

Teacher Burnout: Towards
Preventative Strategies
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During the last decade problems with teacher morale in North America, gave rise to a significant body of research into teacher burnout. Similar problems in the teaching profession in Australia, particularly in New South Wales, became salient late in the last decade. Research into the problem of teacher burnout has focused largely on organisational factors and static individual traits associated with burnout. Few studies have considered dynamic individual variables which may mediate between organisational stressors and feelings of burnout. This study addresses this deficit by longitudinally studying changes in the relationship between teachers' beliefs and feelings of burnout with the aim of developing intervention strategies that may reduce levels of burnout. Three hundred and thirty teachers working in New South Wales Government schools are currently participating in a longitudinal study monitoring the relationship between changes in their beliefs and their feelings of burnout. This study proposes a new model of teacher burnout focusing on the role of teacher beliefs in the development of burnout, and reports on relationships between teacher beliefs and the development of burnout. Results provide preliminary support for the model. Implications of these findings for the development of strategies to reduce teacher burnout are discussed.

Introduction

During the 1980's problems with teacher morale became the subject of much public discussion in North America and later in Australia. Reforms introduced in New South Wales Government schools in the late 1980's

highlighted similar problems with teacher morale; teacher resignation rates rose sharply in 1989 with 2290 teachers resigning from NSW government schools, 41% more than in 1987. Such concerns have given rise to a growing body of research investigating the phenomenon of teacher burnout.

The Term burnout was first used by Freudenburger in 1974, who concluded that it was a phenomenon that resulted when workers found themselves under increasing pressure to succeed in their helping profession and hence demanded more of themselves than they were able to give.

Maslach and Jackson (1981), who initiated most of the early research into the burnout phenomenon in the helping professions, view burnout as a multidimensional construct having three dimensions. These three dimensions are widely used and accepted by burnout researchers

(Anderson and Iwanicki 1984; Byrne 1994; Farber 1984a, 1984b; Fisher 1984; Jackson et al 1986; Russell et al 1987; Sarros and Sarros 1987,1990; Schwab et al 1986; Schwab and Iwanicki 1982; Stephenson 1990) and are measured using the Maslach Burnout Inventory. The three dimensions are:

1. Emotional exhaustion - referring to the depletion of emotional resources and the feeling that one has nothing left to give,
2. Depersonalization - referring to the development of negative and cynical attitudes towards one's clients, and
3. Feelings of low personal accomplishment - referring to the feelings of loss of effectiveness in performing one's duties.

While the multidimensional construct of burnout developed by Maslach and Jackson (1981) has been widely accepted by researchers, the use of the term burnout in the literature is problematic as it is frequently used interchangeably with stress, a use which negates a consistent assessment of results of research. Attempts have been made to distinguish stress from burnout, maintaining that stress can be both positive (eustress) and negative (dystress), and that burnout results from continual failure to cope with dystress (Farber 1984; Iwanicki 1983; Sarros and Sarros 1987). However, the original definition by Freudenburger emphasises that the phenomenon is confined to those who idealize their work, and results in loss of this ideal. This implies that the definition simply distinguishing burnout from stress is still too broad. For the purposes of this research the multidimensional construct of burnout (Maslach and Jackson 1981) is accepted.

Research into teacher burnout has focused on environmental factors and demographic factors associated with increased feelings of burnout.

While more recent research has investigated the significance of dynamic personal variables such as self-esteem (Anderson and Iwanicki 1984; Byrne 1994; Mazur and Lynch 1989), locus of control (Byrne 1994; Pierce and Molloy 1990a), research into dynamic individual variables that may mediate the impact of environmental stressors is limited. Individual differences in responses to environmental stressors for teachers in similar school situations remain largely unexplained (Byrne 1994). As such the research to date is considered inadequate in three ways:

*The research has focused on organisational factors within schools and static individual characteristics, such as sex, age, years of experience, grade level taught, and little consideration has been given to dynamic individual variables that may mediate teachers' responses to environmental stressors.

*Burnout research has focused on causes and consequences of burnout, but has not considered insulation against teacher burnout, that is it offers no solutions for the teacher burnout.

*Freudenburger's original definition emphasises that the phenomenon is confined to those who idealize their work, and results in loss of this ideal. Implicit in the original definition of burnout then is a precondition, that is, the worker must idealize their work, that is, have high goal levels. This pre-condition has not been considered in teacher burnout research.

