.51)	3.26 (0.55)	3.28 (0.60)	-0.28 **
Adventure	2.65 (0.77)	2.39 (0.54)	2.76 (0.59)	2.15 (0.86)	2.37 (0.68)	2.61 (0.73)	2.54 (0.73)	-0.27 **

Significance Level: * $p < 0.05$ ** $p < 0.01$ (two-tailed)

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The QSL was used as a series of stress measures based on the findings that sources of school based stress (see, Elias, 1989; Elkind, 1988; Forman & O'Malley, 1984), equate to items measured by the seven scales of the Quality of School Life questionnaire, particularly the Negative Affect Scale. The behaviours reported in a number of studies, for example Waugh and Hyde (1993), of students identified as being dissatisfied with the quality of their school life, were found to be identical to school based stress symptoms. Furthermore, dissatisfaction with the work environment has been reported as a major stress symptom (Farber, 1983; Greenhaus & Parasuraman, 1987; Pelletier, 1984; Sutherland & Cooper, 1988). The QSL survey measures students' perceived satisfaction with schooling and thus low student satisfaction scores would indicate a higher level of student stress. The broad coverage of the QSL scales may also allow accurate conclusions to be drawn about the factors which students find stressful at school.

Given that 2.5 is the neutral point on the QSL scales, QSL scale average scores indicated that, overall, students were reasonably satisfied with their quality of school life. However, students at some of the schools indicated a higher level of satisfaction on some of the QSL scales. Students at School 3, for example, were generally more satisfied with the quality of their school life and felt a greater sense of achievement and adventure than students at the other schools, while students at School 2 were generally less satisfied on the majority of scales than students at the other schools.

Correlations between the QSL scales were all significant indicating that students who were more satisfied with one aspect of their schooling were more likely to be satisfied with other aspects of their schooling measured by the QSL scales. Students who perceived school as an unhappy and uninviting place (indicated by higher scores on the Negative Affect QSL scale) were more likely to have lower scores on the other QSL scales. Students in Year 6 (General Satisfaction mean 3.03, s.d. 0.61) were generally more satisfied with the quality of their school life than students in Year 5 (General Satisfaction mean 2.84, s.d. 0.75) and female students (General Satisfaction mean 3.03, s.d. 0.64) were more satisfied than males (General Satisfaction mean 2.75, s.d. 0.71). These findings are consistent with those of

other studies of the quality of student school life (Ainley & Bourke, 1992; Schofield & Bourke, 1997).

Student absence was significantly related to all of the QSL scales at the 0.01 significance level as shown in [Table 1](#). Students who were more satisfied with their school life (less stressed) were likely to have a lower rate of absence than students who were less satisfied (more stressed). The strong correlation that was evident for the Negative Affect scale reinforced the link between negative feelings and emotions regarding school, which are measured by this scale, and higher absenteeism.

The Teacher Sample

The teachers of these classes were asked to complete a background survey, a self-reporting Teacher Stress questionnaire and a self-reporting Teacher Satisfaction questionnaire. The Teacher Stress and Teacher Satisfaction questionnaires had been used by Smith (1990) and reported by Smith and Bourke (1992) as part of a larger battery of questionnaires to examine the stress, workload, and satisfaction associated with secondary teaching.

There were 19 full-time teachers at six schools in the total sample, the numbers of male and female teachers in the teacher sample being almost equal. A degree or a diploma of education was the highest qualification held by 79% of respondents. Teachers were reasonably experienced with the average time spent by respondents in their current school being 3.8 years and the average length of total teaching experience being 12.5 years. With regard to teaching position, a minority of respondents were generalist class teachers, while just over half of the sample were in various executive positions. Teaching loads varied accordingly with respondents in executive positions generally reporting lower teaching loads. Class groupings taught were similar across the six schools with only four class groupings identified: composite (unstreamed) Year 5 and Year 6 classes, composite combined Year 5/6 and Year 4/5 classes. The average number of days absent for teachers over the three-term period of the study (approximately 30 weeks) was 5.2 days (s.d. 3.07) with 30 percent of teachers being absent for eight days or more. This result suggests that, on average, a teacher was likely to be present on 96.5 per cent of the school days during this period. Overall, the schools contained a representative mix of teachers with regard to qualifications, age and gender.

