EVALUATING THE IMPACT OF THE SCHOOL ENVIRONMENT ON TEACHERS’ HEALTH AND JOB COMMITMENT:

IS THE HEALTH PROMOTING SCHOOL A HEALTHIER WORKPLACE?

by

KATE ANNE LEMERLE
BSc(Psych); BEd; DipEd.; DipSocEcol;
DipHlthProm; MappSci(SocEcol).

2005

Submitted for Completion of a Doctor of Philosophy
at
School of Public Health
Queensland University of Technology
Brisbane, Australia.
KEY WORDS

► Health Promoting Schools
► School environment
► Teachers' health
► Job stress
► Job commitment
► Organisational health
► Social capital
ABSTRACT

Despite having been endorsed by the World Health Organisation (WHO) almost a decade ago, and its widespread adoption as a model of “best practice” for school health promotion throughout the world, the Health Promoting Schools framework has not been subjected to widespread evaluation in a way that fully recognises its core tenets. Most evaluations have focused on individual targeted interventions addressing students’ health behaviours, or implementation issues such as school health policies or access to services. No evaluations of this approach could be found which investigated the impact of the HPS model on teachers, as a critical factor influencing the school climate, or on organisational processes associated with employee wellbeing within the school setting.

There is a vast literature pertaining to conditions of the work environment that affect employee health, including work-related stress. Teaching is considered a highly stressful occupation, and as social pressure continues to place teachers and schools in the role of “in loco parentis” for the socialisation of children, it seems timely to identify those characteristics of the school environment that promote positive health and wellbeing for all. In theory, the HPS model provides a set of principles and procedures that aim to promote health and wellbeing for all members of the school community, yet the impact on school staff has yet to be demonstrated.

This thesis reports on research investigating the extent to which adoption of the HPS approach creates a positive work environment for teachers, through enhanced organisational and social capital, and whether selected work
environment variables impact on teachers’ physical and mental wellbeing, health risk behaviours, job stress, and job commitment.

After conducting a statewide audit of health promotion activities in Queensland primary schools, two samples of schools that differed significantly in the extent to which they were implementing organisational strategies consistent with the HPS approach were selected, one sample of 20 schools actively implementing HPS strategies, and a comparison sample of 19 schools not implementing the approach. Schools were matched on geographic location (rural/urban), school size (number of student enrolments), and socio-economic rank (IRSED). A cross-sectional design using a mail-out survey to 1,280 teachers was conducted, and statistical comparisons of the two groups were conducted.

Apart from providing the samples of schools for the main research, the statewide audit provided a profile of health promotion activity in Queensland primary schools. Urban, rather than rural schools, and those with higher student enrolments, were most frequently implementing HPS strategies. Socio-economic ranking did not have any statistical bearing on adoption of these strategies. Implementation of school health policies was the most common strategy, although the social and physical environments were also addressed to some extent. The instrument designed for the study, the HPS Audit Checklist, proved effective in distinguishing a continuum of HPS “total scores” and demonstrated good psychometric properties.

With respect to differences in measures of the school environment, mean scores for all 11 dimensions of school organisational health, and all 4 dimensions of school social capital, were statistically higher in High HPS,
although differences between the two groups were not outstanding. Trends in the results did, however, confirm that schools actively adopting a HPS approach provide a more positive work environment than non-health promoting schools. Effect size was most significant for School Morale, Decision Authority, and Co-worker Support. Both organisational and occupational commitment was higher for teachers in High HPS, and Turnover Intention (plans to leave the workforce/workplace) was lower for teachers in High HPS.

Teachers in High HPS reported less job strain and higher skill discretion, despite slightly greater job demands (work pressure) in these schools. They also reported significantly less general psychological distress on 5 measures, and significantly better self-rated mental and physical health. Job strain was most strongly associated with co-worker support, appreciation, and school morale in High HPS, but in Low HPS strain was most strongly associated with leadership style, school morale, and role clarity, suggesting more subtle differences between the two sets of schools. No statistically significant differences were found between teachers in High and Low HPS on self-reported weight, daily dietary habits, dental check-ups, preventive health screenings, alcohol consumption, smoking, cholesterol, BP and exercise.

Although this research was limited by its dependence on self-report measures, the high response rate suggests that the results provide a valid profile of the health and psychological wellbeing of teachers in Health Promoting Schools in Queensland. These results also suggest that the HPS approach creates a more positive school environment through building social
and organisational capital, and this is reflected in better mental health and stronger job commitment of the teaching workforce.

Implications of these results for human resource management within the education sector are discussed. In addition, the implications of a healthier “learning environment”, including less stressed and more connected teaching staff, for children's psychosocial and educational outcomes are considered in light of potential future directions for this research.
# Table of Contents

**Front Cover**

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Title page</td>
<td>i</td>
</tr>
<tr>
<td>Keywords</td>
<td>ii</td>
</tr>
<tr>
<td>Abstract</td>
<td>iii</td>
</tr>
<tr>
<td>Table of Contents</td>
<td>vii</td>
</tr>
<tr>
<td>Glossary of Terms</td>
<td>xviii</td>
</tr>
<tr>
<td>Statement of Original Authorship</td>
<td>xxiii</td>
</tr>
<tr>
<td>Acknowledgements</td>
<td>xxiv</td>
</tr>
</tbody>
</table>

## Chapter 1: Introduction

1.1 Conceptual background...................... 1
1.2 Purpose of the research........................ 17
1.3 Public health significance..................... 19
1.4 Research questions............................ 20
1.5 Structure of the thesis...................... 21

## Chapter 2: Literature Review

2.1 Introduction and chapter outline.................. 23
2.2 Socio-ecological theories of health............... 26
   2.2.1 Social ecology.................................. 27
   2.2.2 Social ecology of health......................... 31
   2.2.3 Social epidemiology.............................. 35
2.3 Capital within human systems.................... 37
   2.3.1 Social capital................................ 38
   2.3.2 Organisational capital.......................... 42
2.4 The work environment and health.................. 48
2.5 Organisational effectiveness..................... 52
   2.5.1 Organisational health........................... 55
   2.5.2 Indicators of organisational health............... 59
   2.5.3 Distinguishing between organisational “health” and “climate”.................................... 63
3.6 Methods of research .................................................. 156

3.6.1 Development of the HPS Audit Checklist ............ 157

3.6.2 Validation of psychometric properties of the HPS Audit Checklist ........................................... 166

3.6.3 Implementation and analysis of a statewide audit of health promotion in Queensland state schools ................................................................. 168

3.7 Measurement of work environment variables in schools and their impact on teachers' health, wellbeing & job commitment ......................... 171

3.7.1 Development of Teachers' School Environment Questionnaire and data collection procedures .... 171

3.7.2 Review and selection of research instruments to measure job commitment .......................... 179

3.7.3 Review and selection of research instruments to measure job stress ..................................... 182

3.7.4 Measurement of teachers' health risk and lifestyle behaviours ............................................. 184

3.7.5 Pilot of Teachers' School Environment Questionnaire and data collection methods .......... 185

3.8 Survey of school organisational health and social capital, teachers' job stress, wellbeing and job commitment .......................................................... 189

3.8.1 Data management .................................................. 191

3.8.2 Data analysis plan .................................................. 192

CHAPTER 4 RESEARCH FINDINGS

4.1 Review of research questions ................................. 194

4.2 Data management .................................................. 197

4.3 PART 1: Identification of schools for participation in the research study ........................................... 199

4.3.1 Description of respondent sample ..................... 199
<table>
<thead>
<tr>
<th>CHAPTER 5</th>
<th>DISCUSSION &amp; IMPLICATIONS OF RESEARCH FINDINGS</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.1</td>
<td>Contribution to development of instruments to measure school environment ......................................... 303</td>
</tr>
<tr>
<td>5.2</td>
<td>Contribution to school effectiveness research……. 309</td>
</tr>
<tr>
<td>5.3</td>
<td>Contribution to HPS Evaluations.……………………. 317</td>
</tr>
<tr>
<td>5.1.1</td>
<td>“Diffusion” of the HPS model.………………………. 317</td>
</tr>
<tr>
<td>5.1.2</td>
<td>Impact of the HPS approach.…………………………. 321</td>
</tr>
<tr>
<td>5.4</td>
<td>Relevance to Human Resource Management within the education sector……………………………………. 327</td>
</tr>
<tr>
<td>5.5</td>
<td>Contribution to research on capital theories of health……………………………………………………… 337</td>
</tr>
<tr>
<td>5.6</td>
<td>Contribution to international research on job stress.. 344</td>
</tr>
<tr>
<td>5.7</td>
<td>Conclusions………………………………………….. 350</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CHAPTER 6</th>
<th>LIMITATIONS OF THE RESEARCH AND FUTURE DIRECTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.1</td>
<td>Limitations of the research .............................. 355</td>
</tr>
<tr>
<td>6.1.1</td>
<td>Data collection instruments............................... 355</td>
</tr>
<tr>
<td>6.1.2</td>
<td>Research design and methods.............................. 357</td>
</tr>
<tr>
<td>6.1.3</td>
<td>Conclusions emerging from the research...................... 358</td>
</tr>
<tr>
<td>6.2</td>
<td>Future directions........................................... 360</td>
</tr>
<tr>
<td>6.3</td>
<td>Conclusions................................................ 367</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>REFERENCES</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>369</td>
</tr>
<tr>
<td>APPENDICES</td>
<td>Description</td>
</tr>
<tr>
<td>------------</td>
<td>------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Appendix 1</td>
<td>Letter to expert panel to contribute to development of HPS Audit Checklist</td>
</tr>
<tr>
<td>Appendix 2</td>
<td>Expert Panel Feedback Sheet for HPS Audit Checklist</td>
</tr>
<tr>
<td>Appendix 3</td>
<td>Notification of research proposal to Education Queensland District Directors</td>
</tr>
<tr>
<td>Appendix 4</td>
<td>Letter to School Principals re Audit</td>
</tr>
<tr>
<td>Appendix 5</td>
<td>Audit Information Sheet for School Principals</td>
</tr>
<tr>
<td>Appendix 6</td>
<td>Principals Consent to Participate in Audit</td>
</tr>
<tr>
<td>Appendix 7</td>
<td>Health Promoting Schools Audit Checklist</td>
</tr>
<tr>
<td>Appendix 8</td>
<td>HPS Audit Reminder #1</td>
</tr>
<tr>
<td>Appendix 9</td>
<td>HPS Audit Reminder #2: Telephone Protocols</td>
</tr>
<tr>
<td>Appendix 10</td>
<td>HPS Audit Reminder #3</td>
</tr>
<tr>
<td>Appendix 11</td>
<td>TSEQ Pilot School Feedback Sheet</td>
</tr>
<tr>
<td>Appendix 12</td>
<td>Invitation to School Principals to Participate in Research Project: Survey of School Environment &amp; Teachers’ Health</td>
</tr>
<tr>
<td>Appendix 13</td>
<td>Principal’s Agreement to Participate in Teachers’ Survey of School Environment &amp; Teachers’ Health</td>
</tr>
<tr>
<td>Appendix 14</td>
<td>Letter of Invitation to Teachers</td>
</tr>
<tr>
<td>Appendix 15</td>
<td>Information Sheet about Teachers Health &amp; School Environment Survey</td>
</tr>
<tr>
<td>Appendix 16</td>
<td>Teachers’ Survey Consent Form</td>
</tr>
<tr>
<td>Appendix 17</td>
<td>Demographic Data Sheet</td>
</tr>
<tr>
<td>Appendix 18</td>
<td>Teachers’ School Environment Questionnaire</td>
</tr>
<tr>
<td>Appendix 19</td>
<td>TSEQ Reminder #1</td>
</tr>
<tr>
<td>Appendix 20</td>
<td>TSEQ Reminder #2</td>
</tr>
<tr>
<td>Appendix 21</td>
<td>TSEQ Follow-up Record Sheet</td>
</tr>
<tr>
<td>Appendix 22</td>
<td>Cover Letter to Principals with School Profile</td>
</tr>
<tr>
<td>Appendix 23</td>
<td>Sample School Profile</td>
</tr>
<tr>
<td>Appendix 24</td>
<td>Expert Panel Members</td>
</tr>
</tbody>
</table>

**TABLES**

| Table 3.1 | Power analysis calculations | 155 |
| Table 4.1 | Distribution of Schools x HPS Status. | 198 |
| Table 4.2 | Response Rates by District | 200 |
| Table 4.3 | Comparison of Audit Total Scores for Geographic Regions. | 208 |
| Table 4.4 | Statistical Results for Comparison of High & Low HPS x Indicators. | 218 |
| Table 4.5 | Tests of Normality for the 6 Sub-scales. | 227 |
| Table 4.6 | Inter-correlations between Audit Total and 6 Sub-scales. | 229 |
| Table 4.7 | Proportion of Variance Explained by 4 Component Factor Analysis Using Principal Component Analyses. | 233 |
| Table 4.8 | Distribution of responses across samples. | 236 |
| Table 4.9 | Response Rate x School. | 239 |
| Table 4.10 | Relationship status across High and Low HPS. | 240 |
| Table 4.11 | Normality check for Organisational and Social Capital Variables. | 249 |
| Table 4.12 | Inter-correlations between SOH and Social Capital variables. | 252 |
| Table 4.13 | Results of Levene’s Test of Equality of Variances. | 254 |
| Table 4.14 | Comparison of High & Low HPS on Organisational Health Indicators. | 255 |
| Table 4.15 | Statistical comparison of Social Capital across Low and High HPS. | 256 |
| Table 4.16 | Dietary Intake Patterns (Low/High HPS). | 265 |
| Table 4.17 | Inter-correlations between Psychosomatic Strain and Work Environment Variables. | 278 |
| Table 4.18 | Inter-correlations between Job Demand and Work Environment Variables. | 280 |
| Table 4.19 | Inter-correlations between Skill Discretion and Work Environment Variables. | 281 |
| Table 4.20 | Correlations Between Organisational Health Variables & Commitment. | 285 |
| Table 4.21 | Comparison between High and Low HPS on Organisational Commitment. | 287 |
| Table 4.22 | School Environment Variables Influencing Job Commitment in Low HPS. | 288 |
| Table 4.23 | Comparison Low and High HPS x Organisational Health and Social Capital. | 288 |
| Table 4.24 | Correlations between Occupational Commitment and Dimensions of Work Environment (Low/High HPS). | 290 |
| Table 4.25 | Results of Partial Correlations for Work Environment Variables and Job Stress. | 297 |

<table>
<thead>
<tr>
<th>GRAPHS</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Graph 2.1</td>
<td>Rates of Teacher Attrition in Queensland 1995-98.</td>
</tr>
<tr>
<td>Graph 4.1</td>
<td>Return rate of HPS Audit Checklist.</td>
</tr>
<tr>
<td>Graph 4.2</td>
<td>Distribution of school size (student enrolments).</td>
</tr>
<tr>
<td>Graph 4.3</td>
<td>Sample distribution of IRSED Rankings.</td>
</tr>
</tbody>
</table>
Graph 4.4  Comparison of HPS Groups on Infrastructure. 207
Graph 4.5  Comparison of Mean HPS Audit Indicator Scores x Geographic Location. 209
Graph 4.6  Total Audit Score x School Size. 210
Graph 4.7  Total Audit Score x IRSED. 212
Graph 4.8  Extent of HPS Activity by IRSED Level and Geographic Location. 214
Graph 4.9  Comparison of Mean Scores x HPS Indicators. 217
Graph 4.10 Health Policies x IRSED and Geographic Location. 219
Graph 4.11 Physical environment x IRSED and Geographic. 220
Graph 4.12 Social Environment x IRSED and Geographic Location. 221
Graph 4.13 School-Community Relations x IRSED & Geographic Location. 222
Graph 4.14 Personal Skill Building x IRSED and Geographic Location. 223
Graph 4.15 Access to Health Services x IRSED and Geographic Location. 224
Graph 4.16 Distribution of Total Audit Scores. 227
Graph 4.17 Scree plot for Factor Analysis. 231
Graph 4.18 Comparison of Responders/Non-responders (Marital Status). 237
Graph 4.19 Comparison of Responders/Non-responders (Tenure). 237
Graph 4.20 Comparison of Responders/Non-responders (Teaching Experience). 238
Graph 4.21 Comparison of Responders/Non-responders (Educational qualifications). 238
| Graph 4.22 | Comparison of teachers' qualifications across samples. | 242 |
| Graph 4.23 | Comparison of teachers' experience across High and Low HPS. | 243 |
| Graph 4.24 | Distribution of Employment Tenure (High vs Low HPS). | 244 |
| Graph 4.25 | Teachers’ Ratings of General Health. | 257 |
| Graph 4.26 | Teachers’ self-ratings of poor physical health. | 258 |
| Graph 4.27 | Self-ratings of frequency of mental health problems. | 259 |
| Graph 4.28 | Frequency of Physical Activity x HPS Status. | 261 |
| Graph 4.29 | Frequency of cholesterol check-ups. | 262 |
| Graph 4.30 | Frequency of Smoking Status. | 263 |
| Graph 4.31 | Rates of Alcohol Consumption. | 263 |
| Graph 4.32 | Body Weight (Self-rated). | 266 |
| Graph 4.33 | Job Stress in High and Low HPS. | 268 |
| Graph 4.34 | Comparison of Low and High HPS x Fatigue. | 270 |
| Graph 4.35 | Comparison of Low and High HPS x Nervousness. | 271 |
| Graph 4.36 | Comparison of Low & High HPS x Depression. | 273 |
| Graph 4.37 | Comparison of Low and High HPS x Effort. | 273 |
| Graph 4.38 | Comparison of Low and High HPS x Worthlessness. | 274 |
| Graph 4.39 | Back Pain in Teachers from Low/High HPS. | 275 |
| Graph 4.40 | Neck Pain in Teachers from Low/High HPS. | 275 |
| Graph 4.41 | Appetite in Teachers from Low/High HPS. | 276 |
| Graph 4.42 | Sleep problems in Teachers from Low/High HPS. | 276 |
| Graph 4.43 | Scatterplot of Organisational & Occupational Commitment. | 291 |
Graph 4.44 Scatterplot for Organisational Commitment and Turnover Intention.

<table>
<thead>
<tr>
<th>FIGURES</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Figure 1.1</td>
<td>Conceptual model of the research study.</td>
</tr>
<tr>
<td>Figure 2.1</td>
<td>Berkman &amp; Glass’s Model of Social Epidemiological Pathways.</td>
</tr>
<tr>
<td>Figure 2.2</td>
<td>Miles’ Taxonomy of Organisational Health</td>
</tr>
<tr>
<td>Figure 2.3</td>
<td>Murphy’s Indicators of Organisational Health.</td>
</tr>
<tr>
<td>Figure 2.4</td>
<td>Brisson’s Model of Organisational Health</td>
</tr>
<tr>
<td>Figure 2.5</td>
<td>Karasek’s Demand Control Model of Job Stress.</td>
</tr>
<tr>
<td>Figure 2.6</td>
<td>Culture – Work – Health Model.</td>
</tr>
<tr>
<td>Figure 2.7</td>
<td>Key Elements of the Health Promoting School.</td>
</tr>
<tr>
<td>Figure 2.8</td>
<td>The Eco-Holistic Model of the HPS.</td>
</tr>
<tr>
<td>Figure 2.9</td>
<td>The HPS Framework Adopted by the ENHPS.</td>
</tr>
<tr>
<td>Figure 3.1</td>
<td>Outline of Research Plan.</td>
</tr>
<tr>
<td>Figure 3.2</td>
<td>Conceptual Model of Research Questions.</td>
</tr>
<tr>
<td>Figure 5.1</td>
<td>Proposed Demand-Control-(Capital)-Commitment Model of Job Strain</td>
</tr>
<tr>
<td>Figure 6.1</td>
<td>Proposed pathway linking the HPS model to children’s resilience.</td>
</tr>
</tbody>
</table>
GLOSSARY OF TERMS

Public health  The combination of science, skills, and beliefs underpinning programs, services and institutions that are directed to the prevention of disease, maintenance and improvement of the health of the population as a whole through collective or social actions.

"New public health"  "Comprehensive approach to protecting and promoting the health status of the individual and the society based on a balance of sanitary, environmental, health promotion, personal, and community-oriented preventive services, coordinated with a wide range of curative, rehabilitative, and long-term care services."¹

Health promotion  Health promotion is commonly defined as a ‘process of enabling people to increase control over and improve their health’.

Health education  Refers to biological knowledge (knowledge about what makes populations healthy or not); strategies to access services for health improvement; and knowledge of the big issues that affect health, such as social, environmental, and political factors.

Bio-medical model  A conceptual model of illness that excludes psychological and social factors and includes only biological factors in an attempt to understand a person’s medical illness or disorder.

Socio-ecological model  The socio-ecological model of health acknowledges that there is a complex interaction among many determinants of health, and includes a broader range of health outcomes than just disease.