The neglect of the investigation of dynamic individual variables in the research to date may seem to imply the assumption that all teachers are equally susceptible to burnout. In rejecting this assumption, it is

suggested that work-related stressors associated with burnout are mediated by dynamic individual variables. Social Cognitive Theory (Bandura 1986), considers all experiences and related behaviour or action to be mediated by self-regulatory mechanisms. Bandura considers one of the most important of these self-regulatory mechanisms to be perceived self-efficacy.

Links between teacher burnout and levels of teachers' levels of efficacy have been alluded to (Brissie et al 1988; Schwab et al 1986; Cadiz 1989; Rosenholtz 1989; Rosenholtz and Simpson 1990). Rosenholtz (1989) and Rosenholtz and Simpson (1990) have suggested relationships between levels of efficacy and commitment to work, as well as enhanced feelings of coping with and solving problems. Schwab et al (1986) and Jackson et al (1986) suggest a relationship between feelings of inefficacy and lower feelings of personal accomplishment, and Cadiz (1989) suggested that teachers needed strong self-efficacy to cope with stress. More recently DeMoulin (1991) proposed that the term burnout was an inappropriate descriptor for low personal efficacy. Reviews of literature in both areas of research reveal strong parallels in

findings suggesting that a teacher's level of efficacy may be an important factor in teacher burnout.

The definition of teacher efficacy is the subject of some contention. While some researchers in this area maintain the broad unidimensional definition (Guskey 1987; 1988; Midgley et al 1989), others prefer the bidimensional definition proposed by Ashton and Webb (1986) .

Ashton and Webb (1986) proposed that a teacher's sense of efficacy consists of two dimensions:

1. General Teaching Efficacy - a judgement of whether or not teachers can change student outcomes, and
2. Personal Teaching Efficacy - a judgement about their personal ability to control student outcomes.

A high level of general teaching efficacy would suggest that the teacher believes teachers in general are capable of changing student outcomes regardless of the student's background, and they may view themselves as capable of achieving this (high personal teaching efficacy) or unable to achieve this (low personal teaching efficacy). Alternatively they may have a low level of general teaching efficacy, suggesting that they believe teachers to be unable to change students outcomes as the influence of student background is too great and they may view themselves as being bound by this (low personal teaching efficacy) or as being an exception to the rule (high personal teaching efficacy).

Validation of the Teacher Efficacy Scale provided strong support for the bidimensional nature of the construct (Gibson and Dembo 1984) and research conducted by Woolfolk and Hoy (1990) provided strong support for variations in behaviour resulting from interactions between the dimensions indicating the importance of measuring efficacy as a bidimensional construct. In view of these findings, this study accepts this more specific bidimensional definition of efficacy.

In operationalizing the role of teacher efficacy as a mediating variable and accepting Freudenburger's condition that burnout is most prominent in those who idealize their work, a model of burnout was developed. The model proposed that a moderate to high level of both dimensions of efficacy was a precondition for burnout.

Pre-condition S Conflict 1 CONFLICT 2 Result

HIGH GE ATTEMPTS SLOWED PEBURNOUT
HIGH PETO MAINTAIN
HIGH PE

actresults
 conflicts
 oninwith

workreassessmentHIGH ge
 relatedof
 stressorspersonal

efficacy

FIGURE 1: Original model of the conceptual framework of teacher burnout

The work-related stressors act on the teacher, inhibiting his/her performance. The teacher attempts to maintain his/her high personal teaching efficacy. Unsuccessful attempts to maintain personal efficacy lead to reassessment of personal efficacy. This results in them lowering their personal teaching efficacy, which then conflicts with their general teaching efficacy, that is their performance does not match their ideal. It is hypothesised that this conflict between the two levels of efficacy results in burnout.

Results of a pilot study investigating the association between levels of efficacy and burnout provided preliminary support for the model, however the results indicated that it was the discrepancy between the two levels of efficacy that was associated with burnout rather than the teacher having to meet the precondition of a high level of general teaching efficacy; that is while one teacher may have lower general teaching efficacy than another, these teachers' level of personal teaching efficacy relative to their teaching efficacy will determine their susceptibility to burnout. In light of this finding the model was reviewed and a new model proposed.

Pre-conditionSConflict 1CONFLICT 2Result

GE > or ATTEMPTSLOWERED PEBURNOUT
 =PETO MAINTAIN
 PE

actresults
 conflicts
 oninwith

workreassessmentgeneral
 relatedofefficacy

stressors
personal
efficacy

FIGURE 2: Revised model of the conceptual framework of teacher burnout

The new model requires the precondition for burnout to be that the individual's level of personal teaching efficacy is greater than or equal to their level of general teaching efficacy. Work related stressors erode their personal teaching efficacy causing it to conflict with the general teaching efficacy and produce feelings of burnout.