Teacher Stress

[Results of the Teacher Stress questionnaire](#) are tabulated and briefly described below. All scale means with the exception of Time Pressures were below the mid-point of the scale (2.5) indicating that the teachers at the six schools involved in the study did not generally perceive a high level of stress from these aspects of their teaching role. Stress resulting from time pressures was clearly identified as the major source of work related stress for the teachers surveyed.

**Table 2 Scale Statistics - TEACHER STRESS - Scale Mean Scores
(N=19 for all scales)**

SCALE	Mean	S.D.	No. items	Reliability
Conflict	2.07	0.54	6	0.76
Student & Physical Cond.	2.01	0.57	8	0.88
Time Pressures	2.55	0.68	6	0.84
Rewards & Recognition	2.17	0.67	6	0.85

Teacher Satisfaction

[Results of the Teacher Satisfaction questionnaire](#) are tabulated and briefly described below. All scale means were above the mid-point of the scale (2.5) indicating that the teachers at the six schools involved in the study were generally satisfied with these aspects of their teaching role. The Administration and Senior Staff scale had the highest mean indicative of teacher attitude between "a fair bit" and "a lot" of satisfaction with the items contained in this scale. Teachers in these schools perceived their relationships with the school executive to be positive. This result may have been somewhat influenced by the fact that almost half of the teacher sample were currently in executive positions.

**Table 3 Scale Statistics - TEACHER SATISFACTION - Scale Mean Scores
(N=19 for all scales)**

SCALE	Mean	S.D.	No. items	Reliability
Workload & Conditions	2.61	0.63	6	0.78
Relationships with Students	2.77	0.52	6	0.77
Administration & Senior Staff	3.40	0.80	6	0.89

Teacher Stress, Satisfaction, and Background Variables

There were relationships both within and between the teacher stress and satisfaction scales. Relationships between some of the teacher stress and satisfaction scales and a number of the teacher background variables including teaching experience, position, perceived level of stress in the ten months preceding the study, teaching location and class type were also identified.

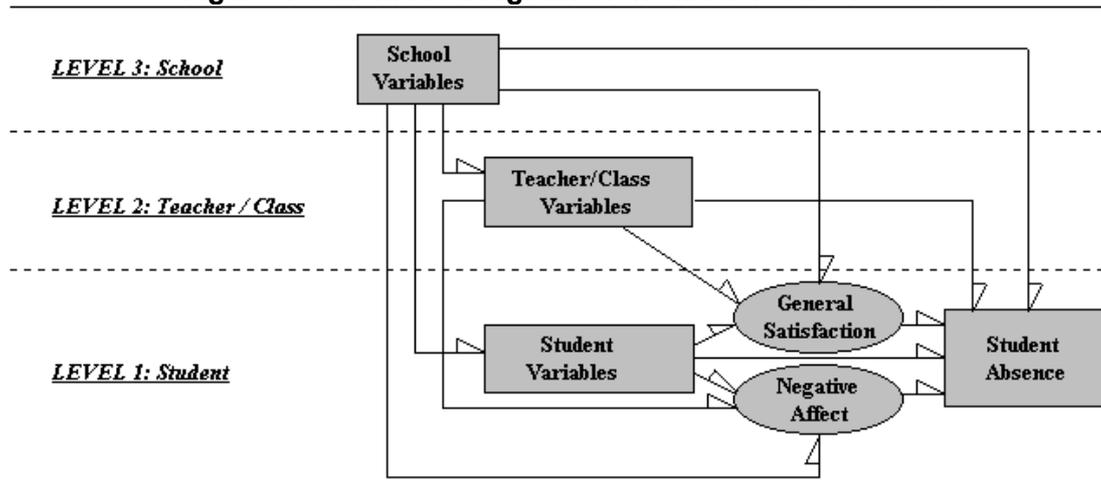
Whilst no significant relationships were evident between Teacher Absence and the measures of teacher stress and satisfaction, possibly due to the small sample size, the following findings may indicate trends in relationships. One trend that emerged indicated that teachers who were less satisfied and/or more stressed from their relationships with administrative and senior staff were likely to be absent more often. Similarly teachers who indicated less satisfaction with their workload and conditions tended towards being absent more often.