Health  Health is a state of complete physical, mental and social wellbeing and not merely the absence of disease or infirmity.²

Settings approach  Settings provide channels and mechanisms of influence for reaching defined populations, and involve frequent and sustained interaction and communication between groups, which create efficiencies in time and resources and offer more access and greater potential for social influence. Settings thus provide effective channels for delivering environmental and health promotion programs, for diffusion of information, and for provision of access and entry points to specific populations.³


<table>
<thead>
<tr>
<th>Term</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Healthy Cities</td>
<td>An international project launched by WHO in 1990 which addressed healthy public policies and the creation of supportive environments in cities in order to develop and sustain the health of all citizens.</td>
</tr>
<tr>
<td>World Health Organization</td>
<td>Specialized agency of the United Nations, established in 1948, and governed by the World Health Assembly. Technical committees and regional organizations further the purpose of the WHO: “the attainment by all people of the highest level of health.” It publishes the International Classification of Diseases (ICD).</td>
</tr>
<tr>
<td>IUHPE</td>
<td>The International Union for Health Promotion and Education (IUHPE) is an organisation with over 50 years of experience in operating a global network comprised of individual and institutional health promotion and health education professionals who are committed to promoting global health and achieving equity in health through education, community action and the development of healthy public policies.</td>
</tr>
<tr>
<td>Health Promoting School</td>
<td>A health-promoting school is where all members of the school community work together to provide students with integrated and positive experiences and structures that promote and protect their health. This includes both the formal and informal curriculum in health, the creation of a safe and healthy school environment, the provision of appropriate health services and the involvement of the family and wider community in efforts to promote health. The concept of the health-promoting school is international in it's development, with many countries around the world working on programs which support schools and their communities in better health actions. (WHO, Regional Guidelines - Development of Health-Promoting Schools, 1995 p.3).</td>
</tr>
<tr>
<td>Social epidemiology</td>
<td>Social epidemiology (which first attained its name as such in English in 1950) is distinguished by its insistence on explicitly investigating social determinants of population distributions of health, disease, and wellbeing, rather than treating such determinants as mere background to biomedical phenomena.</td>
</tr>
<tr>
<td>Occupational health psychology</td>
<td>An interdisciplinary field representing a broad range of backgrounds, interests, and specializations concerning the application of psychology to improving the quality of worklife and to protecting and promoting the safety, health, and well-being of workers and includes a focus on work environment, the individual, and the work-family interface.</td>
</tr>
<tr>
<td>Organizational climate</td>
<td>A combination of shared history, expectations, unwritten rules, social mores and underlying beliefs colour the perceptions of actions and communications affecting the behaviour of everyone in an organization.</td>
</tr>
</tbody>
</table>

---

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Job commitment</td>
<td>Allegiance to the workplace involving affective attachment (feeling), identification (value), and an exchange relationship (cognition, intentions &amp; behaviour).</td>
</tr>
<tr>
<td>Social capital</td>
<td>The degree to which a community or society collaborates and cooperates (through such mechanisms as networks, shared trust, norms and values) to achieve mutual benefits.</td>
</tr>
<tr>
<td>Organizational capital</td>
<td>That type of capital that rests within an organisation and that stays with the organization even if people leave. Economically, it is the present value of income generated by the organizational structure and the organizational practices and combinations of these practices.</td>
</tr>
<tr>
<td>Human capital</td>
<td>The resources embodied in the knowledge and skills of people.</td>
</tr>
<tr>
<td>QUT</td>
<td>Queensland University of Technology, Brisbane, Australia,</td>
</tr>
<tr>
<td>Education Queensland</td>
<td>The state-based department of education in Queensland, Australia, responsible for all state (public) schools.</td>
</tr>
<tr>
<td>High HPS</td>
<td>For the purposes of this research, those schools actively implementing strategies and policies consistent with the HPS approach, as measured by high scores on the HPS Audit Checklist.</td>
</tr>
<tr>
<td>Low HPS</td>
<td>For the purposes of this research, those schools not actively implementing strategies and policies consistent with the HPS approach, as measured by low scores on the HPS Audit Checklist.</td>
</tr>
<tr>
<td>ENHPS</td>
<td>European Network of Health Promoting Schools.</td>
</tr>
<tr>
<td>NHMRC</td>
<td>National Health and Medical Research Centre, Australia.</td>
</tr>
<tr>
<td>IV</td>
<td>Independent variable: a variable that is manipulated by the experimenter.</td>
</tr>
<tr>
<td>DV</td>
<td>Dependent variable: the variable(s) that are measured from the subjects.</td>
</tr>
<tr>
<td>CDC</td>
<td>Centre for Disease Control, Atlanta.</td>
</tr>
<tr>
<td>HRM</td>
<td>Human Resource Management</td>
</tr>
<tr>
<td>US</td>
<td>United States of America</td>
</tr>
<tr>
<td>OECD</td>
<td>Organisation for Economic Cooperation and Development</td>
</tr>
<tr>
<td>School Morale</td>
<td>Refers to team spirit, general morale, staff enthusiasm, pride in the school and levels of energy.</td>
</tr>
<tr>
<td>Supportive Leadership</td>
<td>Refers to administrative support, communication between staff at all levels, reliability of administrators, openness of administrators to discuss concerns or grievances, and levels of understanding by administrators of the problems faced by teachers.</td>
</tr>
<tr>
<td>Category</td>
<td>Description</td>
</tr>
<tr>
<td>----------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Decision Authority</td>
<td>Extent to which staff are allowed to make their own decisions, and have a say in general decisions.</td>
</tr>
<tr>
<td>Macro-level Decision Authority</td>
<td>Extent to which teachers have influence amongst the workgroup, supervisory roles, and democratic decision-making processes.</td>
</tr>
<tr>
<td>Role Clarity</td>
<td>Refers to clarity of what is expected, clarity of work objectives, understanding of lines of authority, and clarity about professional responsibilities.</td>
</tr>
<tr>
<td>Co-worker Support</td>
<td>Extent to which co-workers are regarded as competent, take mutual interest in each other, are friendly and work well together including offering help.</td>
</tr>
<tr>
<td>Appraisal &amp; Recognition</td>
<td>Regularity of and satisfaction with feedback concerning roles, level of structures for providing performance feedback, opportunities to discuss performance with supervisors, extent to which good work is recognised, and levels of encouragement and thanks for work.</td>
</tr>
<tr>
<td>Professional Growth</td>
<td>Refers to extent to which staff take interest in each others’ career developments and professional growth, encouragement to pursue professional development, extent to which PD planning is based on individual needs, opportunities for developing new skills and accessibility of in-service courses.</td>
</tr>
<tr>
<td>Goal Congruence</td>
<td>Refers to extent of agreement in teaching philosophy of the school, levels of commitment by staff to school’s goals, clarity of school’s goals and objectives, congruence between personal goals and those of the school, and extent to which school’s goals are understood.</td>
</tr>
<tr>
<td>Curriculum Co-ordination</td>
<td>Satisfaction with extent of consultation in curriculum planning, effectiveness of co-ordination of the curriculum, extent to which teachers consult regarding teaching and curriculum, and consultation between subject co-ordinators and staff regarding curriculum.</td>
</tr>
<tr>
<td>Student Orientation</td>
<td>Refers to extent to which students’ individuality is promoted, students are treated as responsible people, extent to which students are encouraged to experience success, and student access to advice and counselling.</td>
</tr>
<tr>
<td>Job Demand</td>
<td>Refers to pace and workload pressure, adequacy of time to meet demands, extent to which work demands are conflicting, levels of concentration required and extent to which tasks are interrupted or dependent on others.</td>
</tr>
<tr>
<td>Skill Discretion</td>
<td>Extent to which tasks offer opportunities to learn new skills or be creative, repetitiveness of the job, level of skill required, variety, and capacity of the job to develop one’s own abilities.</td>
</tr>
<tr>
<td>Value of Life</td>
<td>Extent to which teachers feel valued by the school, and feel they have made a meaningful contribution.</td>
</tr>
<tr>
<td>Social Proactivity</td>
<td>Extent to which staff take the initiative to keep the school environment clean, visit other neighbouring schools, know where to find information relevant to decision-making, level of comfort speaking out, willingness to mediate over disputes, and helping others without being asked.</td>
</tr>
<tr>
<td>-------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Trust &amp; Safety</td>
<td>General feeling of safety at school outside work hours, feelings of trust between staff, trust of general community surrounding the school, and feeling of “homeliness” at the school.</td>
</tr>
<tr>
<td>Tolerance of Diversity</td>
<td>Refers to the level of acceptance of multiculturalism in the school, and enjoyment of the contribution this makes.</td>
</tr>
<tr>
<td>Organisational Commitment</td>
<td>Refers to feelings of commitment to the school.</td>
</tr>
<tr>
<td>Occupational Commitment</td>
<td>Refers to feelings of commitment to the teaching profession.</td>
</tr>
<tr>
<td>Turnover Intentions</td>
<td>Refers to thoughts about seeking alternative job (either another school or career change).</td>
</tr>
<tr>
<td>Psychosomatic Strain</td>
<td>Refers to broad level experience of psychological distress including unexplained fatigue, nervousness, hopelessness, restlessness, worthlessness, depression and sadness.</td>
</tr>
</tbody>
</table>
STATEMENT OF ORIGINAL AUTHORSHIP

The work contained in this thesis has not been previously submitted for a degree or diploma at any other higher education institution. To the best of my knowledge and belief, the thesis contains no material previously published or written by another person except where due references is made.

Signed: ______________________________________

Date: ________________________________________
ACKNOWLEDGEMENTS

I sincerely thank my supervisor and mentor, Associate Professor Don Stewart, for his unwavering support throughout the arduous journey from inception of this thesis to completion. Our dialogue over the years stimulated my thinking, and his gentle but steadfast encouragement kept me going despite the challenges along the way.

In addition, I wish to thank Dr Jan Nicholson for her guidance during the early phases of the research; Professor Carla Patterson for her significant contribution in the final stages of the research; Dr Diana Battistuta for her patient training in statistical procedures; and Dr Elizabeth Parker, whose review of the thesis contributed to a polished final product. My thanks also go to my two external examiners, Professor Stephen Clift and Dr Oddrun Samdal.

This work could not have been undertaken without the input from the participating schools, their principals and teachers, who gave of their time to provide the data needed for the research. I wish to acknowledge them all and thank them for their input. I trust that this research will contribute in some way towards improvement to their working lives.

I take this opportunity to thank my friends Delma, Narelle, and Rosie, whose encouragement and caring kept me sane along the way, and in particular I thank my dear friend David, whose steadfast love, support and encouragement sustained me over the years.

Finally, I acknowledge the unwavering support of my family, whose belief in me provided the backdrop against which this research has been undertaken. Most importantly, I gratefully thank my children, Karlie and Dylan, for their ongoing love and acceptance of a mother who needed to pursue a path that didn't always make sense, and my grandson Cameron whose innocence puts everything else into perspective during a journey that at times became overly complex.

This thesis is dedicated to my father, David William Lemerle, who died on 9th August 2003. I am sorry he cannot be here to share the fruits of the labour.
CHAPTER 1

Introduction
1.1 CONCEPTUAL BACKGROUND

Since the mid-1980’s, the public health agenda has rapidly transformed from a bio-medical model of health and illness to a socio-ecological paradigm that recognises the intrinsic link between health and the environment. However, rather than its traditional focus on the physical environment, the “New Public Health” movement, as it has become known, reflects the emerging view of the ‘interdependence between human beings, their health and their physical and social environments.’ (Kickbusch, 1989).

Health promotion, the tools and principles underpinning the emergent “new public health”, is not a new approach to health management. In fact, it can be traced to Hippocrates. At a time when appeasement of pagan gods was considered essential for a long and healthy life, he based medical treatments on objective observation. Prevailing wisdom taught that disease resulted from an imbalance of bodily humours that were glandular secretions and that forces outside the body influenced their disturbance. He believed that physicians should build a patient’s strength through diet and hygiene, resorting to other treatments only when necessary (Berkman and Kawachi, 2000).

In 1948, the World Health Organisation was established, and released its core statement redefining the focus onto preventative health:

“Health is a complete state of physical, mental, and social wellbeing, and not merely the absence of disease or infirmity”.

“Health is a complete state of physical, mental, and social wellbeing, and not merely the absence of disease or infirmity”.

“Health is a complete state of physical, mental, and social wellbeing, and not merely the absence of disease or infirmity”.

“Health is a complete state of physical, mental, and social wellbeing, and not merely the absence of disease or infirmity”.
This was confirmed in 1978 with the Alma Ata Declaration, to which 134 nations set their seal:

“The declaration acknowledges that health is more than the absence of disease and expands the notion of people as being more than independent biological units to one which encompasses the idea that people are affected by their social, economic and natural environments.”¹

The Global Strategy for Health for All by the Year 2000 followed (WHO, 1981). The major themes of this were:

► Equity in health;
► Health promotion;
► The need to develop Primary Health Care to enhance preventative activity in primary health care settings;
► Cooperation between government, community and the private sector;
► The need to increase community participation.


► creating supportive environments by enhancing the physical and social environments of communities;

► strengthening community action by enabling people to have more power and control over their own health;
► developing personal skills to promote the empowerment of communities;
► reorientating health services towards illness prevention and health promotion; and
► building healthy public policies by putting health on to the planning agendas at all levels of government.

In 1989, the American Journal of Health Promotion released its definition, which heralded the focus on settings for promoting health and wellbeing:

"Health promotion is the science and art of helping people change their lifestyle to move toward a state of optimal health. Optimal health is defined as a balance of physical, emotional, social, spiritual, and intellectual health. Lifestyle change can be facilitated through a combination of efforts to enhance awareness, change behavior and create environments that support good health practices. Of the three, supportive environments will probably have the greatest impact in producing lasting change".

In 1991, the importance of environmental influences on health was ratified at the Sundsvall Conference, which released a declaration to the effect that “A supportive environment is of paramount importance for health. The two are interdependent and inseparable” (WHO, 1991). Central to the New Public Health movement is the tenet that settings play a pivotal role in shaping population, and personal, health outcomes. They do this by exposing

---

individuals to health practices within a variety of social systems that provide opportunities to develop health behaviours, skills, attitudes and knowledge that determine health outcomes across the lifespan. We are exposed to numerous social systems all of which provide an influence on health outcomes. These include the family, schools, and workplaces, as well as local neighbourhoods, and specific micro-networks such as religious groups or community places such as libraries. Each of these settings develops its own unique culture and climate, but all remain interconnected to varying degrees.

The “settings approach” was first established at the level of the city, in the form of the Healthy Cities movement. First emerging in 1985 following a conference in Canada, this new approach to public health highlighted the interconnections among what seemed to be diverse elements and problems in society. Its core processes involved fostering collaboration among citizens and people from business, government and other sectors of society who recognised that their interconnection could be used to promote the wellbeing of the entire community. The Healthy Cities movement now includes projects in well over 1000 cities worldwide. Each project defines different goals and activities but all bring a wide variety of people into the community improvement work being addressed.

Close behind the emergence of the Healthy Cities movement has been growing awareness of the importance of other settings to health at all levels. Healthy Communities began to emerge, with local governments becoming involved in fostering healthier environments on a smaller scale than the Healthy Cities movement. The Healthy Workplace initiative emerged during
the 1990’s, and provided a nexus between the public health sector and prevailing industrial and managerial practices aimed at preventing workplace accidents and injury (occupational health and safety). Finally, the Health Promoting Schools initiative emerged during the same decade.

The World Health Organisation (WHO) initiated the Health Promoting Schools (HPS) approach in May 1995, launched on the back of the Global School Health Initiative. The goal of WHO’s Global School Health Initiative was to increase the number of schools that can truly be called "Health-Promoting Schools". A Health-Promoting School was defined as “a school constantly strengthening its capacity as a healthy setting for living, learning and working” (WHO, 1996).

Initially, 27 countries expressed their interest in collaborating with the WHO in the project with a view to promoting the full physical, social and emotional potential of school students, staff, families and community members. Guidelines entitled “Development of Health-Promoting Schools - A Framework for Action” were published by a WHO working group in December 1995, after being reviewed during national and international meetings (IUHPE, 2000). They provide the framework for countries and regional areas to develop healthy lifestyles in the school setting in a comprehensive way (WHO, 1996).

In addition, they established a definition which has guided all future HPS initiatives:

“A health promoting school is one in which all members of the school community work together to provide children with integrated and positive experiences and structures which promote and protect
their health. This includes both the formal and informal curriculum in health, the creation of a safe and healthy school environment, the provision of appropriate health services and the involvement of the family and wider community in efforts to promote health" (WHO, 1996).

The HPS approach has grown to become a global strategy aimed at strengthening the capacity of schools to provide health promotion and health education in all aspects of education, with a view to improving overall health of children, teachers and other members of the school community (PAHO, 2004). Founded on the principles of the Ottawa Charter, the HPS approach is defined by its focus on:

- Health Promoting Policy - by developing coherent curricula in education for health which bring biological, ecological and social dimensions to an environmental health perspective;
- Creating Supportive Environments by utilising the setting of the school to encourage reciprocal support between teachers, pupils and parents;
- Strengthening Community Action by drawing on existing human and material resources in the community in which the school is set and involving that community in practical aspects of the decisions, plans actions pertaining to the project;
- Developing Personal Skills by providing information, education for health and opportunities to enhance life skills in the setting of the school community;
• Re-orienting Health Services by involving the school health service in project activities aimed at the promotion of health by utilising the skills of school health professionals on a broader basis that the traditional roles (Ackermann, 1996).

However, despite international advocacy to school organisational and educational institutions, most evaluations of this approach to school-based health promotion have typically focused on students' health outcomes, teachers' attitudes towards the approach, and developments to school curricula, with few evaluations encompassing broader features of the school environment or organisational outcomes such as workers’ compensation claims and staff attrition rates, which inevitably have subtle impacts on the school environment. In fact, there has been scant focus on the organisational impacts of this approach within the education sector, despite one of the key tenets of the model being to create supportive environments for all members of the school community.

Approaches to measuring the health promotion capacity of a school have not been plainly elucidated and strategies suitable for practical use within schools remain undeveloped. Furthermore, evidence of the impact of the HPS approach on school staff, members of the school community (parents and caregivers), and linkages within the broader social networks of the community is limited.

In a climate of rising rates of work-related stress, and associated compensation costs, the failure to identify organisational development models that hold the potential for improving employee wellbeing within an important
setting such as the school has been a notable shortcoming within the public health literature.

Evidence of the effectiveness of workplace health promotion interventions has been clearly established by research led by the European Network for Workplace Health Promotion (Breuker, 2004). Yet the link between schools as organisational entities, rather than being seen only as educational entities, has not been made in this research. In principle, the HPS model holds the key to addressing employee health issues within the school setting, but despite over a decade of development of this model, such organisational outcomes have not been evaluated.

The emerging fields of social epidemiology and occupational health psychology consistently demonstrate the significance of psychosocial aspects of work environments on employee health, as reflected in organisational outcomes such as costs of compensation claims, absenteeism, and employee attrition (turnover) in several key international studies (Theorell, in Berkman and Kawachi, 2000). A significant indicator of the effectiveness of an organisation is its attrition (or turnover) rate, the converse of which is employee job commitment. Commitment to the job has been indirectly linked with physical and mental health of employees. Whilst it is well established that job commitment and employee health (mental and physical), at least within the teaching workforce, are related to aspects of the organisational climate and the demands of the job, little research has clearly identified models of best practice that effectively intervene to promote, and support, employee health within the school setting. Commitment of school personnel has not
been previously investigated within a HPS context. Nor have other factors that contribute to job commitment, such as job demands or work-related stress, been investigated within this framework.

The cost of job stress in Australia is staggering. Nationally, occupational stress accounted for more than $35 million in compensation payments to Australian Commonwealth Public Service employees in the 1996/97 financial year (Bull, 1996). Stress accounts for around 18% of compensation expenditure and around 5% of compensation cases accepted. Stress is the third highest cost category of illness, after back injuries and strains. The average cost of each stress compensation case, at $23,000, is just under three times the average cost of a non-stress case. In particular, the duration of psychological claims, with an average period lost time of 103.5 days for psychological and psychiatric injuries compared with the scheme average of 35.4 days, impacts on the average cost of all claims. Given these high costs, both in economic and social terms, it is critical to identify those features of work environments that contribute to, or ameliorate, risks for psychological injury.

At state level, WorkCover Queensland recorded more than 1,700 stress-related compensation claims costing some $46 million in the 1999/2000 financial year. This number continues to increase, with claims for work-related psychological injuries in Queensland increasing from 2,599 in 2000/01 financial year to 2,896 the following year. The education sector is responsible for a significant proportion of these claims. According to Q-Comp, the

---

Queensland Workers Compensation Regulatory Service, 2,212 stress-related claims were reported within the Queensland state education sector for 2001 (Q-Comp 2003)\(^4\).

Not only does work-related stress add significantly to the financial burden facing many organisations, but also other outcomes add to both the organisational and human toll. Employee attrition arising from resignations or transfers is another direct consequence of poor working conditions. The reported attrition rate for Australian government schools is 3-8% (Burke, in Macdonald, 1999, p.4), but no data differentiating the forms of attrition, that is, from direct resignations or from transfers within the system, are available. A number of variables are known to contribute to employee attrition, amongst them length of service, geographic location of the job (urban versus rural), and personal variables such as marital status. However, we know little about the internal workings of the school that contributes to attrition, or process that can be put in place to assuage it.

Attrition rates for teachers tend to be highest during the first three to five years of service. The Senate Employment, Education and Training References Committee (1998) reported high drop-out rates amongst beginning teachers (highest in the first 2 years of teaching), a decline of 11% since 1991 in the number of higher education students choosing education as their career, and a decline in the number of younger people entering the profession (the percentage of teachers aged less than 40 years has decreased from 21.8% to

16% from 1991 to 1996). These statistics suggest that the status of the profession is disturbingly low in this country.

This is further confirmed by the recent report entitled: “Australia’s Teachers: Australia’s Future – Advancing Innovation, Science, Technology and Mathematics” put out by the Review Committee into Teaching and Teacher Education set up by the Federal Government in 2003\(^5\). This report addressed matters such as the supply and demand of teachers, the attraction and retention of teachers, teacher education and professional development. In launching the report, the Federal Minister for Education, Training and Science, Dr Brendan Nelson, stated that Australia could have a shortage of up to 30,000 teachers by the end of the decade. It indicated that more teachers resigned than retired from teaching in 2001 and that an attrition rate for teachers in their first five years of teaching is “… possibly as high as 25%.”

The Commonwealth Government’s recently published OECD report “Attracting, Developing and Retaining Effective Teachers\(^6\)” also reveals that a high proportion of the existing teacher workforce is considering a career change: 8.2% of those aged 21-24, 36.5% of 25-34 year olds, 28% of 35-44 year olds, 22.6% of 45-54 year olds and 4.7% of 55+ year olds (Graham, 2003).

Recently reported data for Queensland paints a less gloomy picture. Overall teacher attrition in this state fluctuated between 2.85% – 5.41% from 1990 to 1998, with beginning teacher attrition (those with 3 or less year's experience) fluctuating between 4.2%-5.2% from 1996-1998 (Lambert, 2000). However,


\(^6\) Available at [http://www.oecd.org/document/9/0,2340,en_2649_34521_11969545_1_1_1_1,00.html](http://www.oecd.org/document/9/0,2340,en_2649_34521_11969545_1_1_1_1,00.html)
the lack of information collected about types of attrition or employee turnover limits meaningful interpretation of the data. Most importantly, no data are available relating specific causative factors to types of teacher turnover, that is, attrition from retirement, career changes, or organisational transfers. The extent to which aspects of the work environment within the school contribute to these outcomes is unknown.

Links between job demands and teachers’ health, job satisfaction and commitment, have been studied extensively. A survey in 1996 of teachers in the Independent Education Union (IEU) in Victoria and New South Wales revealed that most teacher stress was related to employment conditions and workload. Kath Spence at the VIEU (Victorian IEU)\textsuperscript{7} says these included:

1. **Workload pressures**
   - having to do several tasks within a very limited time;
   - constantly maintaining a very intense work effort;
   - the time involved in student reporting and assessment;
   - coping with a broad range of student needs.

2. **Professionalism**
   - trying to keep up with changes in education;
   - adopting new teaching strategies and approaches.

3. **Communications / management**
   - working within the bounds of the school's management structure;

\textsuperscript{7} ACTU Factsheet No. 27 at http://worksite.actu.asn.au/showall.php3?secid=3&page=article&artid=27&workst_Session=3b21a52c384af891ae79342a69011a90
• communicating with other staff;
• monitoring decisions.

4. Career prospects

• the worry about a lack of career prospects;
• limited promotional opportunities;
• not enough of a link between skills and responsibility and pay.