The proposed model poses several research questions and hypotheses for investigation. The first and most general of these asks is teacher efficacy correlated with burnout?

Parallel findings in research would suggest some degree of correlation between the two constructs. These parallels, together with the finding of a correlational relationship between the two unidimensional constructs (Brissie et al 1989), and suggestions of links between the two areas (Cadiz 1989; Jackson et al 1986; Schwab et al 1986) suggest that correlational analysis may reveal that dimensions of teacher efficacy are significantly correlated with dimensions of burnout.

Implicit in the conceptualization of general teaching efficacy is that the teacher's level of teaching efficacy form the ideal against which the teacher assesses his/her performance. Teachers with high teaching efficacy continue to strive to improve their own performance as a teacher in order to reach their ideal, hence:

1a. Teaching Efficacy is significantly positively correlated with emotional exhaustion.

1b. Teaching Efficacy is significantly positively correlated with depersonalization.

Teachers with high teaching efficacy hold the belief that as a teacher they should be positively influencing student outcomes. As the level of this belief increases it becomes increasingly difficult to achieve this ideal hence:

1c. Teaching Efficacy is significantly negatively correlated with personal accomplishment.

Teachers with high Personal Teaching Efficacy should display low levels of burnout as they feel confident about their own ability to positively

influence student outcomes, hence it is hypothesized that:

2a. Personal Teaching Efficacy is significantly negatively correlated with emotional exhaustion.

2b. Personal Teaching Efficacy is significantly negatively correlated with depersonalization.

As teachers with high personal teaching efficacy feel they are positively influencing student outcomes:

2c. Personal Teaching Efficacy is significantly positively correlated with personal accomplishment.

While the parallels in the research require the testing of the minor correlation hypotheses, the principal focus of this research relates to the interaction between the two levels of efficacy. The proposition that burnout results when the level of personal teaching efficacy conflicts with the ideal, suggests that teachers with high general teaching efficacy and low personal teaching efficacy are most likely to report feelings of burnout. As a result of this conflict between what they perceive themselves as accomplishing and what they believe they should be accomplishing a more specific hypothesis would be:

3a. Teachers with high teaching efficacy and low personal teaching efficacy report low levels of personal accomplishment.

Their continued unsuccessful efforts to strive for their ideal will result in exhaustion hence the hypotheses:

3b. Teachers with high teaching efficacy and low personal teaching efficacy report high levels of emotional exhaustion.

3c. Teachers with high teaching efficacy and low personal teaching efficacy report high levels of depersonalization.

Thorough investigation of this model requires longitudinal research of changes in levels of efficacy and associated changes in feelings of burnout. This paper reports on the first stage of this longitudinal study.

Methodology

Measures

A sixty two item questionnaire was designed. This questionnaire

measured levels of the three dimensions of burnout, level of personal and general teaching efficacy, perceived collective efficacy, and conceptions of ability (for both teaching ability and student learning).

Burnout was measured using the Maslach Burnout Inventory. Twenty-two items measured three dimensions of burnout: Emotional Exhaustion, Personal Accomplishment, and depersonalization. The word student was substituted for recipient and items were rated on a five-point scale. The validity of this instrument when applied to teachers has been firmly established (Byrne 1991;1994; Iwanicki and Schwab 1981; Sarros and Sarros 1990).

Teacher efficacy was measured using the Teacher Efficacy Scale (Gibson and Dembo 1984). The twenty-eight item scale measured two dimensions of efficacy: General teaching efficacy and personal teaching efficacy.

Four items were developed to measure collective efficacy. These items focus on the teachers perceptions of their school eg: My school is a good school, students seem to have a positive experience at my school, My school is viewed positively by neighbouring schools.

Subjects

The 62 item questionnaire was administered to 800 full-time teachers working in NSW government schools. These teachers were randomly selected from the membership database of the New South Wales Teachers Federation. The sample consisted of 500 females and 300 males.

Procedure.

The sixty two item questionnaire was mailed to the teacher's home address, this method was chosen as the study is longitudinal, and mailing to home addresses was the most effective method of maintaining records of the sample.

A response rate of 41% resulted in 330 questionnaires being returned.

Sample

A demographic summary of respondents is presented in Table 1. The sample comprised 209 females and 121 males. Approximately half of the sample were primary school teachers (148) and half secondary school teachers (156). Half of the sample were classroom teachers (165), the remainder held executive positions. The mean age of the sample was 39 years (std 7.87). Mean years of teaching experience was 16 (std 8.04). The majority of the sample were four year trained (209).