The Model to be Analysed

Students learn in classes and classes operate within schools. Thus there is a degree of dependence in data collected from students in the same class or at the same school. To

recognise this lack of independence and to maximise the value of the data collected it was important to consider the system in which students were operating when attempting to establish which student, teacher, class and school factors impacted on student satisfaction with school, student stress, and student absenteeism. A preliminary analysis of student data collected clearly showed that the relationships between student absence and satisfaction were complex. A subsequent analysis of the teacher dataset revealed similar complexities between teacher absence, teacher stress and satisfaction. To provide greater insights into the relationships between student and teacher variables the two sets of data were linked in a multilevel model.

Figure 1 Schematic Diagram of the Model to be Tested



Multilevel modelling allows the analysis of individuals as members of groups, such as students in classes and/or schools using powerful statistical techniques (Rasbash & Woodhouse, 1995). A three level hierarchy was developed with students assigned to level 1, classes to level 2, and schools to level 3. By performing an analysis of the data using the hierarchical structure it was anticipated that a better understanding would be provided of how various student, teacher, class and school characteristics were operating with regard to student absenteeism and student satisfaction. A causal model was hypothesised and developed for testing. The model linked all components, namely the student and teacher background information, the specific QSL scales, the general QSL scales, and student absenteeism. The multilevel regression program MLn (Rasbash & Woodhouse, 1995) was used for data analysis.

The model presented in [Figure 1](#) demonstrates that student and teacher variables were hypothesised to be causally related to student absence. It was also hypothesised that some of the student and teacher variables would be causally related to the QSL scales of General Satisfaction and Negative Affect, hence a three-stage model was developed in which General Satisfaction, Negative Affect and Student Absence were potentially influenced by all prior variables. The pattern of causation moves from left to right meaning that all variables to the left of Student Absence were hypothesised to be causally related to it. Hence, student and teacher variables may be directly related to Student Absence or indirectly related to Student Absence through student General Satisfaction and Negative Affect which provide an intervening stage in the model.

Preparing for the Analysis

The data set to be analysed consisted of variables at three levels:

Level 1 - Student Level

- Student Background Variables - School, Class, Year, Gender.
- QSL Scales - General Satisfaction, Negative Affect, Social Integration, Adventure, Opportunity, Achievement, Teacher.
- Outcome Variable - Parent Sanctioned Absence for Illness.

Level 2 - Class Level

- Teacher Background Variables - Gender, Employment Status, School, Years at Current School, Years Teaching, Position, Weekly Teaching Load, Class Composition, Qualifications, Perceived Level of Stress over the Previous Ten Months, Absence for Sick Leave.
- Teacher Stress Scales - Conflict, Students and Physical Conditions, Time Pressures, Rewards and Recognition.
- Teacher Satisfaction Scales - Workload and Conditions, Relationship with Students, Administration and Senior Staff.

Level 3 - School Level

- The identity of the school was the only level 3 variable in the data set. This was operationalised by entering School as a series of dummy variables to determine any individual school effects.