Tuetteeman’s (1991) study using the General Health Questionnaire with a large sample of Western Australian secondary teachers revealed that 23% of male teachers and 20% of female teachers scored in the “high stress” category on this instrument. In 1996 the Victorian IEU and the NSW/ACT IEU conducted research projects into workloads and perceptions of occupational stress among union members employed in Catholic and Independent schools in their respective states. The results confirmed that 85.1% of the Victorian and 91.9% of the NSW teacher samples recorded either "high" or "moderate" levels of stress deriving from the multiplicity of tasks to be performed by the teacher within given time constraints; and 75.9% of the Victorian sample and 86.2% of the NSW one reported "high" or "moderate" stress levels ensuing from the constancy of the work effort. Indicators of stress included irritability at home (52.6% Victoria; 65.4% NSW) or irritability in the classroom (50.9% Victoria; 58.0% NSW); internal feelings of anxiety (64.9% Victoria; 62.9% NSW).
NSW); feelings of powerlessness and futility (41.6% Victoria; 49.3% NSW), and psychosomatic symptoms (12.7% Victoria; 23.8% NSW).

Apart from physical and mental fatigue, other stressors identified as inherent to the teaching profession include workplace injuries due to lifting heavy equipment, exposure to physical and verbal abuse, exposure to the “bacterial soup” of the classroom including parasitic infections such as lice, and having to care for sick children (Cooper, 2004). However, no research has yet been identified that investigated teachers’ coping with such stressors within an organisational framework that gives recognition to the demands of the teaching profession.

A number of theoretical models, along with extensive empirical research, suggest that perceptions of the social environment within the workplace contribute significantly to employee stress and job commitment. Recent research has indicated that these variables play a major role in determining population health outcomes, such as cardiovascular disease (Peter, Siegrist, Hallqvist, Reuterwell and Theorell, 2002). Antecedents of job stress revealed by the BELSTRESS Study, which surveyed 21,419 workers in 24 Belgian organisations, reported that an atmosphere of discordance between employees and management, high degree of formalisation, and excessive psychological demands, were associated with absenteeism and job stress. High degrees of autonomy or co-worker support did not necessarily ameliorate subjective stress (De Backer et al, 2002).

The relative influence of organisational factors such as leadership style or workplace morale has not been widely investigated in comparison with social
influences that shape the organisational “climate”, such as feelings of trust, extent of social interaction, or tolerance of diversity (Noblet, 2003). These dimensions make up what is known as “social capital”, the pool of resources or assets vested in the organisation through the quality and extent of networks and interactions between employees. In particular, these factors have not been explored within more defined community settings such as the school, nor in relation to specific organisational frameworks that aim to enhance elements of social capital, such as the HPS model.

The role of the school as a critical setting for health promotion, due to its socialising influence on children, has been established beyond doubt for several decades. Teachers have a central responsibility within the school as role models for children, whilst at the same time being subject themselves to organisational influences that may have profound effects upon their physical and mental health, and performance capacity. However, the link between organisational processes and teachers’ health, and the impact of teachers’ wellbeing on developmental outcomes of children, has received scant attention in the research literature.

The HPS approach provides a potential framework within which the various interacting influences on teachers’ health outcomes can be examined, in particular because of its focus not only on curriculum (the vehicle for conveying the core business of the school), but also on school-community partnerships and enhancements to the broader school environment. However, few evaluations of the HPS approach have focused on teachers’ health and lifestyle changes as potential outcome variables, or the effects of this
approach on other teacher-related variables that may impact upon the organisational culture, such as teachers’ job commitment.

This research will draw on two emerging theoretical models that are showing great potential in explaining the dynamics and impacts of social environments on health. Social Capital Theory and Organisational Health Theory are both anchored in differing disciplines, but are “bridged” via the emerging field of Occupational Health Psychology. Whilst a considerable body of literature provides evidence on the role of social environments as determinants of health and wellbeing, these influences within the school setting, and in particular on the health and wellbeing of teachers, has not previously been studied in relation to any one particular model that espouses to promote health.

The conceptual foundations underpinning the research described here will be examined in greater detail in the succeeding chapters. The specific role of work environments on job stress and employee commitment, with particular reference to the school setting, will be examined in detail. The review includes theoretical models that have been put forward to explain the relationships between health determinants and outcomes, as well as empirical evidence in support of the most commonly proposed models, within both the organisational and educational literatures.
1.2 PURPOSE OF THE RESEARCH

The purpose of this research study was to evaluate the HPS approach from the perspective of school organisational and social capital variables, and to demonstrate that the HPS model provides a school management framework that boosts these work environment variables, which are in turn associated with mental health and wellbeing of teachers. Relationships between measures of school climate (school organisational health and social capital), teachers' job commitment, and teachers' health indicators (health risk behaviours and psychological wellbeing), were investigated. These variables are presented as “human capital” factors that aggregate at organisational level to contribute to both “social capital” and “organisational capital” (Figure 1.1).

This research study has contributed to existing evaluations of the HPS approach by focusing on schools where HPS strategies are actually being implemented, rather than simply the school's formal membership of an association. It contributes to future HPS evaluations by developing and piloting two data collection instruments that have practical applicability within the school system. This includes a short screening audit tool that has potential to guide schools in the development and implementation of the HPS approach by providing a profile of the extent of their adoption of the model against international criteria. A statewide audit of the extent of adoption of HPS strategies in primary schools in Queensland was carried out using the instrument in order to identify suitable schools for participation in the main research study, and the data collected provides a profile of the state of the
HPS movement in Queensland. This profile makes available valuable information for future planning of school-level health promotion policies and initiatives, as well as targeted “marketing” of the HPS model. These data were also used to assess the psychometric properties of the instrument.

Preliminary reviews of the literature failed to identify any studies in which the HPS approach was investigated in relation to organisational variables such as school climate, or teachers’ health outcomes, either nationally or internationally. The key outcome variables investigated included teachers’ health risk behaviours that have been widely examined in population health research, along with job stress and job commitment, which are indicators of organisational health.

This research study proposed that the overall health of the school as a work environment (the organisational capital) depends on fostering strategies such as those offered by the HPS approach, which enrich human and social capital within the school setting. This in turn establishes a “feedback loop” such that higher human and social capital, generated by these organisational practices, builds organisational capital, as reflected in increased job commitment (Figure 1.1). Multiple regression analyses were calculated to examine inter-relationships between individual and organisational variables.
1.3 PUBLIC HEALTH SIGNIFICANCE

To date no studies have been found in which the HPS approach has been evaluated against organisational variables such as school climate, teachers’ health, or teachers’ job commitment. This research contributes valuable information about the dynamics of influence of the school social environment on teachers’ self-reported job stress, psychological wellbeing, health risk behaviours, and job commitment. Given the level of national and international concern with costs of work-related stress and teacher attrition, identifying those school-level factors that contribute to teacher ill-health and turnover rates is essential if any serious attempts are to be made at reducing these problems. Key organisational variables that are known to determine quality of work life and job commitment have been considered.
It also contributes to much-needed evaluation of the HPS approach by comparing outcome variables between schools that have actively adopted HPS strategies with those that have not. By focusing on the implementation of HPS strategies, rather than simply the school's formal membership of an association, this research demonstrates that the various dimensions making up the HPS approach promote better health with teachers and positive organisational outcomes for schools. It lays the foundation for future research that could explore the part played by teachers as role models, along with school organisational variables, as significant influences on children's mental health and psychosocial development.

1.4 RESEARCH QUESTIONS

The following research questions guided the two key studies undertaken in this research study:

1.4.1 General Research Question

Does adoption of the Health Promoting Schools (HPS) approach have an impact on the school environment, teachers’ health and job commitment?

1.4.2 Specific Research Questions

PART 1: Identification of schools for participation in the research study:

RQ1.1: To what extent is the HPS approach being adopted by state primary schools in Queensland?

RQ1.2: Can schools adopting the HPS model be differentiated from others in Queensland state primary schools?
PART 2: Evaluation of the school environment and its influence on teachers' health, job stress and job commitment in the Health Promoting School:

**RQ2.1:** To what extent does the HPS approach influence school social and organisational capital?

**RQ2.2:** Does the HPS approach have any influence on teachers’ job stress (psychosomatic strain, perceived job demands and skill discretion), and if so, which work environment variables have most influence?

**RQ2.3:** Does the HPS approach have any influence on teachers’ health risk behaviours, and if so, which work environment variables have most influence?

**RQ2.4:** Does the HPS approach have any influence on teachers’ job commitment, and if so, which work environment variables have most influence?

1.5 STRUCTURE OF THESIS

In the next chapter, Chapter 2, the literature on work environments and their impact on employee health outcomes, with particular reference to teachers’ health, is reviewed. The review includes both theoretical models and empirical evidence. Contemporary socio-ecological frameworks related to health outcomes are considered, with particular reference to factors within the school environment determining teachers’ job stress, mental health, preventative health behaviours, and job commitment. The history and conceptual background to the Health Promoting Schools (HPS) model is outlined, along
with a review of approaches to evaluating this approach to school health promotion.

Chapter 3 outlines the research plan including a brief overview of the rationale for each phase of the research, along with the key research questions and analytical plan.

Chapter 4 describes the methods used to develop the research instruments, analysis of their psychometric properties, and a full description of the methods used to collect and analyse the data for this research.

Chapter 5 presents the results of each study, and Chapter 6 discusses the implications and limitations of the research.

The Appendices include samples of all the materials used to conduct the research. Copies of papers submitted to national and international conferences, and manuscripts drafted for publication in refereed journals during the course of this research are also included in the Appendices.
CHAPTER 2

Literature Review
2.1 INTRODUCTION AND CHAPTER OUTLINE

The premise of this thesis is that the Health Promoting Schools (HPS) approach, as espoused by the World Health Organisation (WHO), provides a set of organisational and structural principles that builds human, organisational and social capital within the school setting. The health of the workforce, the teachers, along with high morale and job commitment, are examples of the human capital that can be built through adoption of the HPS approach to school management. In addition, the HPS approach builds social capital through its focus on establishing participation of a diverse range of community members in the schools, and cohesion within the school social networks. The human and social capitals generated within the school operate interactively to provide an environment that supports and promotes the psychosocial development of children.

It is the purpose of this chapter to review the historical foundations of the dominant fields that are converging to build our understanding of the socio-environmental approach to population health research and practice. This relatively new theoretical framework has created a new dimension to traditional epidemiological research and is referred to as “social epidemiology”. Conceptually, it links a number of complex paradigms that extend our understanding of the interactions between humans and the environments in which they operate. The principles of “social ecology” (also known as “social epidemiology”) and the various models of “capital” (resources available to individuals and groups within human settings and provided by those members of the group), including human, organisational and social capital, are outlined.
The review anchors these paradigms within the context of schools as complex organisational settings shaping population health outcomes. Whilst it is commonly argued that schools are in the business of producing educational outcomes, they do in fact play a critical role in shaping social and health outcomes. This occurs at two levels, namely through directly determining health literacy in children and young people via the educational curriculum, but also indirectly by shaping health behaviours and attitudes through the subtle complex processes inherent within their organisational structures, most particularly via exposing children to the examples providing by teachers as role models. The notion of “organisational health”, a set of indicators used to assess the levels of capital available to the system and reflected in organisational effectiveness, is examined to provide a conceptual framework in support of this argument. Empirical evidence demonstrating workplace influences on employee health, such as job stress and organisational commitment, is considered in relation to the health of teachers within the school setting. Whilst not directly examined within this thesis, the argument extrapolated from the research findings is that organisational variables impact teachers directly, but indirectly create a social climate favouring the development of positive psychosocial outcomes in children. This research specifically sets out to determine whether a number of dimensions of one approach to school management, the Health Promoting Schools model, can be distinguished at the level of employee perceptions or the work environment, and the extent to which these influence certain employee variables such as job stress, employee health behaviours, and job commitment. Whilst usually associated with workplace health promotion outcomes, these variables will be woven into a theoretical framework that
attempts to elucidate pathways of influence on organisational effectiveness, thereby contributing to international evaluations of the Health Promoting Schools model by adding new conceptual dimensions to the explanatory model of this approach.

The emergence of health promotion, as a set of strategies designed to affect the structural factors shaping health outcomes, is derived from these social ecological paradigms and is reviewed with a particular focus on contemporary understandings of the influence of the school, as a workplace, on employee (teacher) health. The HPS approach provides a framework, both conceptually and empirically, that explains the processes by which schools, as a targeted population health setting, shapes health outcomes of individuals, families, and communities.

The conceptual framework informing this research study is founded on the notion of “capital” as a resource for the organisation, that is, intangible assets that determine the extent to which the organisation is productive. Schools deliberately adopting strategies that build human and social capital, such as those consistent with the HPS approach, which we know underpin health and subjective wellbeing, create a work environment rich in “organisational capital”. Such work environments in turn foster employee commitment. Organisational variables also shape employee mental and physical health, which predict intentions to quit the workforce (turnover intentions). This research study hypothesises that the HPS model provides a framework to guide schools in creating a capital-rich environment, with direct implications for human resource management within the teaching workforce, and indirectly for children’s learning environments.
After reviewing the historical foundations and key principles related to the HPS approach, this review examines the literature on teachers’ health, particularly research addressing job stress and preventative health behaviours, and the literature on teachers’ job commitment. Subsequent chapters provide details of the research design and methods, before presenting the results and discussing the implications of the research study from both educational as well as population health perspectives.

2.2 SOCIO-ECOLOGICAL THEORIES OF HEALTH

Numerous empirical studies have demonstrated that our social environments play a significant part in determining physical and mental health outcomes at the individual as well as population levels (Yen and Syme, 1999; Seeman, 1996; Stahl et al., 2000). Various fields of research have developed around this framework, often referred to as the “social determinants of health”, among them social epidemiology which emerged from the health sciences (Krieger, 2001), and social ecology, which emerged from the social sciences. In addition, recent theories have emerged from economic and political sciences, most notably those focusing on “capital” or intangible resources within human systems. Considerable evidence has now been accrued which demonstrates that the degree of access to these “intangible resources” such as social capital plays a fundamental role in shaping population health outcomes at all levels, that is, that health is determined by more than just exposure to physical or microbial risks in our environments.
Ecological models, by definition, emphasise the dynamic “interrelations between organisms and their environments” (Stokols, 1992; Grzywacz and Fuqua, 2000). Since these theories provide the framework for the research reported in this thesis, each will be examined briefly in order to provide a backdrop to the research model presented here. It is argued that the Health Promoting Schools (HPS) model developed by the World Health Organisation provides an environment rich in the intangible resources necessary for health and wellbeing, and that it does so by providing a set of principles for school management and performance that builds social and human capital within the school setting.

### 2.2.1 Social Ecology

Founded on systems theory, *social ecology* offers a set of theoretical principles for understanding the relationships and complex interactions between diverse personal and social environmental influences on human behaviour and health (Stokols and Pelletier, 1996; Stokols, 2000). It is defined as the study of individuals and groups within the context of their various social systems. The theory comprises several core assumptions, namely that health is determined by a complex interplay between facets of both the physical and social environments, in combination with personal attributes such as temperament and behavioural patterns. Social ecological theory contends that certain behaviours, social roles, and environmental conditions within an individual's life situation can exert a disproportionate influence on his or her wellbeing (Grzywacz and Fuqua, 2000). For example, a person's lifestyle may include several unhealthy sets of circumstances, such as a high-stress job, which also requires a lengthy commute between home and work. This,
coupled with organisational factors in the workplace, may contribute to unhealthy behaviours such as smoking, alcohol consumption, and lack of physical exercise.

The American ecologist E.A. Gutkind is attributed as the first to refer to social ecology, although Murray Bookchin was the first person to develop the set of principles used today to describe this field (Stokols, 1992; Hill, 2000). These principles provide the tools for examining health issues in relation to the etiologic circumstances present in day-to-day physical and social environments, such as interpersonal strain in the workplace. This type of analysis can be useful in examining health determinants in the context of lifespan developmental, sociodemographic, and societal circumstances that influence susceptibility to disease (Stokols, 2000).

Apart from the focus on social networks, other conditions within the settings in which people operate also influence health outcomes. These “structural conditions” refer to factors such as culture, which within the organisational setting can have a major bearing on numerous health outcomes, such as work-related injuries and job stress.

We know that social settings comprise a blend of objective and subjective experiences, that is, variables that can be objectively measured, and variables that are subjectively perceived. The former include measures such as absenteeism rates and prevalence of causes of injuries, while the latter include factors such as the style of relationship between managers and staff. The importance of “subjective perceptions” in any investigation of social determinants of health, either at individual or social settings levels, is reflected
by Kuhn’s (1970) work, which demonstrated the importance of attending to subjective experiences and interpretations of situations. He warned against assuming “that reality consists of objectively defined, unchanging and fixed natural laws of cause and effect”. According to Kuhn (1970), the individuals’ perceptions of his or her environments, and the meaning they ascribe to these perceptions, are as important as any quantifiable objective measurements of those environments, since it is perceptions and interpretations of subjective experiences that shape our responses and ultimately determine our level of satisfaction with a situation.

In the industrialised world, the workplace is a critical life domain or setting with the capacity to pose the greatest influence on health and well-being because it exposes individuals to opportunities for learning coping strategies that might lessen stress (for example, reflected in smoking and alcohol consumption), aggravates stress (for example, through long commutes between home and work), and decreases available leisure time for engaging in physical exercise. Furthermore, work conditions may also result in decreased time for pleasurable and recreational social interaction, adding social isolation into the health risk equation. If the workplace itself fails to provide adequate social support and personal fulfilment, all the properties are in place for negative health outcomes.

Public health in the last few decades, and health promotion in particular, provide sets of principles and evidence-based strategies designed to prevent or minimise such outcomes. For example, one prevailing model of workplace health promotion views employees as co-creators of the situations in which they find themselves. They are not seen as passive victims of objective
external influences, but as participants in the encounters that take place between all players within the setting and by the conditions that the physical environment makes available. Hence, whilst influenced by environmental conditions, they also influence these conditions, either actively or passively (Thomsson and Menckel, 1997).

Such a view is consistent with Senge’s (1990) theorem of “systems thinking” which argues that the principle of circular causation—where a variable is both the cause and effect of another—explains internal processes that determine outcomes in complex social settings such as workplaces. Accordingly, the tracking of influences, both cause and effect, is done through positing sets of feedback loops demonstrating the inter-relatedness of all variables. Once the behaviour of a system is understood in terms of the function of the structures, and of the relationships between the elements of the system, the system can be modified and we can observe whether the changes resulted in the desired outcomes, such as behaviours of employees. Therefore, systems thinking, coupled with modelling, constitutes a generative, rather than adaptive, approach to learning. In an organisational context, it is known “learning organisation theory” (Larson et al., 1996).

Significant methodological issues have long plagued this area of research, and continue to impede progress in the development of holistic and comprehensive theoretical models. Traditionally, self-report data has been viewed as inferior to objective, quantifiable data. However, as our understanding of the importance of subjective interpretations of social milieu
grows, along with our understanding of how these subtle influences work within human systems, more subjective methods for assessing social environments are gaining credence.

### 2.2.2 Social Ecology of Health.

Measurement of the relative contribution of factors within our environmental settings and the unique pathways by which each affects health outcomes, a discipline which has come to be known as the *social ecology of health*, is a field of study that integrates a diverse range of theoretical frameworks and empirical research, and incorporates multiple levels of analysis and diverse methodologies (Grzywacz and Fuqua, 2000). Stokols is attributed as the first to apply a social ecological perspective to health promotion (Whitely, 1999). He recognised those “cycles of mutual influence” that occur between people and their environments, the fact that the environment impacts upon the individual (and likewise the group), but in turn the individual (and group) modify the healthfulness of the environment (Stokols, 1992). These influences operate as sets of nested, interacting systems that shape an individual’s activities, roles, health beliefs, behaviours and interpersonal relationships, as described by Grzywacz and Fuqua (2000):

- Wellbeing is intrinsically related to diverse conditions in the sociophysical environment.
- Health is an outcome of the quality of the person-environment fit.
- Environmental conditions exert varying degrees of influence on health and wellbeing depending on characteristics of the individual.
Multidisciplinary approaches are essential for understanding the dynamic interplay of physical and social environments.

The greatest impediments to the study of the social ecology of health have been difficulty establishing “trans-disciplinary collaboration”, as well as development of rigorous methodological approaches that satisfy the underlying philosophies of each discipline. Rigorous assessments of their respective influences requires a combination of diverse research methods, such as qualitative and quantitative measures, formative and summative evaluation strategies, interrupted time-series and control-series designs, and hierarchical linear modelling (Stokols, 2000; Quirk and Wapner, 1995). Until such time as the “randomised control trial” is unseated as the “gold standard” of health research, other methods, which may in time be proven to have greater worth in this field, will not come to the fore.

Ecological models of health are comprehensive health promotion frameworks that are multifaceted, focus on environmental change and its influence on behaviour, and structural interventions such as policies that help individuals make healthy choices in their daily lives. The defining feature of an ecological model is that it takes into account the different levels of environmental influences, such as physical, social, and organisational, and their relationships to people at individual, interpersonal, organisational and community levels, that is, it recognises that behaviour does not occur within a vacuum (Perry et al., 1996).

The common thread linking the ecological models of health is their focus on those intangible assets within human systems (such as organisations and
communities), which in many subtle ways determine health outcomes. Distinctions between the social systems within which we operate, such as families, workplaces, schools and neighbourhoods, particularly in relation to population health research, appear to be weak. What social ecology and social epidemiology share is that both address the same health determinants and their impact on the human condition. Both offer a growing body of empirical evidence demonstrating the critical role of social factors underpinning population health (Krieger, 2001), and recognise the complexities of interacting forces shaping population health outcomes at all levels.

Increasingly, behavioural scientists are advocating a “realignment of current knowledge and re-examination of human behaviour within a unifying holistic model, that of ecological phenomenology” (Auerswald, in Robbins, Chatterjee and Canda, 1998). Such an investigative framework would take account of the social phenomena that play subtle roles in determining outcomes within human systems. Many admit, however, that evaluating the health impact of interventions within a socio-ecological framework is complicated by the fact that individuals live in, and are influenced by, multiple social systems (groups) and environmental settings, each of which is intrinsically linked in varying ways. For example, the study of the influence of school environments on students’ health outcomes cannot be totally separated from the study of family dynamics within various political factors such as community socio-economic status, and this cannot be completely separated from prevailing government policy with regards to unemployment legislation.
One common link underpinning the various conceptual models has been the notion of “capital” or reservoirs of intangible resources, embedded within social systems, that determine their structure, function, and outcomes. These reservoirs of intangible resources function inter-dependently at various levels, namely that of the individual (who accrues human capital in the form of personal knowledge and skills over their lifetime); that of the social groups within which we all operate (social capital, which depends on various elements of interpersonal relationships such as trust, reciprocity, and sharing a common locale); that of the structured organisations to which we turn for the “infrastructure” of life, such as the workplace which provides an environment that can be “measured” using indicators of organisational capital; and at the level of our traditional lifestyle practices and belief systems (cultural capital).

Thus a metatheory may be evolved by investigating common dimensions across each model, for example, those dimensions that consistently define social ecological theory, health psychology, population health, and organisational theory. Capital theories, those that investigate the notion of intangible assets available to individuals, communities or nations, offer one such unifying dimension. Health would thus be construed as an indicator of “human capital”, but one which is influenced by, and in turn influences, the quality and extent of social networks to which one has access, that is, social capital. Social capital, as an asset derived from social environments, in turn influences, and is influenced by, human capital reserves. But in turn it also influences (and is influenced by) ecological factors in the environment, specifically elements of the social ecology of the setting. In a workplace setting, this would be encompassed within the theoretical framework of
organisational theory, and measured in terms of “organisational health” or the extent to which the organisation provided a work environment conducive to healthy human (and social) outcomes. The emerging field of social epidemiology provides a conceptual framework as well as empirical tools for investigating such a model with complex systems, and is applicable in a variety of human organisational settings such as workplaces or schools.