Variable	Mean	Std Dev	Min	Max	N
AGE	38.977	8.720	0.060	0.0325	
SEX	1.63	.48	1.0	2.0	330

TYPE OF SCHOOL 2.58 .88
 .0 6.0330
 POSITION 2.391.94 .0 9.0330
 YEARS OF TRAINING 3.81 .79 2.0
 6.0329
 EXPERIENCE16.028.04 1.030.0330
 REGION 5.022.94 1.010.0 330
 LOAD
 10 .01 .01330
 SES OF COMM. 2.881.52 1.06.0330
 SEXNPERCENTAGE
 MALE 12136.7
 FEMALE 20963.3

Table 1: Demographic summary of the sample.

TYPE OF SCHOOLNPERCENTAGE
 INFANTS 17 5.2
 PRIMARY13139.7
 SECONDARY15647.3
 SSP 8 2.4
 CENTRAL 11
 3.3
 OTHER 3 .9

Table 1: Demographic summary of the sample continued.

POSITIONNPERCENTAGE
 CLASSROOM TEACHER16550.0
 AST 5717.3
 ET 16 4.8
 HT 4112.4
 AP 14 4.2

DP 7 2.1
 PRINCIPAL 23 7.0
 COUNSELLOR 2 .6
 CONSULTANT 1 .3
 YEARS OF TRAININGNPERCENTAGE
 2YT 19 5.8
 3YT 7221.8
 4YT 20160.9

5YT 27 8.2
 MORE THAN 5YT 10 3.0
 REGION NPERCENTAGE
 MET SOUTH WEST 3811.5
 MET WEST 4112.4
 MET NORTH 45
 13.6
 MET EAST 4513.6
 WESTERN 22 6.7

SOUTH COAST	
4112.4	
NORTH COAST	26 7.9
RIVERINA	10 3.0
NORTH WEST	
15 4.5	
HUNTER	4714.2

SOCIOECONOMIC STATUS OF SCHOOL COMMUNITY

NPERCENTAGE

LOW	6118.5
LOW-MEDIUM	9328.2
MEDIUM	
8626.1	
MEDIUM-HIGH	4313.0
HIGH	7 2.1
MIX HIGH	
& LOW	4012.1

TABLE 1: Demographic summary of the sample.

RESULTS

Teachers in the study reported levels of burnout relatively consistent with teachers in both overseas and Australian studies, as well as the norms established by Maslach and Jackson (1981) for helping service professionals (Table 2). While teachers reported levels of depersonalization slightly lower than the Maslach and Jackson norms (B), reported levels of depersonalization were considerably higher than the Canadian sample (E), higher than the pilot study (C) and higher than previous Australian research (D). This result is congruent with findings of a cross-cultural study of teacher burnout (Sarros and Sarros 1990), which found Australian teachers to report higher levels of depersonalization than their North American or Canadian counterparts.

Teachers in this study experienced considerably high levels of personal accomplishment when compared with the Maslach and Jackson norms. Reported levels of personal accomplishment were lower than the pilot study (C) and lower than the Canadian sample (E). Results of the cross-cultural study found Australian teachers to report lower levels of personal accomplishment than their North American and Canadian counterparts. Levels of personal accomplishment reported in this study are consistent with the cross-cultural research.

Levels of emotional exhaustion were consistent with previous Australian research (C), lower than the Maslach and Jackson norms (B) and higher than the Canadian sample (E).

EmotionalPersonal

Exhaustion Depersonal Accomplishment

Mean Mean Mean

A. 3.162.133.76

B. 3.522.342.04

C. 2.962.054.32

D. 3.161.942.64

E. 2.48

0.724.67

A. This study.

B. Norms established by Maslach and Jackson (1981)

C. Pilot study

D. Sarros and Sarros (1990).

E. Iwanicki and Schwab (1981).

TABLE 2: Comparison of Burnout Scores among Various Studies

Correlational analysis was conducted to confirm any association between the efficacy dimensions and the burnout dimensions. Correlational analysis between the two dimensions of efficacy and each burnout

dimension (Table 2) revealed significant correlations in the predicted direction between both dimensions of efficacy and all three burnout dimensions.

Personal General Collective

Efficacy Efficacy Efficacy

EMOTIONAL EXHAUSTION-.0068 .2289**-.2878**

DEPERSONALIZATION-.2052**

.3964**-.3476**

PERSONAL ACCOMPLISHMENT .4565**-.2767** .3397**

**p<.001 *p<.01

TABLE 3: Correlations between efficacy dimensions and burnout dimensions

The analysis revealed general teaching efficacy to be significantly positively correlated with emotional exhaustion ($r=.2289$ $P<.001$) and depersonalization ($r=.3964$ $p<.001$), and significantly negatively correlated with personal accomplishment ($r= -.2767$ $p<.001$). These findings support hypotheses 1a, 1b and 1c. Suggesting higher ideals are associated with higher levels of burnout.