The purposes of the multilevel regression analyses were twofold. Firstly, the aim was to identify which of the potential explanatory variables were related to the response variables. Before undertaking the regression analyses, it was necessary to check the distributions of all variables to be included to determine if they significantly departed from normality. It was found that a number of the background variables and the Student Absence variable were badly skewed suggesting these variables be normalised. The second purpose was to determine the relative importance of the significant explanatory variables, which indicated the use of standardised regression coefficients. Consequently variables to be included in the regression analyses were normalised, as necessary, and standardised.

The iterative generalised least squares procedure (IGLS) within the MLn program was used for the analyses. To answer the research questions fully, three separate multiple regression analyses were carried out incorporating a different response variable on each occasion. Results for the analyses using each of the three response variables, [General Satisfaction](#), [Negative Affect](#), and [Absenteeism](#), are presented below.

Results

Student Absence as the Response Variable

The first multiple regression analysis undertaken utilised Student Absence as the response variable. All student and teacher variables collected and discussed above were hypothesised to be potentially causally related to Student Absence as illustrated in [Figure 1](#).

Before undertaking the explanatory analysis it was first desirable to test the data for multilevel effects using a simple variance components model with Student Absence as the response variable (see Woodhouse, Rasbash, Goldstein & Yang, 1995, pp.16-25). Results for the null or variance components model are presented in the upper section of [Table 4](#).

Table 4 Student Absence (Normalised) as Response Variable: Proportions of Variance at Student, Class and School Levels for the Variance Components and Explanatory Models

Explanatory Variable	Standardised Regression Coefficient	Standard Error
Variance Components Model		
Fixed Part		
Constant	N/S	N/S
Random Part		
Level 3 - School	0	0
Level 2 - Class	0	0
Level 1 - Student	0.996	0.088
Explanatory Model		
Fixed Part		
Negative Affect	0.263	0.062
General Satisfaction	-0.257	0.062
Student Gender	0.125	0.058
Teacher Years at School	0.150	0.058
Random Part		
Level 3 - School	0	0
Level 2 - Class	0	0
Level 1 - Student	0.808	0.072

The constant was not significant as it simply represented the mean of the standardised student absence coefficient which is zero. The random part of the model indicated that 100 percent of the variance in Student Absence was attributable to individual student effects (level 1). Variances between classes (level 2) and schools (level 3) were too small to be estimated and hence not significant. This result indicates that there were no observable systematic differences in Student Absence at the class or school levels.

The hypothesis that all the student and teacher variables collected and discussed above were potentially explanatory variables was then tested. The general method intended to complete the explanatory analysis was the simultaneous addition of all possible explanatory variables followed by the progressive elimination of non-significant variables from the equation. As there were class and school explanatory variables in the model the multilevel analysis was continued despite the absence of higher level effects.

However, it was recognised that many of the explanatory variables were correlated and that multicollinearity was a potential problem in the intended regression analyses. This was particularly the case for some of the QSL scales. Correlations between some of the QSL scales meant that not all scales could be included in the regression equation simultaneously. Only the variables most strongly related to Student Absence were retained. Ultimately four variables were found to be significantly related to Student Absence, the QSL scales of General Satisfaction and Negative Affect, Student Gender, and Teacher Years at their current school. Results of the explanatory model are presented in the lower section of [Table 4](#).

The standardised regression coefficients allow direct comparison of the strength of the relationship with Student Absence for each of the explanatory variables. Two groups of similar strength relationships emerged. The strength of the relationship with Student

Absence for the variables of General Satisfaction and Negative Affect was stronger than for the variables Teacher Years at School and Student Gender for which a weaker but still significant relationship was evident with Student Absence.

These results indicate that if school was a place that evoked negative feelings and emotions (Negative Affect) students were absent for more days. If school was a place where students felt satisfied and wanted (General Satisfaction) they were absent for fewer days. Girls were more likely to be absent than boys and the longer a teacher had been at their current school the higher the rate of student absence for students in that class. This combination of explanatory variables provided the maximum explanation of variation in student absence, explaining approximately 19 percent of the variation.