2.2.3 Social Epidemiology.

Berkman and Kawachi (2000) define social epidemiology as the study of “social distribution and social determinants of states of health” (p.6). This field emerged in the late nineteenth century, with sociologist Emile Durkheim’s pioneering observations of the role of social integration as a determinant of mortality. It rests on the contention that social groups affect our health status and subjective wellbeing by shaping social norms, imposing and reinforcing patterns of social control, and determining accessibility to environmental resources (“capital”) that affect our health behaviours (Berkman and Kawachi, in Berkman and Kawachi, 2000).

Barnes’ and Bott’s seminal research on “social networks”¹ in the 1950’s, followed by John Bowlby’s important work describing attachment theory in the late 1960’s, provided valuable empirical work that guided the development of this new theory (Bretherton, 1992; Berkman and Glass, in Berkman and Kawachi, 2000). This has more recently been extended by Berkman and Glass (in Berkman and Kawachi, 2000), who provide a model demonstrating the inter-connectedness of macro-social variables, and interpersonal

¹ History of Social Network Analysis at http://www.bebr.ufl.edu/Articles/SNA_Encyclopedia_Entry.pdf
conditions within groups and communities (Figure 2.1). Berkman and Glass suggest that health behaviours are determined by environmental conditions within our social settings (such as families, schools, workplaces).

In addition, Seeman and McEwan’s (1996) extensive review of the empirical research on the role of biological pathways in determining health outcomes concluded that both animal and human studies provide considerable evidence in support of the contention that social environments influence neuroendocrine activity and patterns of neuroendocrine response to stimuli, which are in turn the substrates for health outcomes. Both positive and negative experiences within the social environment play unique parts in the outcome pathways. This exciting emergent research casts new light on the interaction between psychophysiology and environment, and lends support to Berkman and Glass’s model, suggesting that biological factors, in combination with social conditions, underpin health outcomes.

**SOCIAL STRUCTURAL CONDITIONS**
- Culture (e.g. norms & values)
- Socioeconomic factors (e.g. discrimination, poverty)
- Politics (e.g. public policy)
- Social change (e.g. urbanisation)

**SOCIAL NETWORKS**
- Structure (e.g. size, homogeneity)
- Characteristics (e.g. frequency of contact, level of intimacy)

**PATHWAYS**
- Health behavioural pathways (e.g. smoking)
- Psychological pathways (e.g. coping effectiveness)
- Physiological pathways (e.g. immune system function)

**PSYCHOSOCIAL MECHANISMS**
- Social support
- Social influence
- Social engagement
- Person-to-person contact
- Access to resources & material goods

**Figure 2.1:** Berkman & Glass’s Model of Social Epidemiological Pathways.
2.3 CAPITAL WITHIN HUMAN SYSTEMS.

The concept of “capital” as forms of intangible assets or resources within human systems is relatively new, and appears to be gaining widespread acceptance. Various forms of capital have been described, including cultural capital, intellectual capital, human capital, organisational capital, and social capital (Fernandez, Montes and Vazquez, 2000). Drawing distinctions between these various intangible assets, or resources, is not easy, and definitions remain varied. Whilst human capital intrinsically refers to resources attained by the individual (such as skills or knowledge), Smith and Polanyi (2003) refer to social capital as a human resource intrinsically linked to associations between people, and organisational capital as those resources embedded within work systems, such as quality leadership styles and employee morale. Cultural capital has been considered an aspect of human capital, something that an individual can accumulate over time through talent, skills, training and exposure to cultural activity (Matarasso, 1999).

As an example of the inter-connectedness of these various factors, Gradstein and Jutsman (2000) suggest that high levels of trust (an element of social capital) is associated with economic growth, but argue that this is achieved only through effective public education (which depends on organisational capital), which in turn fosters human capital (interpersonal competence and knowledge) that underpins social cohesion. It could be argued that whilst each factor is an outcome it is also a determinant.

Given that unequivocal evidence supports the notion of social capital as a fundamental prerequisite for health, this review will focus specifically on this
form of capital, with particular reference to its role within the work environment, and schools from the perspective of these being the work environment of teachers.

2.3.1 Social Capital

The origins of the term “social capital” appear uncertain, with some tracing it back to Marx in 1867 (Farr, 2003). Durkheim’s reference to community as an "antidote to anomie and self destruction" is frequently cited as an early attempt to define the concept (ONS, 2001). More recently Bourdieu (1986) and Coleman (1988, 1990) have led the field in empirical scrutiny of the concept and explored ways of operationalising it for research purposes (ONS, 2001). Putnam (2000) has successfully exported the concept into a wider media during recent years, whilst Bourdieu and Coleman have contributed to advancement of the concept (ONS, 2001).

The social capital construct has its origins in sociological theory and is defined as “the collective characteristics of communities and societies…such as levels of interpersonal trust and norms of reciprocity and mutual aid which act as resources for individuals and facilitate collective action” (Kawachi and Berkman, in Berkman and Kawachi, 2000). Various indicators of social capital include participation in local community life; proactivity in the social context; feelings of trust and safety; quality and quantity of neighbourhood connections; active networks of family and friends; extended social connections; tolerance of diversity; value of life; and work connections (Cox, 1995; Morrow, 1999; Onyx and Bullen, 1997; Berkman et al., 2000).
Despite a number of conceptual differences, the resources (or capital) available to the individual from the social groups or communities in which she operates are interdependent, and at various levels each operates to enhance wellbeing. Berkman and Glass (in Berkman and Kawachi, 2000, p137) suggest “the degree to which an individual is interconnected and embedded in a community…is vital to an individual’s health and wellbeing as well as to the health and vitality of entire populations”, a view supported by Grootaert (1998), who states that:

“Social capital refers to the internal social and cultural coherence of society, the norms and values that govern interactions among people and the institutions in which they are embedded. Social capital is the glue that holds societies together and without which there can be no economic growth or human well-being”.

Prompted by the emerging understanding of the role of social experiences in health outcomes, the search to identify and classify the building blocks of social capital has grown. There is now indisputable evidence that various elements of social capital, such as social cohesion, contribute to population health outcomes (Veenstra, 2001). For example, a study of environments in eight European countries found that vandalism, noise, quality of housing, public transportation, interaction with neighbours, and health services were all related to life satisfaction (Fine-Davis & Davis, in Raphael et al., 1999). Whilst membership of social networks was the primary focus of Bourdieu’s conceptualisation of social capital, Putnam’s (2000) analysis has added other dimensions such as trust and reciprocity, whilst Coleman’s (1988) work has
extended the concepts to structural factors that facilitate (or inhibit) the growth of trust, networks, and interpersonal processes (Veenstra, 2001).

Social capital is generally seen as a property of groups, comprising the various characteristics of those individuals within the groups complemented by the structural conditions that allow the aggregation of individual “capital” (that is, personal assets such as civic awareness or knowledge). The term “human capital” was coined less than 40 years ago, in relation to variables such as health and education, which provided the individual with the resources to be able to participate in social interaction (Cote and Healy, in Harper, 2002). That is, social capital and human capital must be intimately interconnected – without human capital there could be no social capital. Both evolve and are sustained (or threatened) by the institutions that form around those social networks, such as families, schools or communities. These institutions provide access to multiple forms of social capital and opportunities to acquire human capital.

Investigations of social capital as a determinant of population health have only recently appeared in public health literature (Kawachi and Berkman, in Berkman and Kawachi, 2000). This has added justification to the WHO commitment to focus on social systems, or settings, as the targets for population health interventions. Baum (2000) has argued that despite the potential political risks associated with linking social capital to public health, it has a crucial role to play in health promotion and public health, given the apparent importance of social relationships for health and wellbeing. This is confirmed by Kawachi’s recent studies (Kawachi and Berkman, in Berkman and Kawachi, 2000), which clearly demonstrated strong associations between
levels of trust and age-adjusted mortality rates from coronary heart disease, neoplasms, cerebrovascular disease, accidents, and infant mortality.

Putnam (2000) has suggested various forms of social capital. These include horizontal forms, such as those between colleagues within an organisation, as well as vertical social capital, which refers to the quality and extent of networks between people at differing levels throughout an organisation. “Bridging social capital” refers to those networks that transcend common social divides, such as religion, status and income levels. Those positive experiences that result from “healthy” group membership contribute to a wide array of social and educational outcomes, which in and of themselves become aspects of “human capital” (resources vested within the individual that can then enrich the social networks).

Enabling social capital is the resource that is derived from processes that support and foster other forms of social capital, such as that derived from leadership and management styles\(^2\). Therefore, by fostering an environment that builds trust, reciprocity, active participation, tolerance of diversity and difference, value for individual contributions, and social proactivity, not only are the interactive networks enhanced but the overall functioning of the organisation (“organisational capital”) is also increased.

Measurement of social capital is diffuse and challenging, and little is known about whether different settings, such as schools or workplaces, foster different forms of social capital or indeed whether different processes are needed to promote it. Whilst some indicators are readily quantifiable, such as

\(^2\) http://www.worldbank.org/poverty/scapital/whatsc.htm
levels of educational attainment, proportions of the population that vote, or rates of job seeking, whilst others remain elusive, for example, measurement of civic pride or aspirations. Measurement of trust is often undertaken through proxy variables such as frequency of interactions with neighbours or membership of voluntary associations. Both these have weaknesses through implicit assumptions that, for example, geographic proximity allows for frequent contact (not relevant in many rural and remote settings), or that voluntary associations are formally established and retain accurate records of activity. The assumption that these are in fact indicators of one thing and not another remain tenuous (Schuller, 2001).

2.3.2 Organisational Capital

The notion of “corporate social capital” has been examined within organisational effectiveness theory for a number of years (Gabbay and Lennders, 1999). This term refers to the network of social interactions and relationships that exist specifically within the work environment. These interpersonal networks can be regarded as providing both assets and liabilities to the organisation. Assets accrue when social interactions between people within human systems, such as organisations, add value to the management practices, and through doing so, enhance output. For example, under appropriate leadership styles, employees might seize ideas for expansion or new opportunities where otherwise they might go unnoticed. They become liabilities where the interactions between members of the organisation detract from the total effort (as a resource) that could be

1 http://www.ub.rug.nl/eldoc/som/b/02B05/02B05.pdf
available to contribute to output, such as in cases where morale is so low that employee motivation is diminished.

The extent to which resources are available within the organisation to contribute to its effectiveness is known as “organisational capital”. Organisational capital (including employee orientation and networks) is a major predictor of organisational performance or effectiveness (Glunk and Wilderom, 1998; Fernandez et al., 2000). Tomer (1990) goes as far as suggesting that in fact the human capital within the organisation is less significant than those factors making up the organisational capital, however, such a view ignores the fact that human capital, all the available knowledge and skills or the workforce, is accrued within the organisational structure but may be made available, or released, to varying degrees depending on the quality of social capital, or human networks within the organisational system.

However, in a later publication he suggests that employee commitment, which he refers to as the “joining up” process, is a form of human capital that is nurtured by effective organisations, that is, those performing productively (Tomer, 1998). Likewise, employee health could be viewed as a form of human capital that has profound impacts on organisational output – excessive sick leave or high employee injury rates inevitably impact on organisational output. Likewise, employee morale is reflection of the extent to which organisational capital has been accrued by the workplace. Organisations with high organisational capital are recognised by their well-developed sets of norms, values, expectations and opportunities for participation, and work strongly to engage employees, a process known as “organisational socialisation”:
Organisational socialization refers to the process by which a newly selected member of the organisation comes to learn the values, norms, required behavior, expectations, and social knowledge essential to participation in the organisation. Through socialization the new employee comes to identify with the organisation and internalize its values (p. 833).

Tomer defines organisational capital as the set of principles and practices adopted by an organisation to bring about improvement in productivity and/or worker wellbeing (1998, p. 834). It is intrinsically linked with human capital, since it depends on the quality, depth and extent of the aggregated resources vested in the employees, and the manner in which this “capital” is managed. The difficulty with this theory is that the distinctions between human and social capital appear weak, and it could be argued that the extent to which these variables are correlated is such that referring to them as discrete organisational factors may be inappropriate.

Highly committed workforces, with low rates of job stress, low turnover intent, and implementation of activities to maintain the wellbeing of the workforce, are indicators of a healthy organisation. These could be said to be outcomes arising from the values of the organisation, and reflective of leadership style. Mele (2003) claims that recognition of each person’s dignity and capacity for growth (also known as the value placed on individuals), respect for human rights, and management towards the common good are key elements of organisational capital, which he suggests then breeds social capital in the form of trust and networks amongst the workforce.
Tomer (1998) argues that the motivation for trust (an indicator of human capital) and networks (an indicator of social capital) is the innate desire “to belong”, to be able to identify with something larger than oneself, namely the organisation. Thus job commitment could, under this model, be regarded then as an indicator of organisational capital, since a more committed workforce becomes an “asset” for the organisation.

Gleeson (1999) has warned about the “complexity and theoretical incoherence inherent in the social capital literature”. However, one outcome from the increasing focus on human and social capital is increasing efforts at theoretical modelling that supports the integration of a number of previously discrete fields, most notably population health research, health promotion, and organisational health psychology. Each of these is built upon the conceptual frameworks outlined above – social systems theory as described in social epidemiology and social ecology, and social capital theory, within specifically defined human settings such as schools and the workplace.

Various theoretical models have evolved to explain these processes and their relationships with health, namely organisational health theory as well as the theory of organisational capital. As with the ecological models, distinctions between the various models are weak. However, one domain in which all forms of capital have been observed to operate is the workplace. Whilst health may be described as a form of human capital, a resource available to the individual, it is shaped by many other complex phenomena, including social networks, trust, reciprocity, and organisational variables such as management styles, opportunities for growth and development, and balances of rewards and sanctions.
The concept of “capital” or intangible resources available within social systems for the benefit of various human outcomes, such as health, has logical appeal and is being widely adopted within national and international research, policy development, and service implementation. However, it is not without its critics. Mono-culturalism is frequently cited as a shortcoming of the theory, with non-western critics suggesting that the assumption of “equality of availability” of life’s resources is unrealistic. Furthermore, these critics suggest that the assumption of equal rights to the resources inherent within social systems robs the individual of access to opportunities to strengthen the spirit through exposure to disappointment, adversity or misfortune. Furthermore, social settings differ in the cultural values placed upon them in different societies. For example, in Japanese society, the teacher is honoured in many cases above the parent, and hence the school in many eastern societies plays a much greater role in socialisation and hence health outcomes than the family (Bassani, 2003).

Finally, fluctuations between levels of human, social and cultural capital are inevitable in response to a wide range of factors. Recent historical events related to apparently escalating international terrorist activity bear testimony to the powerful role of the media in shaping health outcomes – by stimulating a pervasive sense of imminent threat, individuals and communities may react in vastly different ways, some positive and some not so positive. Capital theory has not yet found a theoretical model that can accommodate such unexpected and potentially chaotic events. Of all the social systems with greatest potential for social and population health influence, schools are perhaps the most complex, and this may account for the paucity of research
in which systems modelling, particularly with regard to population health outcomes, has been applied. Not only do schools have a direct influence on children’s developmental outcomes, but schools are also the workplace for a significant proportion of the population. Hence they are subject to the principles applying to organisational theory, but by virtue of being complex social systems, they are also subject to social ecological theories. They are a setting that actively nurtures human and social capital, and hence can, and do, significantly shape population health outcomes. Teachers, in their frontline role within the school setting, have a pivotal influence on such outcomes.

Given the critical role of teachers in mediating between the child and his environment, those factors within the teachers’ world that shape and determine their own wellbeing and health must be considered within the context of providing, indirectly at least, resources (capital) that determines children’s developmental outcomes. This notion puts teachers into the role of providing children with access to “human capital” and “social capital”, within a context that provides “organisational capital”. The next section of this review will examine current trends in understanding the influence of the work environment on health and wellbeing.

Before examining the direct pathways of influence teachers have on children’s developmental outcomes, a broader overview of prevailing theories of social ecological influences on health outcomes specifically related to the work environment will be considered. This will then be examined with specific reference to the school environment from the perspective of the school as workplace. Organisational effectiveness theory, as one model that provides
well-recognised pathways of influence between social structures and outcomes, will also be reviewed.

2.4 THE WORK ENVIRONMENT AND HEALTH.

Over the last couple of decades, research evidence has clearly supported links between specific social environments, including the workplace, and various health outcomes. At the physical level, poor working conditions including dangerous equipment, poor compliance with health and safety regulations, unsafe levels of noise and temperature, and continual heavy work directly affect the health and wellbeing of workers (Grzywacz and Fuqua, 2000). In modern western societies, the workplace provides perhaps the greatest influence on health after the family. In fact, as family conditions continue to deteriorate, the workplace may play an even greater part in determining health in the near future. Having a job determines an individual’s economic status, which in turn confers social status and identity.

The Whitehall studies of British civil servants have provided the strongest evidence to date in support of the contention that work environments provide unique factors shaping health outcomes (Marmot, Siegrist, Theorell and Feeney, 1999). These studies indicate grade of employment, low job control, limited variety in work tasks, poor use of skills, and low support from colleagues and supervisors were all associated with higher rates of coronary heart disease, musculoskeletal problems, and psychiatric disorder. Another study showed that level of skill utilisation in the workplace was positively
correlated with self-rated psychological wellbeing, autonomy, and personal growth (Lindfors, 2000).

In perhaps the first long-term prospective study of work environment predictors of changes in self-rated health, Borg, Kristensen and Burr (2000), tracking a cohort of over 5,000 Danish adults, clearly confirmed that working conditions affect subjective health over time. Self-rated health deteriorated over a five-year period where job conditions included repetitive work, high psychological demands, low social support, job insecurity, and high musculoskeletal strain. Cheng et al. (2000), who tracked self-rated health of 16,287 nurses over a 4-year period using the SF-36 and Karasek’s Job Content Questionnaire, reported similar results. Significantly better health status was found in women with higher levels of job control, lower levels of job demands, and greater social support after adjustment for confounding variables. Physical health status appeared to be more vulnerable than mental health status.

The type of job, and the culture of the workplace, quite clearly influence attitudes and behavioural patterns associated with social position within the social systems of the workplace, and determine the degree of perceived “control” over life circumstances (Marmot and Wilkinson, 1999). Recent research suggests that as physical demands in the workplace diminish, various aspects of the social environment of the workplace, and psychological features of the job, may play an increasingly important part in affecting employee health and wellbeing (Theorell, in Berkman and Kawachi, 2000), and hence workplace health promotion is now well established as a discrete field of research within population health.
The Luxembourg Declaration on Workplace Health Promotion was confirmed by the European Union in 1997, and defined Workplace Health Promotion (WHP) as “the combined efforts of employers, employees and society to improve the health and well-being of people at work”. It suggested three strategies to achieve this:

- Improving the work organisation;
- Promoting active participation;
- Encouraging personal development.

However, it failed to provide a framework for measuring the extent to which these strategies were being achieved, or a conceptual platform on which interventions could be founded, with specific indicators relevant to the workplace as a setting in which health outcomes could be determined. The National Institute for Organisational Stress and Health (NIOSH) and the American Psychological Association (APA) have been working since 1992 to develop operational indicators for the measurement of quality of work life along with environmental and organisational variables that determine worker health and wellbeing. These indicators would provide an objective system for measuring ongoing performance of the organisation, that is, organisational effectiveness, against selected indicators referred to as “organisational health”, a recent addition to the workplace health promotion lexicon.

The following sections provide an overview of the literature relating to effectiveness of organisations, that is, those factors that determine the extent and quality of outputs, with particular reference to effectiveness of schools. This could be, and traditionally is, considered from the perspective of
children's educational and developmental outcomes as being the core business of the education system. However, it is often overlooked that the attainment of this “product” is mediated by another factor within the school environment – the teacher.

For teachers, the school is the workplace, and a considerable literature exists pertaining to workplace influences on employee productivity. The school provides an organisational framework within which teachers conduct the core business of the school – the education of children and young people. Education of children is the “product” of the school, and like any product, depends on functionality of the workers.

The school provides an operational framework for the teachers, a culture and climate, both organisational and social, by which they are influenced and in turn influence themselves. Teachers provide the social and human capital to which the students are exposed, and hence are a key element in determining effectiveness – or productivity - of the school from an organisational perspective. Effectiveness may be considered to be the crux of organisational capital, which in turn is shaped by the reserves of human and social capital within the organisation.
2.5 ORGANISATIONAL EFFECTIVENESS.

Organisational effectiveness is defined as “the extent to which an organisation attains its purposes or ends (also known as outcomes or outputs)” (Anderson et al., 1994). Various dimensions of organisational effectiveness have been identified. These include Rangone’s (1997) model, which encompasses technological competence, corporate image, sales force effectiveness (that is, product turnover), speed of new product development, and operational efficiency, all of which have relevance for production of tangible outputs but are questionable when it comes to human service organisations. A corporate culture that promotes the exchange of knowledge, through dynamic social relationships, will by definition be more effective than one that inhibits such information flow.

Armistead, Pritchard and Machin (1999) refer to knowledge management as a factor in organisational effectiveness, but go further to include organisational goals and stakeholder aspirations, organisational design (management processes which influence boundaries and power within the organisational systems), resource management, organisational co-ordination (including decision-making processes), and organisational culture. Organisational structure, which addresses issues such as power and authority, has been examined, as has perceptions of employees of internal processes within the organisation. Other models of organisational effectiveness include those that are human resource based, risk management based, and those focusing on organisational empowerment. Their key differences lie in whether the model is human-focused or organisation-focused (Gauthier, 2000).
Yang and Wan (2003) suggest organisational effectiveness depends on the manner in which knowledge is managed throughout the organisational system. Knowledge can be acquired, stored, disseminated and retrieved for the benefit of the whole organisation or for various sectors within it. Such knowledge might entail, in a manufacturing industry for example, information pertaining to product orders, production times, and dispersal of goods. It has been referred to as “knowledge capital” and is an intangible commodity that is derived from elements of social capital, namely trust (providing the context for exchange of information) and networks of reciprocity (Hall and Graham, 2004).

The literature provides a wealth of contradictory research regarding variables shaping outcomes within the human service sector. According to Schmid (2002), human service organisations, such as schools and hospitals, are in the business of “altering the personal attributes” of their customers, and hence indicators of effectiveness can be particularly problematic due to the complexity of factors determining the outcomes, not all of which arise within the setting being assessed.