Personal teaching efficacy was significantly positively correlated with personal accomplishment ($r=.4565$ $p<.001$) and significantly negatively correlated with depersonalization ($r= -.2025$ $p,.001$). Suggesting feeling of burnout to be associated with lower perceptions of personal efficacy and supporting hypotheses 2a, 2b and 2c.

Collective efficacy was significantly positively correlated with

personal teaching efficacy ($r = .1614$ $p < .01$) and significantly negatively correlated with general teaching efficacy ($r = -.1281$ $p < .01$), suggesting that increases in personal teaching efficacy and decreases in general teaching efficacy may be associated with increased collective efficacy. Correlations between collective efficacy and the burnout dimensions revealed collective efficacy to be significantly negatively correlated with both emotional exhaustion ($r = -.2878$ $p < .001$) and depersonalization ($r = -.3476$ $p < .001$) and significantly positively correlated with personal accomplishment ($r = .3397$ $p < .001$), suggesting that decreases in collective efficacy may also contribute to burnout. This dimension warrants further investigation.

Correlations between demographic variables (Table 4) and the efficacy and burnout dimensions revealed a significant negative correlation between sex and intensity of depersonalization ($r = -.1660$ $p < .01$), indicating that male teachers report higher levels of depersonalization than female teachers. This finding is consistent with previous research (Anderson and Iwanicki 1984; Byrne and Hall 1989; Greenglass and Burke 1988; Pierce and Molloy 1990a; Russell et al 1987; Schwab and Iwanicki 1982b). Analysis of variance confirmed a significant difference ($F = 8.273$ $p < .005$) between males (mean = 2.29 std .832) and females (mean = 2.03 std .737) for depersonalization.

Socio economic status of the school community was positively correlated with collective efficacy ($r = .1357$ $p < .01$) suggesting collective efficacy to increase as socioeconomic status of the school increases.

AGESEXTYPEPOSTRAINEXP

PERSEF-.0036 .1120-.1035 .1476*-.0708 .0555
 GENEFF-.0127 .1151 .0044
 .2030** .0294-.0150
 COLEF .0873 .0259-.0336 .1153-.0829 .0389
 EMOTEX
 .0865-.0680-.0614-.0216 .0103 .1701*
 DEPERF-.0330-.1660* .0093-.1188
 .0596 .0308
 PERSAC-.0371 .1142 .0169 .1619*-.0501 .0606
 REGLOADSES
 PERSEF-.0950-.0568-.0851
 GENEFF .0121 .0789 .0926
 COLEF-.0070-.0303
 .1357*
 EMOTEX .0663-.0827-.0034
 DEPERF .1208 .0073 .0377
 PERSAC-.0882
 -.0411-.0335
 ** $p < .001$ * $p < .01$

TABLE 4 :Correlations between efficacy and burnout dimensions

Emotional exhaustion was positively correlated with teaching experience (.17 $p < .01$) the positive direction suggesting emotional exhaustion to increase as years of teaching experience increase.

Regression analysis was conducted to examine the hypothesized predictive relationship among the variables (Table 5). In order to test the major hypotheses concerning the relationship between the two dimensions of efficacy as a predictor of the burnout dimensions, the scores on the two efficacy dimensions were standardised and the difference between them was calculated. This difference (EFDIFF) was then entered into a regression equation to determine the predictive nature of this difference. Analysis revealed EFDIFF to be a significant predictor of all burnout dimensions. The difference between the two levels of efficacy accounted for 25% ($p < .0001$) of the variance in personal accomplishment, 15% ($p < .001$) of the variance in depersonalization, and 2% ($p < .01$) of the variance in emotional exhaustion. The B-weights for emotional exhaustion and depersonalization were positive suggesting these measures to be greater when teaching efficacy is higher than personal teaching efficacy, while the B-weights for personal accomplishment were negative suggesting personal accomplishment to be greater when personal teaching efficacy is greater than teaching efficacy. This provides support for the major hypotheses 3a, 3b, 3c.