General Satisfaction as the Response Variable

The second multiple regression analysis utilised the General Satisfaction QSL scale as the response variable. General Satisfaction was hypothesised to provide an intervening stage in the causal model of student absence as illustrated in [Figure 1](#). All student and teacher variables to the left of General Satisfaction were potentially related to it. Again the first stage of the multilevel analysis involved a simple variance components model with General Satisfaction as the response variable. Results for the null or variance components model are presented in the upper section of [Table 5](#).

As all variables had been standardised, the constant term in the analysis was not significant. The random part of the model indicated that 93 percent of the variance in General Satisfaction was attributable to individual student effects (level 1), and 7 percent to class effects (level 2). Variance between schools (level 3) was too small to be estimated and hence not significant. This result indicates that there were no significant systematic differences in student General Satisfaction at the school or class level.

The hypothesis that all the student and teacher variables which preceded General Satisfaction in the model were potentially explanatory variables was then tested by inserting these variables into the existing regression equation using the method described previously for the Student Absence regression analysis. Six variables were found to be significantly related to student General Satisfaction. Four of the variables were the QSL scales of Teacher, Opportunity, Social Integration and, Adventure, along with Teacher Stress over the ten months preceding the study and the Teacher Satisfaction scale of Relationships with Students. Results of the explanatory model are presented in the lower section of [Table 5](#).

**Variance at Student,
 Class and School Levels for the Variance Components and Explanatory Models**

Explanatory Variable	Standardised Regression Coefficient	Standard Error
Variance Components Model		
Fixed Part		
Constant	N/S	N/S
Random Part		
Level 3 - School	0	0
Level 2 - Class	0.071	0.047
Level 1 - Student	0.929	0.086
Explanatory Model		
Fixed Part		
Adventure	0.493	0.048
Social Integration	0.262	0.042
Teacher	0.150	0.048
Opportunity	0.098	0.045
Teacher Stress	0.091	0.039
Teacher Relat. with Students	0.081	0.039
Random Part		
Level 3 - School	0	0
Level 2 - Class	0	0
Level 1 - Student	0.370	0.033

The strongest relationship with General Satisfaction was evident for the QSL scale of Adventure indicating that learning which was exciting and enjoyable was most important to the general satisfaction of students. In descending order the next strongest relationships occurred predictably for the other QSL scales of Social Integration, Teacher, and Opportunity. The weakest significant relationships were evident for the Teacher Stress background question and the Teacher Satisfaction scale of Relationship with Students.

These results indicate that students were generally more satisfied at school if it was a place where they gained enjoyment and fun from their learning, got on well with their peers and felt that school was developing these skills, had a good relationship with their teacher, and were provided with preparation and opportunities for the future. More satisfied students also had teachers who were more satisfied with their relationships with students and interestingly, also felt more stress from their teaching over the ten months preceding the study. These variables provided the maximum explanation of variation in student General Satisfaction, explaining approximately 63 percent of the variation.

Negative Affect as the Response Variable

The final multiple regression analysis utilised the Negative Affect QSL scale as the response variable. Negative Affect was also hypothesised to provide an intervening stage in the causal model of student absence as illustrated in [Figure 1](#). All student and teacher variables to left of Negative Affect were potentially related to it. Results for the null or variance components model are presented in the upper section of [Table 6](#). As all variables were standardised, again the constant term in the analysis was not significant. The random part of

the model indicated that 94 percent of the variance in Negative Affect was attributable to individual student effects (level 1), 4 percent to class effects (level 2) and 2 percent to school effects (level 3). Class and School level differences were not statistically significant.