Within non-manufacturing industries, such as schools, knowledge might include students’ average grades, incidences of bullying, or absenteeism rates. Cullen and Calvert (1996) refer to Cameron’s (1980) model, which identified 13 dimensions of organisational effectiveness relevant to libraries. Cameron defined effectiveness as a “mental construct” derived from the ways in which members perceive the organisation, a view supported by Mendelow (1983). They concluded “the different perceptions of the organisation held by its various members must be incorporated into any assessment of its
effectiveness” (p. 115). Core dimensions of effectiveness in their study included management processes, resource inputs, reference services, collection assessment, user satisfaction, physical access, and physical environment.

In a study designed to evaluate the extent of associations between school environment and school effectiveness, Ostroff (1992) distributed surveys to principals, teachers and students in 364 schools in Canada. Three sets of measures were collected: (a) employee satisfaction and attitudes, (b) characteristics of schools, and (c) organisational performance indicators. Across the 12 organisational performance indicators, correlations between satisfaction and organisational performance had a mean of .28, and those between commitment and performance had a mean of .22. Whilst not strong correlations by any means, these results suggested that schools with more satisfied staff tended to be more effective than schools with less satisfied staff. This study also supported the notion that internal social processes in schools are important factors in student achievement and school effectiveness, and recognised the role of teacher job satisfaction as a critical element of social environment within the school.

With regards to school effectiveness research, Griffith (2003) suggests from his comprehensive review of the school effectiveness research, that school effectiveness research lacks rigour, and has become complacent in terms of focusing almost exclusively on student outcomes as measures of organisational effectiveness. He suggests that the research has typically failed to take advantage of established management and organisational psychology literatures, and consistently failed to consider the multi-
dimensional nature of internal processes and variables determining outcomes. Some of these variables include staff job satisfaction, and quality and extent of staff-parent relationships. In addition, management style of the principal, known to be a significant factor shaping the “school climate”, is rarely considered in terms of school effectiveness. In broad terms, these internal processes shape what has been referred to as “organisational health”.

2.5.1 Organisational Health.

Nearly fifty years ago, Miles (1965) coined the term “organisational health” to describe the extent to which an organisation resolves the basic problems of survival, growth and development. He suggested “the state of health of an educational organisation can tell us more than anything else about the probable success of any particular change effort” (p.376). Organisational health depends on the following four dimensions:

- The acquisition of sufficient resources to accommodate to the environment;
- The ability to set and implement goals;
- The ability to maintain internal solidarity;
- The creation and preservation of a unique value system.

The first two are instrumental needs, whilst the second two are expressive needs for social and normative integration. Miles suggested that “A healthy organisation …not only survives in its environment, but continues to cope adequately over the long haul, and continuously develops and extends its surviving and coping abilities” (p.378).
A healthy organisation, by definition, is one that displays high levels of the ten properties listed in Figure 2.2⁴, under the categories of task, maintenance, and growth and development needs, which operating together provide the ideal environment for attainment of optimal human development and functioning.

<table>
<thead>
<tr>
<th>TASK NEEDS</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Goal Focus</td>
<td>Goals are reasonably clear to the system members as well as accepted by them. The goals must also be realistic and appropriate-consistent with the demands of the environment.</td>
<td></td>
</tr>
<tr>
<td>Communication Adequacy</td>
<td>Communication is relatively distortion free; it produces a good and prompt sensing of internal strains. Members have the information that they need to function efficiently.</td>
<td></td>
</tr>
<tr>
<td>Optimal Power Equalization</td>
<td>The distribution of influence is relatively equitable. Subordinates can exert influence upward, and they perceive their superiors can do likewise.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>MAINTENANCE NEEDS</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Resource Utilization</td>
<td>Personnel is used effectively. The organisation is neither overloaded nor idling. There is a good fit between individual needs and organisational demands.</td>
<td></td>
</tr>
<tr>
<td>Cohesiveness</td>
<td>Members are attracted to the organisation and wish to remain. They are influenced by the organisation and exert their own influence on the organisation in a collaborative fashion.</td>
<td></td>
</tr>
<tr>
<td>Morale</td>
<td>The organisation displays a general sense of well-being and group satisfaction.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>GROWTH AND DEVELOPMENT NEEDS</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Innovativeness</td>
<td>The organisation invents new procedures, moves toward new goals, and becomes more differentiated over time.</td>
<td></td>
</tr>
<tr>
<td>Autonomy</td>
<td>The organisation is not passive to the environment. It demonstrates some independence from outside forces.</td>
<td></td>
</tr>
<tr>
<td>Adaptation</td>
<td>The organisation has the ability to bring about corrective changes in itself to grow and develop.</td>
<td></td>
</tr>
<tr>
<td>Problem-Solving Adequacy</td>
<td>Problems are solved with minimal energy, and problem-solving mechanisms are not weakened, but maintained or strengthen.</td>
<td></td>
</tr>
</tbody>
</table>

**Figure 2.2: Miles’ Taxonomy of Organisational Health.**

⁴ [http://www.coe.ohio-state.edu/whoy/C4%20Final.pdf](http://www.coe.ohio-state.edu/whoy/C4%20Final.pdf)
Founded on systems theory, in which an organisation is defined as “a bounded collection of interdependent parts devoted to the accomplishment of some goal or goals, with the parts maintained in a steady state in relation to each other and the environment by means of (1) standard modes of operation, and (2) feedback from the environment about the consequences of system actions” (p. 377), Miles was interested in those characteristics of the organisation that promoted “positive health” or a “fully functioning human being” (p. 377).

In trying to further refine the concept of organisational health, Cox, Baldursson and Gonzalez (2000) proposed that it is affected by “the consistency between the objective organisation [structures, policies, and procedures] and the subjective organisation [perceived tasks of the organisation, the way it deals with problems, and provisions for employee growth]”. That is, “organisational health” may reflect the extent of congruence between employees and organisational characteristics of their workplace. In this respect, the theoretical principles underpinning organisational health bear a remarkable similarity to those encompassed by social ecology (McHugh, 2001).

The National Institute for Occupational Safety and Health (NIOSH) in the United States, and the American Psychological Association (APA) have been working together since 1985 to define key organisational characteristics linked to objective outcome measures such as employee health and organisational effectiveness (Murphy, 1996). Murphy defines Organisational Health in terms of both the economic health of the business (productivity) and the physical/mental health of the workers (processes). Five factors have emerged
as consistent predictors of a “healthy work organisation” (Lim and Murphy, 1999):

- Employee development;
- Communication;
- Innovation;
- Freedom from conflict;
- Commitment to organisational values.

In broad terms, management practices, and the organisational climate, along with general commitment to a defined set of organisational values, are those features that determine the level of “organisational health” in the workplace. Lindstrom (1994) has reviewed similar developments taking place in Scandinavian countries, in particular at the Finnish Institute of Occupational Health. Whilst research here confirms that various factors such as control at work, style of job organisation, interpersonal relations, and management support all play a fundamental role in employee health and wellbeing, he suggests that job demands specific to each occupation must also be considered when defining a healthy organisation. For example, the type of support and debriefing available to nurses working in palliative care, where the stress of dealing with dying patients, is a variable unique to that occupation, and organisations employing staff in such a role.

Houtman, at the Fourth APA-NIOSH Conference in March 1999, referred to international trends in the increasing psychological demands reported by employees. For example, the incidence or threat of violence is one such hazard affecting a growing number of occupations, including the teaching profession, and in any measure of organisational health should consider such
potential workplace hazards. In the United Kingdom, researchers at the Centre for Organisational Health and Development are investigating the impact of exposure to psychosocial hazards in the workplace, and organisational-level interventions designed to address them. Interventions of this nature would be encompassed under the notion of organisational health, as new workplace processes that indirectly affect performance by creating a “healthier” work environment.

2.5.2 Indicators of Organisational Health.

Organisational health is derived from a systems model, which contextualises the organisation within its environment. Leadership and vision; shared values; encouraging high levels of staff participation; a balance of environmental, economical and social outcomes, and consistent ethical principles underpin a “healthy” workplace. Methods for measuring the extent to which an organisation attains these levels of functioning depends on the establishment of indicators, standard units of measurement allowing monitoring of performance over time.

According to Deer (1980), organisational health or climate can be measured through systematic field observations, which may then be used to construct data collection instruments; perceptions of individuals within the organisation, either from qualitative methods such as interviews, or using self-report instruments; collection of objective indices reflecting the properties of the organisation, such as gender ratio of staff, participation in decision-making, or extent of union membership; and finally use of experimental manipulation of the work environment, such as change in leadership style.
<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
</table>
| **Goal Focus (GF)** | • Clear system goals  
• Acceptance of goals  
• Goals achievable with available resources  
• Goals appropriate (congruent with demands of environment) |
| **Communication Adequacy (CA)** | • Distortion-free communication throughout system  
• Good communication flow in and out of system  
• Prompt sensing of internal strains – good diagnosis of system difficulties  
• Reasonable effort entailed in accessing information |
| **Optimal Power Equalization (PE)** | • Equitable distribution of influence  
• Perception that principal can influence superiors  
• Conflict and power struggles managed effectively  
• Emphasis on collaboration  
• Interdependent relationships |
| **Resource Utilization (RU)** | • Systems inputs used effectively (staff etc)  
• Acceptable workloads and pressure  
• Good fit between individual dispositions and role demands  
• Sense of learning, growing and developing |
| **Cohesiveness (CO)** | • Clear organisational identity  
• Members attracted to organisation, belonginess |
| **Morale (MO)** | • Summated set of individual sentiments of wellbeing, satisfaction, pleasure |
| **Innovativeness (IN)** | • Invents new procedures, goals, products as required  
• Increased differentiation  
• System grows, develops and changes |
| **Autonomy (AU)** | • Independence from environment  
• Does not respond passively to demands from outside. |
| **Adaptation (AD)** | • Realistic effective contact with environment.  
• Adopts problem-solving approach when environmental demands do not match organisational resources.  
• There is sufficient stability and stress tolerance to manage difficulties. |
| **Problem-Solving Adequacy (PS)** | • Problems resolved with minimal energy, decisions sustained.  
• Structures and procedures are in place for solving problems and evaluating outcomes. |

*Figure 2.3: Murphy’s Indicators of Organisational Health.*
Despite the concept of “organisational health” having been well researched with a strong selection of definitional indicators, attempts to operationalise it or develop empirical methods for measuring it have been less than successful (Hoy and Feldman, 1987). The use of indicators provides one attempt at providing such a measurement framework. Murphy’s (1996) comprehensive set of indicators defining the construct of organisational health (Figure 2.3) has been one product of the NIOSH endeavour.

Murphy’s model, however, overlooks the important role of social interaction (social capital) in “worker mental health”. Both the nature and quality of social interactions cannot be ignored as potential indicators of organisational health. In simple terms, the culture, climate, social networks, and organisational practices inherent within the workplace shape the health and wellbeing of the workforce.

Fairman and Worley (1983) listed goal focus, communications, power equalisation, resource utilisation, cohesiveness, morale, innovativeness, autonomy, adaptation, and adequacy of problem solving as key measures of organisational health, these factors could also been seen to have the potential to affect personal and collective “mental maps” and hence determine the organisational climate. Along with thirteen key features of the organisation, including meaningful work, employee involvement, equitable rewards and recognition, and economic security, Peterson and Wilson (1998) and Denison (2000) added organisational culture as a critical element of organisational health. Brisson and colleagues (1997)\(^5\) included less tangible qualities such

\(^5\) [http://www.psc-cfp.gc.ca/publicaitons/monogra/mono5_e.htm](http://www.psc-cfp.gc.ca/publicaitons/monogra/mono5_e.htm)
as leadership, vision, employee commitment, rewards and recognition, communication, skills development, teamwork, and adaptability as core elements of organisational health (Figure 2.4).

**Figure 2.4: Brisson’s Model of Organisational Health.**

Level of trust and authenticity of leaders (that is, the degree to which leaders’ actions match their words) were proposed as core indicators of organisational health by Hoy (1996) and Henderson and Brookhart (1996). Huff and Kelly (2002) refer to a strong positive relationship between trust and collectivism (a construct closely aligned to connectedness of high organisational commitment), dependent on adherence to organisational values. An organisation that develops a culture of trust, positive interpersonal relationships, and “collectivism”, is more likely to be successful, or effective in achieving its goals.
However, despite a growing acknowledgement of the importance of setting up definitive sets of health indicators for monitoring the wellbeing of the population, such as the recent US “Healthy People 2010” Initiative that is set to monitor 10 leading public health indicators at population level over the next ten years, no such initiative has yet been set up to identify or monitor organisational health indicators as a subset of population health determinants. This is despite repeated commitments to ecological models of health that emphasise the critical role of environments in shaping health outcomes. One reasons for this is the ongoing debate about suitable methods of data collection.

2.5.3 Distinguishing Between Organisational “Health” and “Climate”.

A notable confounding factor when it comes to measuring organisational health is the apparent confusion with regards to the distinction between “organisational health” and “organisational climate”. The term “organisational climate” was first used by Argyris (1974, in Smith, 2001). His premise was that people develop “mental maps” of their organisation, using both subjective and objective data. It is the collectivity of mental maps that creates the atmosphere, or social climate, within the organisation. Organisational health, on the other hand, refers more to the broader structures, such as communication networks, that contribute towards the employees’ mental maps.

Organisational climate, culture and “health” are inextricably inter-related, and only very clear and systematic approaches to measuring the terms
operationally will ensure the distinction between them. Only a fine line separates perceptions and beliefs, although much of the “climate” literature relates to affective responses to the organisational environment, whilst the “culture” literature relates to the cognitive or intellectual responses to factors within the environment. Finally, those actual practices that shape people’s perceptions and beliefs and determine the “real” environment in which they operate shape the “health” of the organisation.

Ashforth (1985, in Hoy, Tarter and Bliss, 1990) suggests that culture consists of shared assumptions, values, or norms, whereas climate is defined by shared perceptions of behaviour. Within the school setting for example, the organisational climate is “the set of internal characteristics that distinguishes one school from another and influences the behaviour of its members…the relatively stable property of the school environment that is experienced by participants, affects their behaviour, and is based upon their collective perceptions of behaviour in schools” (Sabo, Barnes and Hoy, 1996: p.577). Those “parts” making up the system are defined as the social-psychological components of the system that cut across persons or groups. For the system to function effectively the members of the system (in the case of school, the teachers) must have clear perceptions of the goals to which the system is devoted, as these affect role specifications and behaviour. At the same time, the system must have a set of rewards and sanctions to regulate role performance, and norms governing the style of interpersonal transactions. One outcome often overlooked with regards to examining organisational effectiveness and health is the actual health of the workforce. Traditionally this was considered in relation to workplace safety, but increasingly, the subtle
processes intrinsic to management styles and practices are being investigated for the impact on employee performance, via the “health” of the setting.

2.6 OCCUPATIONAL HEALTH PSYCHOLOGY.

Occupational health psychology (OHP) is a significant recent offshoot of the organisational health literature. This ecological model evolved from consistent evidence of the influence of social environments on health outcomes. It usually refers to those health outcomes directly related to the work environment, such as job satisfaction and work stress (Cox, Baldursson and Gonzalez, 2000). It focuses on both research and practical applications of primary prevention strategies that identify and minimise organisational risk factors for illness and injury at work, including psychological “injury” such as stress, which has been adopted as the core indicator to assess organisational health or effectiveness (Sauter and Hurrell, 1999; Schabracq, Cooper, Travers & Maanen, 2002).

Research in this area seeks to identify ways in which changing organisational structures and processes – aspects of the work environment - might influence the health and wellbeing of workers. Core components of this new field include:

- Job stress theory and mechanisms;
- Organisational risk factors for occupational stress, injury and illness;
- Health implications of stressful work (physical, psychological, social and economic);
• Organisational interventions and programs for reduction of occupational stress, illness and injury; and

• Investigation of appropriate research methods for this field.

OHP addresses three inter-related dimensions of organisational settings – the work environment (physical, social and psychological), aspects of the individual (such as person-environment fit), and work-family interface (Quick, 1999). Thus, it is a field that offers considerable potential for operationalising some of the key theoretical constructs examined previously, such as organisational and social capital. Although cultural change strategies within organisational settings have established beyond doubt the potential health benefits for employees, and financial benefits for the organisation, associated with health promotion interventions, the greatest focus of research over the past few decades has been on strategies for promoting individual change (Stokols, 1992; Grzywacz and Fuqua, 2000; Stokols, 2002).

However, evidence is beginning to accrue that this may be a limited solution to the problem. A public health approach or model, based on the WHO commitment to the “settings approach to health promotion”, acknowledges that taking a broad social or population-based approach to promoting wellbeing is more effective. The result is the beginnings of a turnaround within the organisational literature towards more ecological models of occupational and organisational health research.

Moreover, despite the traditional focus on identification of organisational deficits and the resultant “repair-shop” approach to organisational development (Keyes and Haidt, in Wright, 2003), a more positive focus on
health has begun to emerge in recent times. Wright (2003) suggests that Maslow’s (1954) introduction of the term “positive psychology”, and Frederickson’s (2001) theory that suggests individuals have greater capacity for personal transformation, resilience, and social connectedness when they have purpose (seeing life as oriented toward some imagined goal or state), value (seeing actions as right or justifiable), efficacy (sense of control over events), and self-worth (seeing life as having positive value), are finally converging. The result is increased potential for a significant new approach to organisational health research and practice with an emphasis on building strengths or assets within the social and managerial systems of the organisation, that is, a salutogenic approach to organisational psychology.

One of the most significant issues to be targeted for this research is that of job stress. Job stress has deleterious outcomes at several levels, that of the individual (and hence loss of human capital), at the social level (resulting in decreased social capital), and at the organisational level, resulting in higher organisational costs such as lost productivity from absenteeism or costs associated with replacing employees due to attrition. Apart from empirical research aimed at identifying those “risk factors” for job stress within work settings or occupational groups, several key conceptual models dominate the literature. Both sets of research will be reviewed in the following section.

2.6.1 Job Stress

There is now a vast literature on job stress, not only identifying those personal characteristics that are either determinants or outcomes of job stress, but more recently a greater focus on those environmental features of the
workplace that contribute towards job stress. Traditionally these centred on

demands related to the work itself, such as high noise or temperatures, but

contemporary literature is turning towards an examination of aspects of the

psychosocial environment that show potential for reducing job stress, for

example, leadership style, levels of trust, and social support. In some

respects, this shift in focus reflects a subtle change in prevailing

understanding of health determinants, which is tending towards more

salutogenic paradigms, that is, those focusing on positive dimensions of our

environments that promote and sustain healthy outcomes rather than

continuing to identify pathogenic features of the workplace (Antonovsky,

1987).

The pathogenic model has dominated organisational health research for the

past decade. There is now an extensive literature confirming that exposure to

adverse psychosocial work conditions is a major hazard for the health of

workers (Ostry et al., 2003; Pikhaqrt et al., 2004) and that the damage may be

cumulative in terms of exponentially diminishing employees’ capacity to cope

with stress in general (Torsheim, Aaroe and Wold, 2003). High job demands

combined with low job control or inadequate job rewards (including job

satisfaction) contribute to a range of negative physiological, physical, and

psychological outcomes (de Jonge, Bosma and Siegrist, 2000; Kuper et al.,

2002; Niedhammer and Chea, 2003; Niedhammer et al., 2004; Mausner-

Dorsch and Eaton, 2000; Stansfeld et al., 1999; Kuper and Marmot, 2003;

Park and Wilson, 2003). “Buffer” hypotheses, those suggesting that by

boosting positive aspects of the work environment have not been well

supported. For example, neither job commitment nor social support were
found to moderate work-related stress (Leong, Furnham and Cooper, 1996; Pelfrene et al., 2002), although locus of control does appear to reduce self-reported ill-health (Muhonen and Torkelson, 2004).

Workplace stress is typically identified in the individual by the emergence of psychopathological symptoms (cardiovascular or musculoskeletal measures), psychosomatic complaints (such as headaches, sleep disturbance, skin conditions), or psychosocial distress (mental health problems, relationship breakdown), and at organisational level by rates of “organisational symptomatology” such as decreased productivity, increased absenteeism or employee turnover (Lee and Mitchell, 1991; Lee and Mitchell, 1994). Measurements at all levels, however, are fraught with complexity, with numerous confounding and contributing variables, along with methodological issues such as clarification of units of measurement and data collection methods, most notably issues surrounding the validity of self-report measures used within contexts where response bias may be a factor.

At the individual level, work-related stress has been strongly linked to heart disease (Stephenson, 2002; Peter, Siegrist, Hallqvist; Reuterwall et al. 2002), depression (Anonymous, 2001), and musculo-skeletal disorders (Carayon, Smith, and Haims, 1999). Suggestions that it may be related to breast cancer have recently been refuted (Achat, Kawachi, Byrne, Hankinson, and Colditz, 2000). Gender disparities have been found, with women in male-dominated industries reporting significantly greater job stress than others (Gardiner and Tiggerman, 1999).
Konert (1998) and Mikkelson and colleagues (2000) found that personal coping style affected job satisfaction and perceived job stress, with greater self-reported stress from those with problem-focused coping styles. Work motivation, defined as “willingness to exert high levels of effort towards organisational goals” (Robbins, in Lu 1999), is another individual characteristic associated with job stress. However, little research has been directed towards investigating the extent to which various similar psychological constructs, such as Sense of Coherence, optimism-hopelessness, hostility and anger, alexithymia (inability to describe emotion in words), and subjective quality of life, are related, or the relative contribution of each to perceived job stress. In terms of the individual’s total psychological profile, considerably more sophisticated analyses are needed to clarify the intrapersonal variables contributing to subjective job stress, before similar investigations into the interactions between the inner determinants of health and the environmental determinants.

Whilst the empirical evidence suggests a complex array of inter-related variables contributing to health outcomes, two theoretical models that conceptualise the processes underlying occupational health outcomes have dominated the literature for the past twenty years. Siegrist's Effort-Reward Model (Siegrist, 1996) focuses on the individual’s fit within the organisational structure and is closely related to personal coping style, while Karasek’s Demand-Control-(Support) Model focuses on the influences of organisational structure. Ideal working conditions are those which foster an environment that provides due recognition for effort, whilst also supporting development of individual skills in adapting to the work demands. Hart’s
Dynamic Equilibrium Model provides a promising integration of these theoretical models with empirical evidence supporting the role of intrapersonal factors in shaping individual perceptions of the work environment, which he suggests then affect individual wellbeing and performance.

Effort-Reward Model

Siegrist (in Berkman and Kawachi, 2000) has suggested that the degree to which employees are rewarded plays a crucial role in work-related health consequences. Rewards take the form of money, esteem, and security (or career opportunities). This model posits that lack of reciprocity between costs and gains (rewards) leads to strain reactions, which manifest as poor self-rated health or high absenteeism rates. Effort is the individual's response to job demands, and may be extrinsic (attempts to cope with external demands) or intrinsic (related to personal drive, goals or values). High effort, such as working long hours, with absent or inappropriate reward (either money, esteem or career opportunities), has been consistently associated with increased risk of coronary heart disease (Siegrist, 1996; de Jonge et al., 2000).