PERSONAL ACCOMPLISHMENT
Mu1 R R2Beta F
EFFICACY DIFFERENCE .508 .257 .508 115.16**

STEP

1. PERSONAL EFFICACY .456 .208
.456 86.33***

2. COLLECTIVE EFFICACY .530 .281 .273 63.89***

3. GENERAL
EFFICACY .571 .326-.215 52.60***

DEPERSONALIZATION
Mu1 R R2Beta F
EFFICACY DIFFERENCE .395 .157 .396 60.91***

STEP

1. GENERAL EFFICACY .396 .157
.396 61.16***

2. COLLECTIVE EFFICACY .497 .247-.302 53.56***

3. PERSONAL
EFFICACY .514 .246-.133 38.98***

EMOTIONAL EXHAUSTION
Mu1 RR2Beta F
EFFICACY DIFFERENCE .145 .021 .145 7.06***

STEP

1. COLLECTIVE EFFICACY .288
.083 .288 29.62***

2. GENERAL EFFICACY .347 .120 .195 22.36***

3. PERSONAL
EFFICACY .351 .123 .052 15.23***

* $p < .01$ ** $p < .001$ *** $p < .0001$

TABLE 5: Multiple regression analysis for the difference score and stepwise multiple regression analysis for the relationship between types of efficacy and burnout dimensions.

In addition to the regression analysis testing the predictive value of the difference score, a regression analysis was conducted to test the predictive value of the three measures of efficacy independently.

To establish the predictive value of each type of efficacy to burnout all dimensions of efficacy were entered into the equation for each dimension of burnout.

Personal efficacy was found to be the best predictor of personal accomplishment accounting for 20% of the variance ($r = .456$ $p < .001$), followed by general efficacy accounting for a further 8% of the variance ($r = .53$ $p < .001$) and collective efficacy accounting for a further 7% of the variance ($r = .57$ $p < .001$).

Collective efficacy was the best predictor of emotional exhaustion accounting for 8% of the variance ($r = .29$ $p < .001$), followed by general efficacy accounting for a further 4% of the variance ($r = .35$ $p < .001$). This warrants further investigation.

General efficacy was the best predictor of depersonalization accounting for 18% of the variance ($r = .40$ $p < .001$), followed by collective efficacy accounting for a further 8% ($r = .50$ $p < .001$). The strength of the predictive value of collective efficacy warrants it further investigation.

Analysis of variance was conducted to investigate between group differences and confirm the results of the regression analysis. In order to determine differences in reported levels of burnout between teachers with different levels of efficacy, teachers were divided into four groups according to their level of efficacy. The four groups were:

Teachers with high general efficacy and high personal efficacy (HIHI).
Teachers with high general efficacy and low personal teaching efficacy (HILO).
Teachers with low general efficacy and high personal teaching efficacy (LOHI).
Teachers with low general efficacy and low personal teaching efficacy (LOLO).

Groups were formed using the standardized efficacy scores. High efficacy was considered to be that greater than half a standard deviation above the mean, while low efficacy was considered to be more than half a standard deviation below the mean. The pattern of group means was as predicted (Table 6).

Results for emotional exhaustion revealed that Group 2 (HILO) and group 4 (LOLO) differed significantly from group 3 (LOHI). Suggesting that teachers with low personal efficacy differ significantly from teachers with high personal efficacy and low general efficacy.

Group differences for depersonalization found group 4 (HILO) to differ significantly from all other groups. Group 2 (HILO) differed significantly from group 1 (HIHI) and group 3 (LOHI). Suggesting that teachers with low personal efficacy and high general efficacy experience significantly greater feelings of depersonalization than teachers with high personal efficacy which adds further support for the model.

For personal accomplishment group 1 (HIHI) and group 4 (LOLO) differed significantly from all other groups. This may again suggest that it is the relationship between the two levels of efficacy that determine the level of burnout.

EMOTIONAL EXHAUSTION

NMEANSTD.DEV

GROUP 1 (HIHI) 373.09.897

GROUP 2 (HILO) 303.53.969

GROUP 3 (LOHI) 212.64

.897

GROUP 4 (LOLO) 343.60.926

DEPERSONALIZATION NMEANSTD.DEV

GROUP 1 (HIHI) 371.53.506

GROUP 2 (HILO) 302.31.975

GROUP 3 (LOHI) 211.71

.615

GROUP 4 (LOLO) 342.74.895

PERSONAL ACCOMPLISHMENT

NMEANSTD.DEV

GROUP 1 (HIHI) 374.21.332

GROUP 2 (HILO) 303.90.532

GROUP 3 (LOHI) 213.74

.633

GROUP 4 (LOLO) 343.12.596

TABLE 6: Group means for groups with differing levels of personal teaching efficacy and general teaching efficacy.