Table 6 Negative Affect (Normalised) as Response Variable: Proportions of Variance at Student, Class and School Levels for the Variance Components and Explanatory Models

Explanatory Variable	Standardised Regression Coefficient	Standard Error
Variance Components Model		
Fixed Part		
Constant	N/S	N/S
Random Part		
Level 3 - School	0.018	0.034
Level 2 - Class	0.039	0.043
Level 1 - Student	0.942	0.087
Explanatory Model		
Fixed Part		
Social Integration	-0.415	0.057
Teacher	-0.153	0.057
School 2	0.154	0.063
Random Part		
Level 3 - School	0	0
Level 2 - Class	0.024	0.026
Level 1 - Student	0.716	0.065

The hypothesis that all the student and teacher variables which preceded Negative Affect in the model were potentially explanatory variables was then tested by inserting these variables into the existing regression equation using the method described previously for the Student Absence regression analysis. Three variables were found to be significantly related to student Negative Affect. Two of the variables were the QSL scales of Teacher and Social Integration; the third variable was School 2. Results of the explanatory model are presented in the lower section [Table 6](#).

The strongest relationship with Negative Affect was evident for the QSL scale of Social Integration indicating that students who were less satisfied with their social life at school were also more likely to have strong negative feelings about school. The relationship between the QSL Teacher scale and Negative Affect indicates that students who were less satisfied with their relationship with their teacher were also more likely to have strong negative emotions regarding school. Importantly students at School 2 viewed their school as a less satisfying environment than students at the other five schools involved in study.

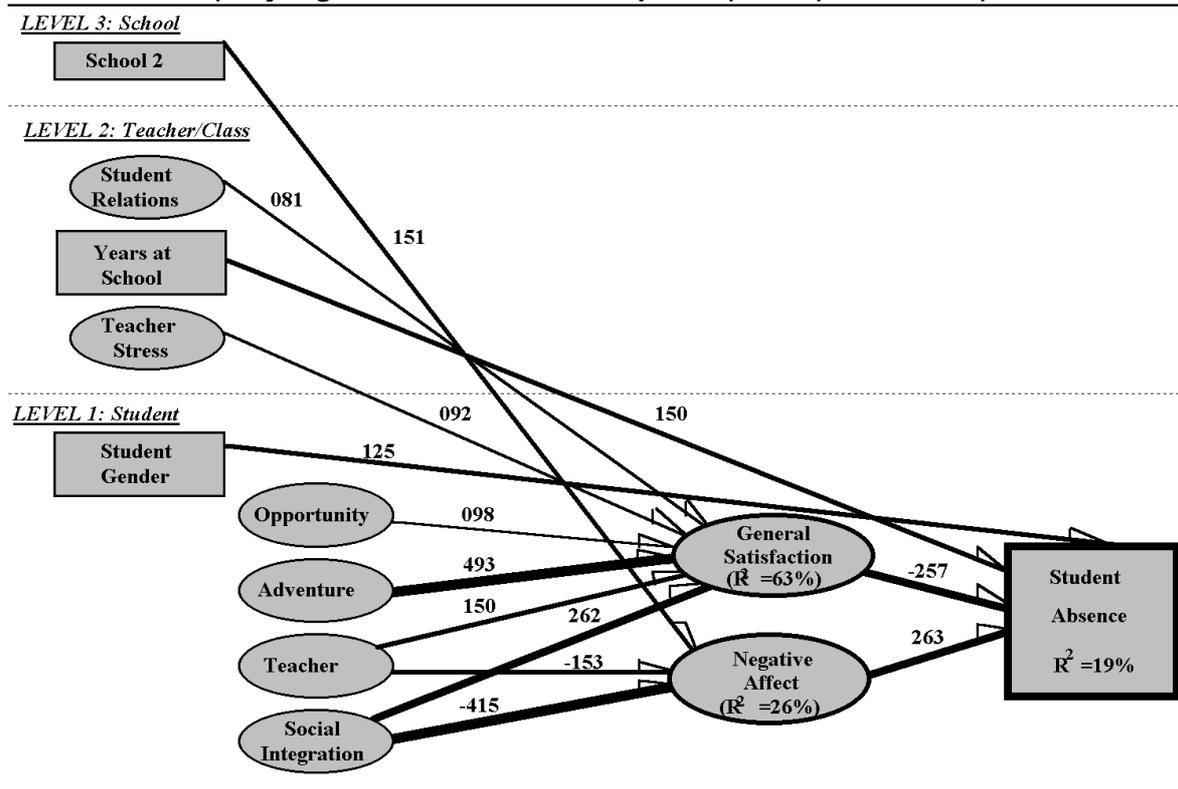
Overall, these results indicate that if students had poor relationships with their peers and teacher/s then they were more likely to have negative feelings and emotions regarding school. It was apparent that students at School 2 demonstrated this pattern. These variables