Karasek’s Demand-Control Model

Grounded in sociological traditions relating alienation to work processes, this model (Figure 2.5) suggests that decision latitude (level of decision authority and level of skill utilisation), combined with psychological demands of the work environment, predict job stress and physical illness. Accrued learning over a lifetime of work experience may contribute to a person's sense of control over the work conditions by inhibiting perceptions of strain in high-
demand situations. This may also be influenced by personal life conditions, such as involvement in socially active leisure and political interests (Marmot, Siegrist, Theorell, and Feeney, 1999).

Figure 2.5: Karasek’s Demand Control Model of Job Stress.

In a large longitudinal study of Dutch maintenance employees, Smulders and Nijhuis (1999) found that only lack of job control contributed significantly to absenteeism. Job strain was found to explain about 25-50% of the relative excess risk for myocardial infarction amongst manual workers (Hallqvist et al., 1998), as well as predicting job satisfaction and mental health in psychiatric nurses (Munro, Rodwell and Harding, 1998). However, in a comprehensive review of twenty years of empirical research of this model, Van Der Doef and Maes (1999) found that high-strain jobs (high demands-low control-low support) are associated with lower psychological wellbeing, lower job satisfaction, more burnout, and more job-related distress. Gender and personality differences (specifically coping style) seemed to be significant in moderating the outcomes.
In a thorough comparative study of both models with well over 11,000 Dutch workers, de Jonge and colleagues (2000) concluded that both models contribute to a thorough understanding of job stress. Jobs entailing high demand and low control were more strongly associated with emotional exhaustion, psychosomatic health complaints, physical health symptoms, and job dissatisfaction. However, these health outcomes were even more pronounced in employees reporting a mismatch between their efforts and occupational rewards. Unexpectedly, they also reported that significantly higher emotional exhaustion was associated with jobs involving high effort and high rewards.

Whilst both these models integrate positive elements into their frameworks, the outcomes being assessed are intrinsically negative or pathogenic in nature. Both fail to examine the factors contributing to successful coping with the demands of high-effort/low-reward or high-strain work environments or occupations, that is, the factors that contribute to resistance against job stress. Coetzee and Cilliers (2001) present a model derived from the salutogenic framework, which they term “psychofortology”, the science of psychological strengths. They argue that improved understanding of psychological strengths will point to new directions for capacity building, and the prevention and enhancement of the quality of life of individuals in their private as well as work lives.

Psychological dimensions comprising this model include sense of coherence, locus of control, self-efficacy, hardiness, potency, and learned resourcefulness. Coetzee and Cilliers argue that there is already a considerable literature addressing these positive constructs within the
organisational health field, often subsumed under various titles such as “learning organisation”, teamwork research, or organisational effectiveness. However, collective wellbeing at organisational level, such as rates of “successfully coping employees”, or the salutogenic profiling of various occupations, has not been extensively studied. Nasermoaddeli et al. (2002) found, in a study of Japanese civil servants, that a high sense of coherence (belief in one’s control over external stimuli and positive coping skills) moderated the negative impact of psychosocial stress in the workplace, but no other studies adopting this line of enquiry could be found.

In a systematic review of stress management intervention studies conducted with mental health nurses, Edwards and Burnard (2003) found that most workplace intervention strategies were based mainly on individual strategies, those that combine different types of activities such as relaxation, exercise and time management, despite abundant evidence from the health promotion literature that prevention of job stress through proactive management styles and organisational redesign are critical elements of a comprehensive approach to workplace management of employee mental health. Their conclusion that the focus on the individual and the pervasive attention to pathogenic outcomes rather than “coping styles” or successful adaptation to professional or workplace job characteristics continues to provide a biased perspective on the whole issue of workplace stress.

The implication of providing “salutogenic training” relevant to the rigours of different occupations raises interesting possibilities for “occupational vaccination” against job stress in those industries identified as high risk, namely the health and teaching professions. One conceptual model that does
offer a somewhat more salutogenic approach is the Dynamic Equilibrium Model.

**Dynamic Equilibrium Model**

Hart, Wearing and Griffin (1996) have developed a model of job stress that integrates personality variables (negative and positive affect, neuroticism versus extraversion, and perceived quality of life), coping processes (emotion focused versus problem focused coping), and work experiences (negative versus positive experiences) with the work environment (organisational climate). They argue that personality characteristics play a significant part in determining the psychological meaning an individual ascribes to a situation, and therefore should be included in any model investigating responses to social environments. That is, they determine what the individual defines as “normal”. Levels of psychological wellbeing, including job stress, must be defined according to the employee’s frame of reference or perceived deviation of conditions from the “normal”.

The model proposes that stress arises when a state of disequilibrium exists within the person-environment interaction system, and this state of disequilibrium has an adverse impact on normal levels of psychological wellbeing. Where morale is lower than normal, stress is more likely to be reported. “Organisational health” provides a measure of overall employee wellbeing in combination with the organisation’s financial, social and environmental outcomes. It recognizes the dynamic link between employee health and organisational performance. Structural equation analyses, as well
as empirical research in a variety of Australian private and public sector organisations, have provided support for this model (Hart and Cooper, 2000).

Whilst Hart’s model provides a more integrated theoretical framework for explaining the links between individual and organisational variables affecting job satisfaction, recent work by Fresko, Kfir and Nasser (1997) demonstrated the link between these individual and organisational variables, and job commitment. Since job commitment has been strongly associated with absenteeism and employee attrition, this theoretical model is consistent with the empirical evidence, although no studies have yet been found which have tested it.

A more recent model is that proposed by Peterson and Wilson (1998), which is based on Karasek’s (1979) Demand-Control Model of Stress but also takes account of the interdependence between individual and organisational health. The Culture-Work-Health Model (Figure 2.6) suggests that psychological strain and subsequent health outcomes are the result of the interaction between aspects of the work environment, namely job demands (psychological stressors such as work pressure, overload, or conflict) and job decision latitude (workers’ authority, control, or skills).

Figure 2.6: Culture-Work-Health Model (Peterson and Wilson, 1998).
This model views management systems as mediating between workplace culture and productivity, but also integrates the notions of employee “quality of life” and health as factors within the organisational health framework, hence providing a somewhat more comprehensive model that recognises individual and environmental factors as well as pathogenic and salutogenic variables.

This recognition of the “objective” and “subjective” is also given credence by Cox (in Murphy, 1996), who recommended that job stress research should incorporate the contextual element of “organisational health”, since it is determined by the degree of consistency between the “objective” organisation (structure, policies and procedures) and the “subjective” organisation (tasks, management of problems, and opportunities for employee growth). That is, any assessment of the individual’s health outcomes, in relation to work, must necessarily include an assessment of the overall “health” or effectiveness of the organisation, since this is intrinsically related to the individual’s perceptions that shape their psychobiological responses to environmental factors.

Even though brief, this review of the theoretical literature pertaining to models of job stress suggests that despite dominance of two key conceptual frameworks – the demand-control model and job strain model – considerable inadequacies still remain in terms of having a comprehensive conceptual understanding of job stress, both in terms of determinants as well as outcomes indicators. The global term “job stress” is a simplification of this complex phenomenon, and consequently approaches to defining it and developing suitable measures applicable within the work context remain elusive. Difficulties arise with regards to segregating subjective and objective
factors making up the construct, and the field is still far from being able to tie together the relative influences of all factors on the final outcome(s). Despite Siegrist’s and Karasek’s significant contributions towards our understanding of the biomedical consequences of work-related strain and environmental determinants, both models fail to encompass salutogenic factors that, as some evidence is beginning to show, “buffer” the effects of external environmental stressors. In addition, these models omit many socio-cultural variables that, like psychological factors, may play a significant part in the way individual’s “make sense” of the work environment and its demands.

The next section of this review considers the empirical evidence in relation to job stress within the Australian context.

2.6.2 Job Stress in Australia.

Australia’s compensation claims for occupational stress have been increasing by about 20% since 1992, with costs rising by about $7 million each financial year. Such claims accounted for more than $35 million in compensation payments to Australian Commonwealth Public Service employees in the 1996/97 financial year (Bull, 1996). More than 1,700 stress-related compensation claims costing some $46 million were lodged with WorkCover Queensland in the 1999/2000 financial year. This number continues to increase, with claims for work-related psychological injuries in Queensland increasing from 2,599 in 2000/01 financial year to 2,896 last year (Q-Comp 2003). Most claims were lodged by public servants, teachers, and health

---

industry workers (Taylor, 2001). Longer working hours and higher expectations in a diminishing workforce were the most common complaints.

The 1997 national survey on stress at work conducted by the Australian Council of Trade Unions (ACTU) received over 10,000 responses, clearly indicating that job stress is a major concern for the Australian workforce. Across all sectors, poor management and communication, reflected in lack of respect and recognition, increased workloads due to insufficient staffing levels, and inadequate work breaks were consistently reported as those aspects of the work environment that caused the most significant stress. This was reportedly exacerbated by job insecurity often going hand in hand with organisational restructuring. The most commonly reported health outcomes for “professionals” were continual tiredness and sleeplessness. Over one in four (26.5%) reported taking leave from work due to stress in the past twelve months (mostly sick leave). The report “Stress at Work: Not What We Bargained For” concluded that:

“High workloads, long hours, organisational change and restructuring, inadequate staffing and resources, and difficult relations with management, including lack of communication and consultation were identified in the survey as the most stressful conditions at work. . . . There is an urgent need to address the health and safety implications of the increasing hours of work and lengthening spans of work without a rest or meal break, which are the result of staff reductions and burgeoning workloads. The implications could amount to breach of duty of care, if people are injured or become ill as a result of being unable to take appropriate rest and meal breaks at work.”

Work stress is vocationally disabling in about 10% of all cases (Cotton, 1996), while more subtle outcomes such as distress, anger, interpersonal tension with the employer or other work colleagues, can add further to the “hidden” costs through lower employee morale, reduced work productivity, increased absenteeism and employee attrition.

2.7 WORK ENVIRONMENTS AND HEALTH OUTCOMES.

The vast majority of studies measuring workplace influences on health depend on self-administered questionnaires, raising questions as to whether the research is in fact measuring “organisational health” (objective indicators) or “organisational climate” (subjective indicators). Measurement of subjective indicators faces a number of notable problems. Risks of distortion arising from social pressure to either under- or over-emphasise certain work conditions are very real. Psychological defence mechanisms such as denial, as well as individual differences in cognitive and emotional abilities to “analyse” workplace-setting characteristics may all introduce error into this method (Theorell, in Berkman and Kawachi, 2000).

“Hard” information about job characteristics (extrinsic information), and objective measures of health status should also be considered in conjunction with personal attributes such as individual coping mechanisms (intrinsic information) that may influence individual’s responses to certain work conditions (Siegrist, Joksimovic, and Peter, 2000). However, in practice this
often proves difficult where a considerable amount of responsibility for performance reviewing is devolved to the organisation itself.

Given the multi-determinant nature of health, one approach to address these measurement concerns may be to assess health risk behaviours known to contribute to ill health, such as frequency of exercise, diet, and smoking habits, rather than simply health status indicators such as blood lipids or cardiovascular events. There is no question about the links between lifestyle habits and these health outcomes, yet few studies have been found that have approached the job stress/health relationship from the perspective of “upstream” variables. Karasek and Theorell (in Berkman and Kawachi, 2000) suggested that the relationship between cardiovascular illness and job strain may be mediated by behavioural risk factors such as smoking, but most research investigating this hypothesis has continued to focus on biomedical indicators such as blood lipid levels.

By definition, any measurement of member perceptions must be carried out using self-report methods. If, however, we follow the health metaphor and look for “diagnostic” methods of assessment, any measurement of “organisational health” would, by definition, require objective methods of data collection. In fact, just such an approach is widely used in the corporate world to monitor the performance of the organisation and identify risk factors that have the potential to affect productivity.

Few valid instruments are available for quantitatively assessing organisational health. Fiorelli, Alarcon, Taylor, and Woods (1998) report on the development of the Organisation Health Report, an index of key operational and financial
measures based on hard data collected routinely by many corporations – staff turnover, nature and frequency of human resources complaints, work distribution, evidence of strategic planning and its implementation, pay scales, performance reviews, provision of career pathways, race, age and gender distributions, health and safety records, quality of policy and procedure systems, and so on.

Individual outcomes deriving from organisational factors include job satisfaction and job commitment, both of which may be taken as indicators of the “health” of the organisation. Various job outcome measures including job satisfaction, job stress, commitment, trust, loyalty, and respect were measured with the Multifactor Leadership Questionnaire (MLQ), along with employee perceptions of the organisational culture using the Organisational Culture Profile (OCP) in a national Australian study conducted by the Australian Institute of Management (AIM) (Saros, Grey and Denston, 2001). The authors reported that all organisational culture factors were highly and positively correlated with job outcomes, except for job stress. The leadership factors of supportiveness, emphasis on rewards and social responsibility were most strongly associated with job outcomes, with the highest correlations occurring for trust and organisational culture factors (emphasis on rewards and trust (.62), supportiveness and trust (.61), supportiveness and commitment (.55), supportiveness and loyalty (.55), and stability and trust (.54)). However, they did not report associations between these factors and employee attrition.

Research is continuing to design suitable interventions for improving organisational health. However, it should be noted that where a work
environment is perceived as being positive, employees are more likely to take personal responsibility for their health and hence “feel” better, as well as report a more positive social environment. Deliberate efforts to improve the work environment may have limited impact if employees do not perceive the workplace culture as having genuinely improved. That is, the crux of such research must be founded upon employee perceptions as fundamental indicators of the climate of the work environment.

Gaining an understanding of these conceptual models explaining “organisational health” is critical in terms of a number of significant outcomes. Apart from the obvious population health consequences, such as job stress and injuries, employee attrition and diminished productivity arising from employee dissatisfaction, also interact with organisational factors. The pathways explaining the variables influencing employee attrition are complex and include both individual and organisational factors. Learning Solutions Alliance\(^8\) has recently produced a report outlining key findings of international research into the workforce attrition crisis. Their summary suggests that the reasons for employees staying, or leaving, an organisational are not the same. Among these, better work conditions (“compensation”) are more likely to prompt leaving than discontent. The new field of “occupational health psychology”, which concerns the application of psychology to improving the quality of work life, and to protecting and promoting the safety, health and wellbeing of workers, offers potential for further understanding of these forces.

\(^8\) [http://www.learningsolutions.com/WhitePapers/7KeysRetainTopTalent.html](http://www.learningsolutions.com/WhitePapers/7KeysRetainTopTalent.html)
2.7.1 Job Commitment.

The notion of job commitment was first established by Porter and Smith (1970), who proposed a new theory suggesting that certain employee behaviours related to work performance were linked to the psychological attachment of employees to the organisation (organisational commitment). They defined organisational commitment as 'the strength of an individual’s identification with and involvement in a particular organization, [which is] characterized by three factors: a strong belief in, and acceptance of, the organization’s goals and values; a readiness to exert effort on behalf of the organization; and a strong desire to remain a member of the organization' (Mowday et al., 1982).

Two types of job commitment have been identified – organisational commitment, which describes the degree of integration of an individual into the organisation (characterised by one’s belief in and adoption of the organisation’s goals and values, willingness to exert effort on behalf of the organisation, and a desire to maintain membership of the organisation); and occupational commitment, which describes one’s intention to pursue a career in a defined occupation or profession (Meyer, Allen and Smith, 1993).

Job commitment is influenced by a variety of factors, some internal (such as personal goals and career aspirations, personality style, and interpersonal communication style), but others that are reflective of the organisational culture and organisational health. Together, these internal and external variables interact to create the “culture” of the workplace, such that a dynamic interplay is established over time between causes and effects. The degree of
fit between the employee and these workplace factors is one determinant of job commitment. Ultimately, the dynamic interplay between environmental characteristics and personal characteristics determines productivity or quality of output.

It has consistently been demonstrated that low job commitment predicts absenteeism and turnover (Tuettemann, 1991; Cohen, 1996; Scott, Cox and Dinham, 1999; Tsui and Cheng, 1999), while satisfaction with the current job has been positively associated with career (or occupational) commitment (Borg and Riding, 1991; Ma and Macmillan, 1999; Tett and Meyer, 1993; Leong, Furnham and Cooper, 1996; Shann, 1998). It can be measured using attitudinal assessments (“turnover intention”) or behaviourally (actual staff attrition rates), reflected in workplace attrition (or staff turnover) rates.

Tett and Meyer (1993) advised against measuring only “withdrawal cognitions” (thoughts about leaving the job) in research into job commitment, since their path analyses found that thinking about quitting accounted for only 27% of the turnover variance. Withdrawal cognitions were more strongly associated with job satisfaction and job stress (Leong, Furnham and Cooper, 1996), which in turn was more strongly correlated with job commitment than with “intention cognitions”. Assessments of job commitment should also consider the employee’s perceptions of the costs associated with quitting, availability of alternative employment or other “work” options, and the magnitude of personal investments made to the job (Allen and Meyer, 1990).

Empirical evidence consistently demonstrates that job commitment derives from an organisational culture that emphasises the value of the workforce and
fosters a sense of satisfaction within employees, that is, a culture that reflects the social features of the workplace setting (Hoover and Aakhus, 1998; Guglielmi and Tatrow, 1998). In a review of 48 studies, Mathieu and Zajac (in Langan-Fox and Griffin, 1999) found that characteristics of the job itself, such as job scope and challenge, and group characteristics such as cohesiveness and participative leadership, predicted job commitment more than personal or organisational characteristics. However, the literature continues to provide a plethora of confusing data surrounding the notion of job commitment, its causes and consequences, largely due to the complexity of the multiple levels of influence, namely aspects of the profession, team-level characteristics and demands, organisational practices, and quality of interactions between staff, to name but a few.

It is critical to identify the relative contributions of personal and organisational factors in job commitment in order to design effective interventions for reducing turnover and stress-related compensation costs. At the individual level, job commitment may be mediated to some extent by having, or developing, a repertoire of adaptive skills and adjusting these according to the working conditions or organisational practices of the workplace, interpersonal relations with other staff, and political demands related to the profession. However, the relationship between career (or occupational) commitment and health outcomes has been poorly researched.

Job commitment has been linked to employee mental wellbeing (Scott, Cox and Dinham, 1999), both as a determinant and as an outcome. Donald and Siu (2001) showed organisational commitment to be a significant predictor of mental health outcomes such as contentment, resilience and peace of mind,
in white-collar workers. Demerouti, Bakker, and de Jonge (2001) showed that job control and job demands interacted to determine employee health impairment. Job demands were most closely correlated with health impairment, whereas job control appeared to mediate this outcome. Employees with high job demand and high control reported not only high strain, but also high motivation. Demerouti concluded that the demand-control model of work characteristics and health only partly predicts the relationship between job demand-control and health impairment.

In the school setting, levels of commitment of the workforce to both the organisation (the school) and the profession (the role of teaching) have been linked with a number of physical and mental health outcomes (Leong, Furnham and Cooper, 1996), both for staff and students. Weisberg and Sagie (1999) found that in Israeli classrooms physical exhaustion, more so than mental or emotional stress, explained teachers’ intentions to quit. Cross-cultural replications of this study are needed to determine whether this pattern is determined by organisational structures. At the same time, organisational factors may play a mediating role in these relationships. Um and Harrison (1998) found that teachers’ burnout and job dissatisfaction increased when perceived role conflict increased, while job satisfaction can be significantly influenced by the presence, or absence, of co-worker support.

Despite being a complex phenomenon with multi-level influences, organisational commitment appears to play a significant role in shaping both employee health as well as organisational health, and should not be
overlooked in any evaluation of interventions designed to bring about change in the workplace climate or culture. Within the school setting, commitment of the workforce may be a critical determinant of children’s developmental and educational outcomes, yet it has not received noticeable attention within the research literature, particularly in terms of those features of the school organisational environment that fosters a more committed teaching workforce. Van Horn (2001), reviewing Thomas Stewart's book “Intellectual Capital: The New Wealth of Organizations” (New York: Doubleday, 1997) in which he discusses structural capital, or the capital of organisations, poses an intriguing question, "How do they [organizations] turn the candlepower of their people into the wattage of the corporation, rather than into something that goes home at 5 p.m.?". Stewart identifies linkages between human and organisational capital, suggesting that recognition and nurturing of both as resources determining the effectiveness of the organisation.

*Health promotion* was defined by the World Health Organisation Working Group (1984, in Glanz, Lewis and Rimer, 1990, p.8) as a process of enabling people to improve their health by synthesising personal choice and social responsibility. Over the past two decades, it has provided a framework to guide all health-focused initiatives in the various social settings that determine health outcomes, including schools and the workplace. The following section provides an overview of the principles and evidence in support of this approach to population health.
2.8 HEALTH PROMOTION: A STRUCTURED APPROACH FOR PROMOTING BETTER HEALTH.

The World Health Organization defined a “setting” as “a place where people live, learn and work and comprises a location and its social context in which people interact daily. The home, the school, the work place, the village, the town, the market, the city are the places where people live and work” (WHO). There is now clear evidence that the health status of people is determined more by the conditions in these “settings” than by tertiary interventions such as treatment approaches. This approach aims to generate local action through intersectoral collaboration and community involvement and addresses physical and social determinants of health in the settings. This approach was launched in October 1986 with the First International Conference on Health Promotion, which was held in Ottawa, Canada, producing what is now known as the Ottawa Charter for Health Promotion. This conference was followed by others which explored the major themes of the Ottawa Charter on healthy public policy (in Adelaide, 1988), and on supportive environments for health (in Sundsvall, 1991).

The Ottawa Charter for Health Promotion (WHO, 1986) is founded on the view that health and wellbeing are determined not just by physical factors in the environment, but also by a wide array of psychological and social determinants within human systems. It established healthy public policies, design and sustainability of supportive environments, and the reorientation of health services, as fundamental elements to the process of shaping broader social structural that influence health outcomes.

http://www.afro.who.int/eph/setting_approach.html
Traditionally, health interventions focused on using behavioural approaches to changing individuals’ health behaviours, and adopted an “educative” approach, later modified by the introduction of “social marketing” principles as an attempt to intervene at broader structural (or environmental) levels. However, the Ottawa Charter, and subsequently the Jakarta Declaration (WHO, 1997), clearly established the following key principles:

► Commitment of both public and private sectors to pursuing socially responsible policies and practices.
► Greater investments in health especially for disadvantaged groups.
► Expansion of partnerships between all levels of government and society for health and social development.
► Improving the capacity of communities for health promotion by practical education, leadership training, and access to resources.
► Expansion of an infrastructure for health by mobilising resources and greater intersectoral collaboration focusing on specific “settings for health”.