A 3 * 3 ANOVA was conducted to determine any interaction between the two efficacy dimensions. In order to conduct a three way ANOVA it was necessary to divide the levels of the two dimensions of efficacy into three groups; Low, Medium and High. A stem and leaf diagram was produced to determine the groups and two new variables were calculated

each having three levels 1-low 2-medium, 3-high. Results (Table 7) provided further confirmation of the results of the regression

analysis, finding significant main effects for general teaching efficacy on all three dimensions of burnout and significant main effects for personal teaching efficacy on depersonalization and personal accomplishment. Results also indicated a significant 2-way interaction for depersonalization and personal accomplishment ($p < .05$).

EMOTIONAL EXHAUSTION

Source of Variation	Squares	DF	Square F	sig	F
Main Effects	19.81344	9536	.279	.000	

PEFLEV	.6052	.303	.384	.682	
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GEFLEV	19.43029	71512	.315	.000	
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2-way Interactions	2.6484	.662	.839	.501	
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PEFLEV	GEFLEV	2.6484	.662	.839	.501
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Explained	22.46182	.808	3.559	.001	
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Residual	253.22221	.789			
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DEPERSONALIZATION

Source of Variation	Squares	DF	Square F	sig	F
Main Effects	35.0944	8.77417	.180	.000	

PEFLEV	4.3502	2.175	4.259	.015	
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GEFLEV	28.368214	.18427	.774	.000	
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2-way Interactions	2.1184	.530	1.037	.388	
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PEFLEV	GEFLEV	2.1184	.530	1.037	.388
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Explained	37.2128	4.652	9.108	.000	
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Residual	163.93321	.511			
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PERSONAL ACCOMPLISHMENT

Source of Variation	Squares	DF	Square F	sig	F
Main Effects	21.5504	5.38722	.823	.000	

PEFLEV	12.4502	6.22526	.372	.000	
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GEFLEV	6.9762	3.48814	.777	.000	
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2-way Interactions	3.1414	.785	3.327	.011	
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PEFLEV	GEFLEV	3.1414	.785	3.327	.011
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Explained	24.6918	3.08613	.075	.000	
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Residual	75.772321	.236			
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TABLE 7: Results of 3*3 analysis of variance

A plot of cell means investigating the significant interaction between the two dimensions of efficacy and personal accomplishment (Figure 3) suggested that when levels of efficacy are low teachers with general efficacy greater than personal efficacy experienced lower levels of

personal accomplishment.

4.1
4.0
3.9
3.8
3.7
3.6
3.5
3.4

LOWMEDIUMHIGH

FIGURE 6: Plot of cell means for personal accomplishment

DISCUSSION

The results suggest that levels of teacher efficacy play an important role in the understanding of teacher burnout.

The major focus of the study was to determine the significance of the interaction between the two levels of efficacy for the prediction of burnout. The significant predictive value of the discrepancy score between the two efficacy dimensions and the three burnout dimensions confirmed the three major hypotheses. The pattern of high teaching efficacy combined with low personal teaching efficacy was found to be a significant predictor of depersonalization and emotional exhaustion. The pattern of high personal teaching efficacy and low teaching efficacy was a significant predictor of feelings of personal accomplishment.

These trends provide further support for the proposed model of burnout by indicating that the interaction between the two levels of efficacy in an individual may determine the level of emotional exhaustion, depersonalization and personal accomplishment that they experience. The regression analysis revealed that teachers with high personal teaching efficacy and low teaching efficacy experience the greatest feelings of personal accomplishment because they by far exceed their ideal.

The strong predictive value of collective efficacy and its positive association with personal efficacy indicate that this variable warrants further investigation. Recent research on school effectiveness (Rowe, Holmes-smith and Hill 1993) found teacher morale to be strongly affected by a construct called goal congruence measuring the degree of congruence between teacher's personal goals and the goals of the school. Collective efficacy may have some parallels with the construct of goal congruence. These parallels warrant further investigation.

These findings provide support for the proposed theory of the relationship between teacher efficacy and burnout by suggesting that when teaching efficacy is higher than personal teaching efficacy, teachers experience greater feelings of burnout. A teacher's level of teaching efficacy determines the standard by which she/he assesses his/her own performance as a teacher. The proposed model suggests that when a teacher's personal teaching efficacy decreases to a level below that of their general efficacy, they move further below their self-set standard for teachers. The results of the analysis support this by suggesting that depersonalization and emotional exhaustion are best predicted when teaching efficacy is greater than personal teaching efficacy.