provided the maximum explanation of variation in student Negative Affect, explaining approximately 26 percent of the variation.

Multilevel Path Model

A multilevel path model was developed from the three regression analyses reported above incorporating all significant variables and is presented in Figure 2. The thickness of the path lines indicates the strength of the relationship between the variables. The standardised regression coefficients are also shown.

Figure 2 Multilevel Path Model Explaining Variation in Student Absence (only significant standardised paths (x1000) are shown)



Summary of Multilevel Path Model

Student Variables

The overriding feature that is evident in this model is the strong link between student perception of the quality of their school life and absenteeism. Student variables provided the bulk of the explanation of the variance in student quality of school life. Where students felt less stress (higher satisfaction with their school life) they were absent less often than students who were more stressed (lower satisfaction with their school life). Female students were also more likely to be absent than males.

Teacher Variables

A surprising element of the model is the lack of importance of most of the Teacher Stress and Teacher Satisfaction scales with the exception of the Teacher Satisfaction Scale of Relationships with Students. Students who were taught by teachers who were more satisfied with their relationship with their students were themselves more satisfied (less stressed) and likely to be absent less often.

Two other teacher variables were significant elements in the model. Firstly, a relationship was evident between Teacher Stress and student General Satisfaction. This result indicates that the higher the overall level of stress teachers perceived in the ten months prior to the study, the lower the level of stress (higher the level of general satisfaction) of their students. Put simply, teachers who felt more stressed had students who felt less stressed. Secondly the longer a teacher had been at their present school, the more likely their students were to be absent from school. Again put simply, teachers who had been at their school longer had students who were absent more often.

Technical Considerations of the Analysis Undertaken

Finally it is important to note that, although there were no large differences in response variables at class or school levels, the multilevel regression analysis was a desirable method of analysis of this data set because of the presence of variables at three levels and the consequent need for care in determining standard errors to be used in statistical significance testing. Problems of skew and correlated explanatory variables forced some variables to be excluded from the analyses, however, the explanatory variables with the most significant relationships to the response variables were always retained. This was done in an attempt to ensure that this model is as accurate a representation of the causal relationships between student and teacher variables and student absence as the statistical methods adopted will allow.

Discussion, Summary and Conclusions

The prime concerns of this study were to investigate the role stress and satisfaction play in the dynamics of work environments, specifically for students and to a lesser extent teachers in the classroom setting, and to indicate any links that may exist between increased stress, reduced satisfaction and increased absenteeism. A clear and very predictable pattern emerged regarding student absenteeism, student satisfaction and stress. Students who were more satisfied with the quality of their school life (less stressed) were likely to be absent less often than students who were less satisfied (more stressed) with the quality of their school life.

Factors associated with students perceiving the quality of their school life as being better were a high level of adventure and enjoyment in their learning; the ability to get along with their peers and their teacher; the opportunities for the future that school was providing them with; and being taught by a teacher who was more satisfied with their relationship with students. Factors associated with students having negative perceptions regarding school were their relationship with their peers and the school they attended. These variables were linked to stress symptoms in the school environment indicating that students who were more stressed were also absent more often. Girls were also likely to be absent more often than boys, a result which reflects absence by gender trends in New South Wales primary schools (Gordon, 1998), despite being more satisfied at school. Finally, the longer a teacher had been at their current school the more likely it was that their students would be absent.