This last principle was extended through the World Health Organisation’s “Sundsvall Statement on Supportive Environments for Health” (WHO, 1991), which in part stated that “The way forward lies in making the environment – the physical environment, the social and economic environment, and the political environment – supportive to health rather than damaging to it”. Furthermore, the statement decreed that “A supportive environment is of paramount importance for health” and that supportive environment refers to both the physical and the social aspects of our surroundings, including local communities, homes, and the workplace.”
Health is directly linked to educational achievement, quality of life, and economic productivity (WHO Fact Sheet No. 92, 1998). In 1997, the World Health Organisation (WHO) clearly defined the prerequisites for health as peace, shelter, education, social security, social relations, food, income, the empowerment of women, a sustainable eco-system, sustainable resource use, social justice, respect for human rights, and equity. Furthermore, it was affirmed that particular settings, among these schools, offer practical opportunities for the implementation of health development programs. This declaration is founded on abundant research, which clearly demonstrates the critical role of environmental, or contextual variables in determining health outcomes, including health risk behaviours and psychosocial wellbeing. The family, the school, and the community are key settings that interdependently shape the wellbeing and development of children (Zubrick, Williams, Silburn, and Vimpani, 2000). Four aspects of supportive environments were highlighted in the Sundsvall Statement:

► The ways in which norms, customs and social processes affect health;
► Participation at all levels in decision-making;
► Ensuring a commitment to adequate resources for health and sustainability;
► Recognition of women’s skills and knowledge, and a re-distribution of the workload between men and women.

One of the most significant international projects addressing population health, the Healthy Cities movement, grew out of recognition of the important interaction between a community’s health and economic, social and environmental factors (Ashton, in Raphael et al., 1996). In essence, this
WHO-inspired initiative drew together contemporary understanding of the importance of social influences (emerging within the social capital literature) with established population health principles. An enormous number of projects have derived from this model during the last decade or two, all addressing the fundamental commitment to creating sustainable and healthy environments.

Offshoots of the model emerged rapidly, with a burgeoning literature demonstrating approaches for building healthy workplaces, hospitals, and schools. This latter, the school as a health promoting environment or setting, is of major significance due to the role schools play in shaping developmental outcomes for children and young people. According to Noguera (1999), the complexity of interpersonal relations within the school environment creates great potential for the study of social capital in this setting. Social networks between the school and its “extended family” within the community affect the quality of the school environment. Active involvement of families and the local community in the life of the school improves children’s educational outcomes by increasing the sense of ownership, expanding resources, and building institutional capacity.\(^{10}\) The model now recognised internationally as “best practice” is that of the Health Promoting School (HPS). The HPS approach now has a vast literature of examples of effective interventions for promoting the wellbeing of children, their families, and other school personnel.

### 2.8.1 The Health Promoting School.

Since 1950 when the World Health Organisation (WHO) convened an expert committee on school health services, the immutable connection between the

\(^{10}\) [http://www.iris.umd.edu/socat/topics/education.htm](http://www.iris.umd.edu/socat/topics/education.htm)
school setting and health has become well established (WHO, 1998). In 1986 WHO and UNICEF published *Helping a Billion Children to Learn About Health* based on the findings of an international consultation on health and learning. An expert panel was jointly convened by WHO, UNICEF and UNESCO in 1991 to gain a common understanding of the concept of comprehensive school health education and to outline action for countries to consider to strengthen implementation\(^{11}\) of such an approach.

Guided by the Ottawa Charter for Health Promotion (1986), the Declaration of the Fourth International Conference on Health Promotion (known as the Jakarta Declaration, 1997), the World Health Organisation (WHO) sponsored the European Network of Health Promoting Schools (ENHPS) in 1992, and since its inception it has grown to include representation from more than 37 European countries, each supporting a network of schools adopting the Health Promoting Schools (HPS) approach. Three years on, WHO launched the Global School Health Initiative (WHO, 1995), and has since sought to extend the concept of the “Health-Promoting School”.\(^ {12}\) It defined the Health Promoting School as “*one that constantly strengthens its capacity as a healthy setting for living, learning and working*”\(^ {13}\) by adopting the following strategies\(^ {13}\):

- Fostering health and learning with all the measures at its disposal.
- Engaging health and education officials, teachers, teachers' unions, students, parents, health providers and community leaders in common effort to improve school health.

---


• Striving to provide a healthy environment, school health education, and school health services along with school/community projects and outreach, health promotion programs for staff, nutrition and food safety programmes, opportunities for physical education and recreation, and programs for counselling, social support and mental health promotion.

• Implementing policies and practices that respect an individual's well-being and dignity, provide multiple opportunities for success, and acknowledge good efforts and intentions as well as personal achievements.

• Striving to improve the health of school personnel, families and community members as well as pupils; and

• Working with community leaders to help them understand how the community contributes to, or undermines, health and education.

The Health Promoting School (HPS) approach has been enthusiastically adopted in Australia. Its core aim is to foster “healthy lifestyles for the total school population by developing supportive environments conducive to the promotion of health” (Lister-Sharp et al., 1999). Key components of the model (Figure 2.7) encourage schools to focus on:

• the formal school curriculum;

• school ethos (the social climate);

• the physical environment;

• the policies and practices of the school;

• school health services; and

• enhanced interaction between school-home-community (Booth and Samdal, 1997).
Figure 2.7: Key Elements of the Health Promoting School\textsuperscript{14}.

Despite emerging some twenty years ago and rapidly increasing advocacy for the model at local as well as national levels, methods for evaluating outcomes from the approach remain limited, and little research has been conducted to effectively verify the efficacy of this approach. For example, no comparative studies using the HPS approach and any other model of school organisation could be identified for this review. Lister-Sharp’s (1999) systematic review of HPS interventions revealed that, despite the strong emphasis in health promotion research on the need for intervening at structural levels for sustainable health behaviour and health literacy change, most HPS evaluations focus only on curriculum developments.

Methodological challenges posed by measurement of complex social systems, and a lack of validated evaluative frameworks and tools, appear to

\textsuperscript{14} From \url{http://www.chdf.org.au/ftl/issues/whatisahps.html} [25/07/04]
underpin this dearth of research. Lister-Sharp et al. (1999) comment on the lack of international consensus regarding indicators of the “health-promoting school”, although the ENHPS has established a framework of twelve criteria that could be modified according to contextual conditions of each nation.

Issues of evaluation of the impact of the HPS approach also remain unresolved. The HPS approach is intended to focus on children’s health outcomes (Mitchell et al., 2000), as well as addressing structural initiatives designed to support individual development. It does this by targeting the school environment at different levels, most notably the school curriculum (Stears, 1998), physical and psychosocial environment, and school-community networks. But despite the fact that health has been acknowledged as a crucial goal of schooling for well over a decade (Nutbeam and St. Leger, 1997; Booth and Samdal, 1997), and a raft of WHO documents consolidating research and expert opinion about the effectiveness of school health programs, comprehensive and systematic approaches for monitoring the impact of environments (“settings”) on children’s physical, psychological, social and emotional development have been scarce. Also, despite growing attention to the establishment of school health curricula and targeted health promoting interventions, surprisingly little research has addressed the relationship between school climate or other aspects of the school environment, and children’s health outcomes (Samdal, Nutbeam, Wold and Kannas, 1998). Likewise, little research has investigated similar impacts on teachers’ health or wellbeing.

The International Union of Health Promotion and Education (IUHPE, 2000) has recommended that any evaluation of health interventions at the level of
the school environment must consider various factors encompassing what is
known as the “eco-holistic model of the HPS” (Parsons, Stears and Thomas,
in Jensen and Simovska, 2002). This model unites the three facets of the
setting (Figure 2.8):

► Physical environment (lighting, heating/cooling furniture, eating facilities
and so on);
► Psychosocial environment (nature of relationships between members of
the school community, the “ethos” and values of the school); and
► Organisational structure (planning and implementation, timetabling,
budgets, and administrative processes).

This figure is not available online.
Please consult the hardcopy thesis
available from the QUT Library

Figure 2.8: The Eco-Holistic Model of the Health Promoting School.

It recognises the complex interplay of many factors on health, and addresses
not only the physical environment but also those influences within the social
environment, namely quality and quantity of relationships, social roles within these relationships, and intrapersonal variables such as values, attitudes, feelings and personal habits or preferences. The 'hidden curriculum' within the school - the norms, values and cultural practices of school life, as well as the health of teachers and pupils is important.

Four key aspects of the HPS have consistently been shown to be fundamental to the effectiveness of the school:

- cohesiveness, built around genuine, empathic, and mutually supportive relationships between staff and students;
- democratic participation of all members of the school community in the life of the school;
- clarity of expectations, rules, norms and values; and
- opportunities for personal responsibility (autonomy) in planning and decision-making\(^\text{15}\).

Interestingly, three of these four variables occur consistently in the social capital literature as key elements underpinning civil society, whilst it could also be argued that the capacity for autonomous planning and decision-making is an element of human capital. Yet the link between these theoretical constructs does not appear to have been made, nor have any empirical studies addressing this framework been identified.

Despite recurring issues about effectiveness of the HPS framework, adoption of this approach has been encouraging, and the evidence suggests that schools are able to integrate the criteria for this framework into their organisational structures. It offers a set of operational strategies within a logical and evidence-based conceptual framework that clearly demonstrates effective outcomes, at least where it has been appropriately evaluated. Unfortunately, however, most implementations of the approach, and their associated evaluations, tend to be lacking in sophistication, often due to failure to conceptualise the model within an holistic framework.

The imperative to implement the HPS approach as a “whole-school” initiative, rather than simply focusing on curriculum-based strategies to promote better health behaviours, has been demonstrated by recent Swedish research (Nilsson and Lindsrom, 1998). Based on a salutogenic model of health, which suggests that health depends on developing meaning within the worlds that surround us, Nilsson and Lindstrom suggest that people have access to many resources that can help them come to understand the world as an organised and structured reality. These resources can be either internal capabilities (such as sense of humour) and motivation, or external resources available within the worlds in which they operate (such as access to mentors, or a strong social network), and they play a major role in the way that people deal with the challenges of everyday life. It is the experiences that we encounter throughout our lives that builds a “sense of coherence”, a belief in one’s capacity to have control over one’s life, that shapes a sense of connectedness or a feeling of belonging which has been demonstrated to underpin numerous health outcomes.
It is this underlying set of principles that distinguishes the HPS approach from other school-level interventions, in that implementation of the HPS framework by definition integrates multi-level strategic approaches to foster the wellbeing of all members of the school community, across all three levels (teaching and learning; interpersonal and social relationships; and school ethos and environment). One widely recognised example of the approach is the model adopted in the UK, which even though it was designed to comprehensively implement the HPS model, still fell short to some extent.

In 1995 a national survey was conducted in the UK to evaluate the Wessex Healthy Schools Award scheme, which had been instigated three years earlier. Pilot schools undertook to address nine key areas covering health education curriculum, policy development, lifestyle behaviours, healthy workplace, the environment, pupils’ responsibility for their own health, and the wider community. Questionnaires were returned from 78% of the Health Promotion Units. Of these, 51% had a Healthy Schools Award Scheme operating in their district, accounting for 845 schools. Over half of these were being conducted in primary schools (Thomas, Benton, Keirle and Pearsall, 1998).

The survey found that the health education curriculum was the most common target for change, with greatest emphasis on behavioural risk factors such as smoking and healthy eating. Only 21% of schools addressed staff-related health. Whilst this investigation demonstrates widespread commitment to the HPS approach, it did not provide convincing evidence that the HPS approach affects the knowledge, attitudes or lifestyle behaviours of children or staff, nor did it demonstrate any substantial change in the school ethos, environment, or
wider links with the community. This more global level of auditing has general use in terms of tracking levels of adoption of the HPS model, and those elements of it that are most acceptable at regional, state or national level. But it provides no useful data for an individual school to set targets for change and monitor progress towards these.

2.8.2 Evaluations of the HPS Approach.

The HPS approach recognises the extraordinary potential of the school setting for shaping the health not only of children, but also of school personnel, families, and local communities through the adoption of strategies designed to promote personal development in combination with systematic environmental changes at a “whole-school” level (Nakajima, 1996). It is a complex approach to school management and implementation that inevitably demands sophisticated methods of evaluation. This section provides an overview of evaluations that have been conducted to date, with some comment on the approaches and outcomes.

One of the earliest attempts to evaluate the impact of the HPS was commissioned in 1993 by the Health Education Authority (HEA) in England for the European Network of Health Promoting Schools. Over 500 schools completed baseline questionnaires about their health education policies and activities. Nearly 6,000 pupils in pilot and reference schools also completed questionnaires. The results clearly demonstrated that children’s levels of knowledge about healthy lifestyle habits had increased. Unfortunately this was not necessarily reflected in self-reported behaviour or attitudinal change (Schagen, 1998). A key issue arising from this study indicated the importance
of adopting more comprehensive approaches to auditing the HPS environment that include a range of measures extending beyond knowledge, attitudes, and behaviours. Comparable before-and-after audits of the status of health promotion in each school, using a variety of information sources, may prove more valuable for evaluations of this approach (Balogh and Bond, 2001).

Rivers et al. (2000) reported that audits of the UK scheme depended on self-reports by a variety of school and community personnel, with indicators such as staff commitment, pupil awareness of the scheme, and success with gaining outside funding. The usual difficulties with self-report surveys, such as tendencies towards social bias, low response rates from some respondent sectors, and lack of objective verification of data, plagued both these studies. A weakness revealed from these studies was their failure to measure more subtle components of the scheme, or “hidden indicators” (such as school’s readiness to change), or to validation of the audit instruments and data collection methods.

Probably the largest attempt at a HPS evaluation was the school profiling project conducted by Stears (1998), who carried out a large-scale formative evaluation of the implementation of the HPS approach in six European countries including Ireland, Lithuania, Poland, Portugal, Romania, and Sweden. The results indicated that schools in all countries had addressed teaching styles as a core component of the HPS approach, as well as all targeting the enhancement of social, emotional and physical health through environmental changes such as committing to a smoke-free environment. Whilst comprehensive in nature and hence addressing issues of possible
cultural bias, this project makes no mention about the impact on measurable health indicators. Stears’ greatest contribution was the development of an instrument for profiling and monitoring health promotion assets within a school founded on the HPS model (Stears, 2000). However, whilst his school profile may be of considerable use for research purposes, little attempt was made to determine its acceptability at school level.

The Western Australian School Health Project (WASH) may be the earliest example of a comprehensive school health promotion intervention using indicators as part of its evaluation framework in Australia. Operating over a four-year period (1992-1995), it adopted community development principles to guide school-based interventions targeting the health and physical education curriculum, the school environment (physical environment, and policies and procedures), school nutrition, access to school health services (nursing, dental and vaccinations), school counselling services, and school staff health promotion activities (healthy meals and health information).

Evaluation of this project included regular monitoring of changes in knowledge, attitudes, and behaviours of WASH school participants, as well as tracking indicators of school organisational processes and community involvement. Surveys, key informant interviews, and audits of official school documentation were used for the evaluation, perhaps the first time that such a comprehensive process for validating the evaluation data has been undertaken. The project demonstrated that sustained organisational changes supporting health promotion are possible, with intervention schools:
- 39 times more likely than comparison schools to have a health committee;
- 26 times more likely to have a current health policy;
- 8 times more likely to have full staff support for health promotion;
- 9 times more likely to have a health budget;
- 33 times more likely to use community resources to complement school health programs; and
- 12 times more likely to provide staff health promotion activities.

Although the WASH Project demonstrated that high-intensity health promotion planning and interventions at school level can significantly affect the outcomes of school health promotion programs (McBride, 2000), further research is needed to determine what effect the intervention has on student, or teacher, health behaviours over a sustained period of time. Equally importantly, cost-benefit analyses of this approach are needed (Cameron and McBride, 1995), and replication of the methodology to determine validity of the various evaluation strategies. As a corollary of this, however, is the need to develop not only an approach to evaluation which offers high validity, but also one that is “cost effective” from the school’s perspective: evaluation methods that are complex and time consuming simply will not be adopted by schools already overloaded with the core business of teaching.

McLellan, Rissel, Donnelly and Bauman (1999) suggest that future school-based health promotion interventions must assess the needs of all players within the school environment directly if they are to have any hope of successfully influencing health risk behaviours and health outcomes. One difficulty arises from the complexity of identifying the various levels of “need”
within the school environment. For example, using an approach based on the WHO Cross-National Survey of Health Behaviours in School-Aged Children (HBSC) with a sample of 3,918 students, they found that the prevalence of health risk behaviours was positively influenced by perceptions students have towards the school environment and teachers. This suggests that indicators of the HPS approach should consider not only obvious indicators such as proportion of children having access to nutritious food, but “hidden” indicators such as perceptions of the environment.

Evaluations of the approach have also typically been simplistic and ignored many subtle influences at work within the school setting. Rowling and Jeffries (2000) warn that these “indirect indicators” of HPS performance are often overlooked. For example, teachers’ comfort with presenting some materials such as sex education in an expanded curriculum should be taken into account whilst evaluating, as it is these “hidden” factors that can, in fact, influence evaluative variables such as more directly measurable curriculum components.

Unfortunately, sophisticated approaches to measuring these variables within the school setting have not been developed in a way that allows cross-national, or even intra-national, comparisons of outcomes. Thacker (1994) suggested that measurement of effectiveness of an intervention as complex as the HPS movement requires sophisticated, multi-level outcomes measures, including impact of policy developments, societal consequences of interventions, cost-benefit analyses, and legal and ethical considerations. In practice, such evaluation strategies are costly and time-consuming, and have not been widely implemented despite a continuing clamour for “evidence”.

105
The added difficulty, however, of the application of sophisticated measuring approaches is their unwieldiness, and hence lack of acceptance by school personnel, many of whom do not view such information as “core business” of schools despite acknowledging the importance of creating a positive school culture.

Developments to school curricula (Stears, 1998) and teachers’ attitudes towards the approach (Turunen et al., 1999) have more recently been investigated. School improvement research, which evaluated school environment as a determinant of children’s developmental outcomes, evolved in parallel with the HPS model (Nutbeam and St.Leger, 1997). However, surprisingly little school-based health promotion research has focused on teachers’ health, with evaluations typically addressing children’s health outcomes despite the HPS approach being defined as one that “can be characterised as constantly strengthening its capacity as a healthy setting for living, learning and working”, (Mitchell et al., 2000). Applications of organisational effectiveness research do not yet appear to have been adopted for investigation within the HPS framework, despite the plethora of research demonstrating effective organisational processes. Such evaluative research requires the development of sets of indicators, or measurable datasets that allow monitoring of outcomes. The development of such datasets within the health promotion field, and particularly with regards to school health promotion, has not progressed to any significant degree.

One possible explanation for this is concern that uniform indicator sets fail to recognise the uniqueness inherent in community-level health programs or interventions (Edberg, Wong, Woo, and Doong, 2003). On the other hand,
with increasing government accountability for determining effectiveness of interventions, a systematic framework that could guide the collection of effectiveness data makes sense if only for reasons of consistency and efficiency (Winett, 2002). Winett’s suggestion that health promotion has failed to establish strong bridges between theoretical models of health psychology, social marketing, and program development and evaluation, reflects the critical need for frameworks that guide evaluation in this field.

St. Leger (1999) has advocated the use of indicators within school-level evaluative research, arguing that they provide a promising framework for the evaluation of HPS interventions. The First European Workshop on evaluation of the Health Promoting School was held in Bern/Thun, Switzerland, in November 1998, with representation by eighty-two people from 35 countries. Jill Pattenden from the University of York, UK, presented a report that used indicators grouped into three key areas at international and national levels and six key areas at school level. Her model includes key areas of dissemination, impact and structures at three levels:

- Dissemination includes indicators that serve as measures of the spread of the HPS concept.
- Impact includes indicators that show that strategic planning is taking place to enable the growth and implementation of the HPS concept. This includes legislation, policy, influence and acceptance in the political and scientific community.

[^16]: [http://www.who.dk/ENHPS/Evaluation/20020605_1](http://www.who.dk/ENHPS/Evaluation/20020605_1)
Structures include indicators that demonstrate defined working infrastructures encompassing management and coordination, collaboration, resource allocation, and coordinating teams.

The three extra key areas for schools include the formal, taught curriculum and the contextual curriculum, which covers school ethos, environment and family and community involvement, and action competencies:

- Formal curriculum – indicators can show curriculum change and what is involved in the active promotion of change (e.g. key actors such as teachers, governors, parents, local education adviser support; resource allocation; school ethos and acceptance of the concept and teaching approaches it requires).

- Contextual curriculum – indicators measuring improvement in the ethos, environment and social climate, and links with families and the community.

- Feelings, attitudes, values, competencies and health promoting behaviours – indicators demonstrating positive attitudes, exploration of values taking place, increase in knowledge, skills and health related behaviours.

These key areas each include indicators for measuring outcomes as well as processes. They show how an organisation is performing in relation to the aims of the ENHPS, and its impact on the health, well-being and life skills of young people. Each key area includes a number of indicators, each of which includes examples of ways in which it can be measured. However, whist
useful for research purposes, this approach is unlikely to be readily accepted within the school setting.

The Second Workshop on Practice of Evaluation of the Health Promoting School, held in Switzerland in 2001, reported several tested tools for evaluating a HPS\(^\text{17}\):

- Tracking down Successes for Sustainable Development – the EVA 2 Project diagnoses the implementation of the ENHPS network;
- ENHPS indicators for HPS (WHO/EC/Council of Europe) assess and monitor the development of health-promoting schools;
- the Health Behaviors of School Children (HBSC) Survey monitors health-related behaviour among adolescents;
- the Healthy Schools Assessment Tool (Parsons et al, 1998) evaluates health-promoting assets in schools and measures progress against established criteria;
- Monitoring and Recording Health Promoting Assets in Schools (Irish HPS Network);
- Victoir’s School Health and Behaviour Questionnaire;
- Self-appraisal checklists in formative school health education;
- Measures of school/educational innovation, e.g. Level of Institutionalisation scales, Health Teaching Self-efficacy Scale.

The EVA 2 Project was set up in 1998 by the European Network of Health Promoting Schools (ENHPS) to evaluate the HPS approach across 21 networks in Austria, Belgium (the Flemish-speaking and the French-speaking

regions), Denmark, Finland, France, Germany, Greece, Ireland, Luxembourg, the Netherlands, Norway, Portugal, Spain (Spain, Andalusia, the Basque Country and Catalonia), Sweden and the United Kingdom (England, Scotland and Wales).

School health promotion as developed through this project concentrates on curriculum content as well as defining a clear vision of the school’s social goals, health promotion principles and changes in the school’s physical and social environment, for the benefit of all who have a stake in the school. It has established a framework for guiding program development and evaluation with sets of indicators for assessing outcomes (Figure 2.9).

This model clearly demonstrated that the approach is sustainable within all educational contexts, although in countries with heavily beaurocratised educational systems it is less readily adopted. Having a common identity through the ENHPS was cited as a core feature of the approach in the European context, along with references to the holistic concept underpinning all HPS initiatives.
Figure 2.9: The HPS Framework adopted by the ENHPS.

More recently, an international project initiated by Charles Viljoen in South Africa\(^\text{18}\) aims to develop indicators associated with factors and activities within school settings that contribute to the physical, psychological, social, environmental, and spiritual well-being of students as well as their families. These indicators could be used to monitor school policies, services, programs, and health and educational outcomes, that is, those personal, organisational and environmental variables contributing to development of the school community, and could provide the basis for a school-friendly method of assessing progress towards HPS status. Viljoen’s indicators provide a useful tool for translating the ENHPS framework into a useable commodity.