The results of the analysis of variance provided further support for the importance of the interaction between the two levels of efficacy

finding teachers with high teaching efficacy and low personal efficacy to differ significantly from all other groups in relation to depersonalization. This finding lends support to the specific hypothesis that teachers with high teaching efficacy and low personal teaching efficacy would report higher levels of depersonalization.

Group means for emotional exhaustion indicate that those teachers experiencing the greatest level of emotional exhaustion are the teachers with low personal teaching efficacy. The group experiencing the lowest level of emotional exhaustion is that of teachers with high teaching efficacy and high personal teaching efficacy. These trends suggest that emotional exhaustion results from continued attempts to improve perceived personal teaching efficacy. The indication that teachers with high personal teaching efficacy and low teaching efficacy experience more emotional exhaustion than those with high teaching efficacy, warrants further investigation, but may suggest that the conflict between the two levels of efficacy increases emotional exhaustion.

Results of these comparisons between groups confirm that the teachers most at risk of burnout are those with high teaching efficacy and low personal teaching efficacy.

The interaction between the levels of efficacy for personal accomplishment confirms the trend established by the correlations, suggesting that personal accomplishment decreases as teaching efficacy increases and as personal teaching efficacy decreases. The longitudinal study should more fully establish the nature of this interaction.

Results of correlational analysis provided support for the hypothesis that personal teaching efficacy is negatively correlated with depersonalization and the hypothesis that personal teaching efficacy is positively correlated with personal accomplishment. Results suggest

that teachers with high personal teaching efficacy have greater feelings of personal accomplishment and significantly lower feelings of depersonalization.

While the correlation between personal teaching efficacy and emotional exhaustion was not significant, the negative direction of the correlation suggests that teachers with higher personal teaching efficacy tend to experience less emotional exhaustion. This relationship warrants further investigation in a larger sample.

Significant correlations were found between teaching efficacy and the three burnout dimensions, the direction of the correlations between teaching efficacy and the three dimensions was opposite to the direction of the correlations for personal teaching efficacy. This suggests that as teaching efficacy increases, emotional exhaustion and depersonalization also increase and as teaching efficacy drops, feelings of personal accomplishment increase.

The significant negative correlation between sex and depersonalization is consistent with previous research findings that male teachers report higher levels of depersonalization than female teachers (Anderson and Iwanicki 1984; Byrne and Hall 1989; Greenglass and Burke 1988; Pierce and Molloy 1990a; Russell et al 1987; Schwab and Iwanicki 1982b).

Overall the study yielded results that supported the proposed model of the relationship between teachers' levels of efficacy and burnout.

Implications of the findings

The establishment of a relationship between the difference between the two dimensions of efficacy and the burnout components provides indications for possible processes for the prevention of burnout. It is suggested that burnout may be prevented if teachers can maintain a level of personal teaching efficacy higher than or equal to their general level of efficacy.

Various studies with children have investigated the enhancement of self-efficacy through methods such as attribution re-training and goal-setting. As burnout is associated with reduced perceived self-efficacy, then steps to enhance efficacy may reduce incidence of burnout. The next phase of this research focuses on the development of strategies to assist teachers to maintain their personal efficacy.

Bandura proposes various strategies for enhancing self-efficacy including modelling of successful strategies and goal-setting. Inservices which focus on modelling teaching strategies may be effective in enhancing efficacy. Goal setting research suggests that

breaking tasks into smaller more achievable self-set goals enhances performance. Teachers should be encouraged to focus on more proximal and achievable lesson objectives than on long term learning goals.

While these implications focus on preventing burnout by maintaining levels of personal teaching efficacy equal to or greater than general teaching efficacy, results of the regression analysis suggesting personal accomplishment is best predicted when personal teaching efficacy is greater than teaching efficacy, imply that burnout may also be prevented by reducing a person's teaching efficacy. High levels of teaching efficacy may set unrealistic levels of aspiration for a teacher. Reducing the level of teaching efficacy essentially lowers the teacher's standard by which they measure their performance, thus increasing the likelihood of perceiving their performance as successful. This strategy would be most effective when the teacher's level of teaching efficacy is unrealistically high. These possibilities pose question about expectations set in pre-service teacher education and warrant further investigation.

Directions for future research

The results presented comprise findings of the first stage of a longitudinal study of the link between teacher efficacy and burnout, and are limited by their correlational nature and hence no casual direction can be conclusively stated. The longitudinal study of changes in teacher efficacy and the relationship between these changes and the changes in level of burnout should provide a greater understanding of this link.

Research is also needed to establish efficacy enhancing strategies for use with groups of teachers. Together with enhancement of personal teaching efficacy, research into the prevention of teacher burnout should also consider the strategies to reduce teaching efficacy.

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