The findings of this paper could be summarised in two sentences. High student self-efficacy and the perception of their school as an exciting and stimulating environment were indicators of lower stress levels. Students who are not stressed wanted to be at school more often and were likely to make an increased effort to attend even when unwell. To the casual reader, the findings of this paper may appear obvious and straightforward - students who enjoy school go to school more often than students who don't.

Conceivably, with increased accountability in education has come a determination from many educators to ensure that their students achieve the desired cognitive outcomes and meet all assessment requirements (Jongeling & Lock, 1993; Monfries & Hazel, 1995), the

consequence of which has been reduced satisfaction levels and increased stress for both students and teachers. It would appear that where teachers had attempted to ensure school was an inviting and fun place to be (perhaps indicated by higher quality of school life scores for their students) and to juggle the administrative requirements of modern teaching, these teachers were more likely to have higher stress levels than their colleagues while their students were likely to have lower stress levels than their peers. Paradigm shifts are a much-vaunted feature of philosophical improvement in education in the 1990's. It would be appropriate for all educators to have the goal of making learning enjoyable for all as their basic philosophy of teaching. Students, when asked why do they want to go to school, should be able to answer, "because it is fun".

Teachers have the power to develop special bonds and relationships with their students through an awareness of individual student need and facilitating the coping skills of students. Appropriate stress management within the classroom context has the power to provide an environment where students and teachers want to be, educational outcomes are enhanced, students are led to a broader life experience, and absenteeism is reduced. School attendance can clearly be improved by increasing student satisfaction and decreasing student stress. An expansion of focus appears to be needed by educational authorities to encompass student centred strategies for dealing with student absence, such as ensuring that school is an exciting and enjoyable place for all students.

Stress should not be eliminated from classroom environments, nor should it be present at levels that do not allow the individuals in that environment to operate effectively. The results of this paper suggest that students are less stressed and more satisfied in a school and classroom environment that is accommodating and enjoyable yet at the same time has a strong work ethos. Students who feel this way about school will attend more often. As responsible educators we need to promote such environments to ensure our students develop to their full potential and that our schools are places where our students want to be.

Student survey results indicated that some students were deeply dissatisfied with various factors impacting on the quality of their school environment such as their relationships with their teacher and peers, and the level of fun and enjoyment they perceive in their learning. It would appear that at an individual school level their dissatisfaction is being lost in a maze of absenteeism data and school attendance procedures. These students were stressed and in need of assistance. Further research regarding the early identification and provision of appropriate support services for these students would be extremely useful.

The implications of the negative correlations between Student Absence and the QSL scales of Opportunity and Adventure are important and powerful. The primary school children surveyed indicated strongly that they were well aware, even at this young age, of the preparation school is providing for their future and also most enjoy and are motivated by learning that is meaningful to them. Educators can take this on board by incorporating the benefits of an outcomes-driven curriculum whilst minimising the competitive aspects of such an approach by ensuring their programs are individualised and enjoyable. Further research to establish the effectiveness of these innovative curriculum approaches on student's perceptions of the opportunity and adventure school is providing them with could prove useful.

Similarly, the significant negative correlations between Student Absence and the Relationship with Teacher and Social Integration QSL scales provided evidence of the need for programs aimed at developing social skill competencies to be implemented as part of the broader curriculum at a classroom level for all students and especially those who may need help in this area. Implementation and assessment of the effectiveness of such programs would be an appropriate outcome derived from these findings.

Future research clearly needs to address the challenge that confronts educators to instil in their students appropriate methods and coping strategies for dealing with stress. Despite the dizzying array of methodologies available to educators, the literature tends to suggest that any program that emphasises specific skills for coping has potential for some positive benefit for the majority of students.

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