The School Health Index (SHI), recently released by the National Centre for Chronic Disease Prevention and Health Promotion (CDC, 2002) in the US, is perhaps the first comprehensive tool designed specifically for schools to

assess the strengths and weaknesses of their health promotion policies and programs, and use this assessment to develop action plans encompassing various domains recognised as part of the HPS framework\(^9\). The SHI is based on a team assessment of 8 components of the school policies and programs:

- Health policies and environment;
- Health Education;
- Physical Education and other Physical Activity Programs;
- Nutrition Services;
- School Health Services;
- Counselling, Psychological and Social Services;
- Health Promotion for Staff;
- Family and Community Involvement.

Each module contains a questionnaire that is completed by the school principal, relevant teaching personnel, school nurse, other relevant staff, parents, and community health agency representatives. The 78-item questionnaire asks respondents to rate the extent to which each policy and/or strategy is being implemented along a 4-point Likert scale (Fully in place, Partially in place, Under development, Not in place). A total score for each module can be calculated. Each module includes comprehensive explanations of each rating level, and questions that can be used to translate results into planning. A planning template is also provided.

\(^9\) Available at [http://www.cdc.gov/nccdphp/dash/SHI/middle_high.htm](http://www.cdc.gov/nccdphp/dash/SHI/middle_high.htm)
Whilst it is acknowledged that research must continue to address the need for conceptual clarity with regards to the HPS, and to develop evaluation approaches and tools that get to the complex nature of this approach, it is equally important that schools have access to resources that can guide them towards creating an environment that meets the definitional criteria for a HPS, and provide them with tools for monitoring their progress toward defined targets. The CDC School Health Index provides a tool for this purpose. However, whilst practical in nature, and certainly much needed within the HPS domain, no data are provided concerning the validity of the SHI. To some extent, comparisons of ratings across respondent groups within a school (that is, teachers, administrators, and parents) could be conducted, but issues such as inter-item correlations, reliability, and construct validity, have yet to be provided for this instrument. Finally, no data are provided regarding acceptability of the instrument at school level, raising concerns about its ultimate usefulness in all but the most committed of schools.

Few Australian studies have addressed measurable changes in health and/or cognitive outcomes, either of students or school staff, in Health Promoting Schools despite the school as a work environment having been clearly implicated as a determinant of teachers’ health (St. Leger, 1999; St. Leger and Nutbeam, 2000). Only two Australian studies have been found that specifically evaluated outcomes from the HPS approach, and both of these focused only on students. The Hunter Region Health Promoting Schools Project investigated changes in three health risk behaviours across 22 schools – smoking, unsafe alcohol consumption, and inadequate solar protection (Lynagh, Knight, Schofield and Paras, 1999). It was conducted
from 1995-1997, but no data pertaining to prevalence of health risk behaviours have been found. The study did identify a number of important facets for implementation of HPS projects.

McLellan, Rissel, Donnelly and Bauman (1999), using an approach based on the WHO Cross-National Survey of Health Behaviours in School-Aged Children (HBSC), found that in a sample of 3,918 students, the prevalence of health risk behaviours was positively influenced by perceptions students have towards the school environment and teachers. Whilst not specifically evaluating the HPS approach, this groundbreaking study clearly points to the need to consider the school ethos as a significant determinant of health outcomes, not only for students but also for teachers. The authors suggest that future school-based health promotion interventions must address the school environment directly if they are to have any hope of successfully influencing health risk behaviours and health outcomes.

Unfortunately, efforts to demonstrate conclusively that the HPS approach is superior to any other in affecting population health indicators within the school setting are noticeably scant. One of the few studies specifically investigating relationships between students health outcomes and dimensions of the school environment collected self-report data covering 30 health indicators from a large sample of secondary school students in Switzerland (Vuille and Schienkel, 2001), along with students perceptions of school climate. His was defined according to a composite set of variables including sense of wellbeing at school; relationships with teachers and peers; and degree of participation in school decision-making and planning.
Results indicated that students in schools with good school climate rated their health status higher than those in schools with poorer climate. A comparative gradient of school climate and self-rated health was found. The study also found that social gradients disappeared by the mid-teens, and were replaced by school climate as a key determinant of self-rated health. Replication of this study with younger children is critical to determine the extent to which school climate determines health of younger children. In addition, given that the HPS framework encompasses a number of critical elements, identifying the relative proportion of contribution of each of these to self-rated health, as well as knowledge and skills for wellbeing and health, is critical for further evaluations of this model.

Such research would substantially add to the conceptual understanding and definition of what makes a “health promoting school”, which remains poor even among teachers (St. Leger, 1998). Lister-Sharp (1999) has provided perhaps the most comprehensive review of the HPS approach, and drew attention to the ongoing lack of understanding of the model or its parameters amongst those working in the education sector. He suggests that schools may be meeting many of the HPS criteria without explicitly adopting the “health promoting school” label or registering with a national association, simply because school personnel are not familiar with the initiative.

This lack of conceptual understanding of the HPS model appears to be widespread. Lee and colleagues (2003) reported that “teachers [in Hong Kong] think mainly about school health in terms of curriculum, have little understanding of how community partnership might work, and have little pre-service and in-service training”. He highlights the critical need for both
substantial improvements to teacher training not just about the HPS approach, but in building the capacity of teachers to participate fully in the processes of implementing this framework. The traditional “divide” between the health and education sectors, which is routinely cited as a major barrier to widespread implementation of the approach, should, according to Lee, be bridged given that health is a prerequisite for effective learning, and knowledge and skills (learning) form the platform upon which a civil and healthy society is built.

St. Leger (1999) argues evaluations of the HPS framework must use internationally accepted outcomes indicators if they are to be given any credibility. Such methods offer more sophisticated approaches to evaluation and may overcome many of the methodological problems inherent with earlier attempts to evaluate interventions in complex social systems such as schools. The use of indicators also provides a framework for making judgements about future developments. No such internationally recognised sets of indicators currently exist, although some international collaborative projects are focusing on this.

Finally, Lister-Sharp and his colleagues (1999) have commented on the apparent neglect of the crucial role of teachers as potential “agents of change” in the life of students, or attention to systematic interventions that also target teachers’ health, noticeable in all reviews of school-based health promotion. Given that schools are regarded as a “microcosm of the larger community” (Booth and Samdal, 1997), this seems to be a profound omission. No Australian studies have yet been identified where the health and wellbeing of teachers in HPS have been evaluated, despite the fact that the health of
teachers is explicitly recognised by the WHO as an integral component of this approach (Lister-Sharp et al., 1999). School personnel, and in particular teachers, influence the diffusion of health messages and adoption of lifestyle change amongst children. They also play a fundamental role in establishing the organisational climate and social capital within the school.

Whilst these evaluations of the HPS approach have focused on defining the model and its various structural components, the impact of this approach from the perspective of health outcomes for the full range of members of the school community, including school staff and students' families, has not been widely researched, nor has the organisational framework associated with adoption of the HPS approach been reviewed for its potential impact on health. Such a review must search more deeply into a number of other areas of health promotion evaluation, namely both theoretical and empirical models defining the impact of environmental factors on health outcomes.

There is now abundant evidence demonstrating the interaction between social environments and health. For example, interactions between numerous dimensions of the work environment and employee health have been elucidated. Health promotion programs within the school setting must begin to take into account the direct and indirect effects of the many subtle processes operating within these systems, not only from a health outcomes perspective but also from an organisational perspective. The impact of organisational practices operates at multiple levels, and none of these, such as the impact of the school environment on the health of teachers and other school personnel, can be ignored as they all interact to determine the overall effectiveness of the setting.
2.9 SCHOOLS AS THE FOCUS FOR POPULATION HEALTH RESEARCH.

Public schools in the western world are facing unprecedented challenges, not least of which are rising rates of criminal activity amongst the young, increasing cultural diversity, mounting failure of education systems to cope with children’s complex learning needs, and ever-diminishing resources to put towards a steadily increasing demand that the ills of society become theirs to solve. According to Canadian population health data, people with low levels of education suffer poorer health and wellbeing. Compared to non-graduates, high school graduates\(^{20}\):

- use preventative medical services 11% more frequently;
- make 2% fewer multiple visits to doctors;
- have 23% better knowledge of health behaviours;
- have 13% better general health status; and
- have 26% better family functioning.

Australia’s “Childhood Determinants of Adult Health (CDAH) Study” is a longitudinal prospective study designed to identify those features of children’s lifestyles and other risk factors that determine health outcomes such as mental health and a variety of physical health outcomes such as diabetes. Whilst the value of studies of this nature is unquestioned from a population health perspective, they all too commonly fail to take account of the influence of social environments, or settings, on health.

\(^{20}\) http://www.hc-sc.gc.ca/hppb/phdd/overview_implications/10_education.html
Because of growing scrutiny and criticism of the education system, the identification and measurement of those elements of the school environment that influence young people’s development has become increasingly important (Guglielmi and Tatrow, 1998). Mounting public health concern about the mental health of young people has further fuelled the search for understanding of how their social environments shape young people’s development (Nicholson, Oldenburg, McFarland and Dwyer, 1999). However, the most notable feature of this vast research is the failure to consider the influence of teachers on both the school social and organisational climate (or culture), which is known to impact on young people’s development, as well as the direct influence that comes from their part as role models.

Schools provide an environment more complex than the average for the study of social influences on health. They are multifaceted organisational settings that have a direct influence on population health through the socialisation of children and young people, as well as the influence they play, as a work environment, in shaping health behaviours and outcomes for their staff. Not only do they do this through the usual channels of influence associated with the workplace, but added to these is the subtle influence arising from vicarious exposure of school staff to health-promoting learning opportunities through exposure to the health curriculum.

In perhaps the largest international study of children’s health behaviours and their determinants, the WHO “Health Behaviours of School-aged Children (HBSC) Study”21, initiated in 1983, is intended to identify those features of social environments that determine children’s and young people’s health

21 http://www.hbsc.org/overview.html
outcomes. Currently 36 countries, including Australia, participate in the study. However, few publications addressing the impact of the school environment on children and young people have appeared, and none has addressed teachers’ health or wellbeing as part of that school environment. Samdal et al (1998) looked at students’ satisfaction with the school and found that dimensions of the school climate explained between 26% and 41% of students’ satisfaction with the school, with data collected from Finland, Latvia, Norway and Slovakia. Fair treatment, a sense of safety, and support from teachers were the most common dimensions of school climate that influenced the young people.

More recently, Maes and Lievens (2003) concluded that “research on how social environments of schools can contribute to the etiology of adolescent health behaviour is scarce, sometimes inconsistent, and no definitive conclusions can be drawn” (p. 519). After conducting a multilevel analysis involving students in 29 schools, they concluded that, whilst school-level characteristics such as structure and policy variables did seem to have some influence on some health behaviours of students (smoking, drinking and tooth brushing), health promotion policies appeared to have no impact on health behaviours. Again, this casts some doubt over the direct influence of school, environmental features on young people’s health outcomes, but as with previous research, no consideration is taken of the mediating influence of teachers, either through direct role modelling or indirect expression of attitudes, on these outcomes.

The human dimension of the school social environment, namely teachers’ “social” and “human” capital, continues to receive scant attention as a
potentially critical influence on children and young people’s behaviours, attitudes, and inevitable health outcomes, despite a plethora of literature demonstrating the effects of social environments on health and wellbeing. Moreover, no research has been identified that has looked at the role of Health Promoting Schools principles on teachers’ health, either subjective wellbeing or health risk behaviours, despite considerable literature emphasising the impact of the school (or work) environment on specific dimensions of teachers’ health such as job stress.

Central to this thesis is an evaluation of one approach, the Health Promoting Schools (HPS) initiative, to determine the extent to which it influences the school social and organisational environment, teachers’ health behaviours, psychological wellbeing, and commitment to the job.

2.9.1 Organisational Health in Schools.

The measurement of organisational health in schools has recently emerged, in large part due to increasing pressure to demonstrate school effectiveness. School effectiveness research is concerned with exploring differences within and between schools, with a view to demonstrating the extent to which various school-related factors determine various outcomes. The earliest known studies were conducted by Coleman (1966, in Goldstein, 1997), followed by development of “performance indicators” such as average school achievement scores throughout the 1980’s and 1990’s. Criticisms arose from this approach due to the resultant ranking of schools rather than identification of factors that could explain school differences, with a view to enhancing the overall performance of the education sector.
Although all schools attempt to improve student achievement test scores and graduation rates, other outcomes like parent satisfaction or involvement in local community life may or may not be articulated goals towards which they are working. That is, schools vary somewhat in the goals towards which they are working (Anderson et al., 1994), making the definition and measurement of school effectiveness a complex task.

In her “meta-review” of the school effectiveness literature, Anderson (1994) identified 228 variables associated with school effectiveness. Instructional and home environments were found to have a greater influence on learning than variables such as demography or district educational policy. At the same time, some schools were found to be more robust – they remained effective and efficient despite disabling environmental conditions – and managed to consistently show evidence of superior performance. These schools were defined in terms of having superior “organisational health”.

More recently, Wyatt (1996) has reviewed the literature on school effectiveness research and concluded that a great deal more information is needed about the relationships between various organisational factors in schools and the outcomes being assessed, including interactions between organisational factors such as school policies and leadership styles. Identification of those facets of the school organisational processes that promote effectiveness is critical if schools are to provide the outcomes expected by an increasingly fragmented and socially complex world. In addition, greater emphasis on teachers as agents of change within schools if needed, in particular, identification of school organisational practices that promote employee wellbeing and hence productivity.
Few instruments are available for measuring aspects of the school environment in Australia, and there is limited published research demonstrating efficacy of any one particular instrument or methodology. Those few studies available tend towards collecting self-report data rather than using more rigorous measures, therefore raising questions about the validity of results given that self-report questionnaires provide only respondents’ perceptions or opinions about aspects of the environment. The small amount of research investigating this suggests that perceptions may in fact vary considerably from the facts. Furthermore, most instruments, with the exception of only two examples (School Culture Inventory and School Level Environment Questionnaire) collect only teacher perceptions, rather than providing a measure of the discrepancy between the teachers’ perception of the environment and their view of the way it should be, that is, the ideal.

Another significant weakness of the instruments available is the focus on collecting data from school personnel only, either teachers and/or principals. Only two instruments collect data from parents, and three from students. Finally, given that no national benchmarks are available in this country against which to compare actual school performance or climate, cross-school comparisons are methodologically weak.

Another dilemma related to measurement is the issue of exactly what element of the school environment is being measured. Halpin and Croft’s early work introduced the idea that “Personality is to the individual what ‘climate’ is to the organisation” (1963, in Anderson, 1982). Shortly after, Sergiovanni (1967) demonstrated that some aspects of the school environment contributed to
“high job feelings” (these being recognition, achievement, and responsibility), while other aspects of the environment contributed exclusively to “low job feelings” (these being interpersonal relations, supervision, school policy and administration, low status, and feelings of unfairness), for teachers. The question is, are the processes affecting these outcomes measures of school climate, or school organisational health?

The most widely adopted definition at least in recent literature is that of Hoy and Hannum (1997), who define school climate as “the relatively enduring quality of the school environment that is experienced by participants, affects their behaviour, and is based on their collective perceptions”. Kaplan and Geoffroy (1990) defined it as “how students, teachers, administrators, and the community feel about their school” and suggested that it includes “the total physical and psychological environment to which people respond”. Esposito (1999), in commenting on the dearth of evidence relating to the effects of school climate on children’s social development, also adopted this definition. Gaziel (1997) states that the term organisational climate has been used interchangeably with “organisational culture” for some decades to refer to “members’ perceptions of the school work environment”, and despite being operationalised it remains an elusive concept. However, his distinction between shared perceptions (which are part of the organisational climate definition) and shared beliefs (which are part of the organisational culture definition) helps to distinguish the two concepts.

Anderson (1982), who undertook the first comprehensive review of the school climate construct, used Tagiuri’s (1968) taxonomy of climate-related words to obtain a more precise definition of the concept. This taxonomy draws on
various dimensions of the environment including its ecology (physical and material aspects), its milieu (the social dimensions arising from interactions between persons and groups), its social system (patterned relationships between persons and groups, such as hierarchies), and its culture (the prevailing belief systems, values, cognitive structures, and meanings). She argued that Tagiuri’s taxonomy is a broader construct than that defined by Moos (1974), which tends to focus more on the impact of the human environment.

Since Carolyn Anderson’s comprehensive review in 1982, a substantial body of research has confirmed that school climate does indeed have an effect on both students’ and teachers’ outcomes. Students’ academic achievement (Hoy and Hannum, 1997), psychosocial development including truancy and school drop-out (Baer, 1999; Esposito, 1999), and aspirations (Plucker, 1998) have been empirically linked to school climate. At the same time, school climate has been associated with numerous teacher outcomes including health behaviours (Cullen, Baranowski, Baranowski, Herbert, de Moor, Hearn and Resnicow, 1999), job satisfaction (Xin and MacMillan, 1999), alienation (Thomson and Wendt, 1995), and empowerment (Short and Rinehart, 1993). Cotton (1996) found a clear link between student outcomes, school size and teachers’ experience. School demographic variables such as drop-out and graduation rates, and school family structure, have been associated with student achievement (Sutton and Soderstrom, 1999; Caldas, 1999), as has student relationships (Niebuhr and Niebuhr, 1999). Even school building design has been implicated in students’ psychosocial development (Earthman
and Lemasters, 1996). However, there have been few models explaining how this works, or what interactive effects determine the final outcomes.

Wang’s (1995) review of the past 25 years’ research into school effects concluded that regardless of the variables explored or the research methods employed, consistent evidence has accumulated to demonstrate that school environment does influence student outcomes. More recently, Peterson (1997) concluded from her review of the school climate literature that four variables consistently comprise the notion of “school climate”:

- teacher efficacy;
- collegiality as promoted by the principal (including shared decision-making and staff development);
- student achievement; and
- parent involvement.

However, she failed to include several of the other variables known to influence school climate, namely the physical environment (noise, layout of buildings, access to aesthetics) or beaurocratic structures (school policies, staff wages, workloads), as well as the contextual variables such as neighbourhood characteristics. Despite prolific publications attesting to numerous factors determining school climate, as well as an equally prolific body of research demonstrating its impacts on members of the school community, the term remains largely undefined, and the pathways by which it influences health outcomes remain unclear.
Nearly thirty years ago, Sergiovanni (1967) confirmed that some aspects of the school environment contributed to teachers’ reports of “high job feelings” (these being recognition, achievement, and responsibility), while other aspects of the work environment contributed exclusively to “low job feelings” (these being interpersonal relations, supervision, school policy and administration, low status, and feelings of unfairness. Occupational stress and burnout are known to affect individual outcomes such as job satisfaction (Borg and Riding, 1991; Chaplain, 1995), absenteeism, and work performance (Burke and Greenglass, 2002; Greenglass, Burke and Konarski, 1997).

Environmental factors (including physical, social and cultural) are known to influence behavioural outcomes (Cullen and Baranowski, 1999). A school environment which promotes orderly behaviour by students, teachers’ knowledge of other teachers’ courses, a spirit of innovation, constructive interaction between teachers (collegiality), and efficient administrative support seem to be critical conditions for teachers to work effectively (Newmann, Rutter and Smith, 1989), as well as providing a significant contribution to teachers’ health outcomes (Cullen and Baranowski, 1999).

Certainly in schools, forging an identity that joins the students with the school – also known as school connectedness – is widely recognised as a precursor for positive developmental outcomes for children and young people, but is less obvious when it comes to promoting a similar sense of connectedness between staff and school. Tomer’s (1998) argument would be that the school
overtly promoting this amongst all members of the school community – students, families, staff, and the neighbourhood – will ultimately become more productive, with health assumed to be one of the outcomes to which the school strives.

Apart from burnout, psychological distress and depression have been reported as health consequences arising from the unique demands of the school environment (Griffith, Steptoe and Cropley, 1999). Occupational stress and burnout are known to influence personal as well as organisational outcomes, such as job satisfaction, absenteeism, and work performance (Burke and Greenglass, 1995). Commonly reported sources of work stress experienced by teachers include lack of resources, poor relations with colleagues, inadequate salaries, student misbehaviour, and difficult interactions with parents (Punch and Tuetteman, 1991). Consistent empirical research has demonstrated that job satisfaction predicts teacher commitment and retention, along with work performance and absenteeism (Tuettemann, 1991; Shann, 1998; Scott, Cox and Dinham, 1999; Tsui and Cheng, 1999). These factors contribute to school effectiveness and inevitably shape school climate.

Lifestyle-related health risk behaviours have also been associated with school climate. In the first study of its kind, Cullen and Baranowski (1999) demonstrated a modest relationship between higher fruit and juice intake and lower fat intakes amongst teachers with high job satisfaction, and those teachers reporting high organisational climate scores on the Organisational Health Inventory. They suggested that organisational characteristics should,
in future, be considered as having a moderating effect on school-based health promotion interventions.

There has been scant research where organisational theory has been applied to school effectiveness research (Griffith, 2003). The earliest investigation of links between organisational factors and school effectiveness or performance using both organisational health (objective) and climate (teacher perceptions) measures was reported by Hoy, Tarter and Bliss (1990), who compared two self-report instruments used widely in the literature – the Organisational Climate Description Questionnaire (OCDQ-RS) and the Organisational Health Inventory (OHI). The utility of these instruments in predicting teacher commitment and student academic performance was compared across 872 teachers in 58 secondary schools in an eastern US state, and showed that:

- three of the organisational health variables (institutional integrity, resource allocation, and academic emphasis) correlated with students’ academic achievement;
- only one climate variable (teacher frustration) was related to academic achievement;
- all of the variables were correlated with organisational commitment;
- four of the five climate variables were significantly associated with commitment.

The authors concluded that the several dimensions of organisational health were more strongly related to student achievement than the climate measures, even after controlling for socio-economic status. The OHI was also a slightly better predictor of teacher commitment than the climate
variables. They suggested that the selection of the construct to be measured, when it comes to using self-report measures of the school environment, must be guided by the independent variables being investigated: health variables are better predictors of goal achievement, innovativeness, loyalty (commitment), and cohesiveness, while climate variables are better predictors of communication patterns, leader authenticity, motivation, and participation. This research needs to be extended by investigating the correlations between both organisational health and organisational climate variables with other objective data reflecting the state of performance of the school.

More recently, Griffith (2003) used a path analysis model to examine the extent to which various organisational factors determined school effectiveness measures. His results indicated strong positive associations between staff collegiality and access to staff training, and administrator support with staff job satisfaction (correlations ranged from .60 to .93). Open management systems that were reflected in staff empowerment and staff collective responsibility were strongly associated with positive staff-parent relationships, and this in turn influenced students’ achievement progress. This study clearly demonstrates the close links between teacher-related variables, organisational variables, and children’s development.

Similarly, Polansky and Jones (1988) investigated the relationship between educational finance and organisational effectiveness or “health” in 50 Connecticut secondary schools. Seven organisational health characteristics were used (leadership, cohesiveness, resource utilisation, adaptiveness, optimum power equalisation, morale, and planning. Financial variables included average class size, percent of teachers with postgraduate education,
teacher salary, enrolment, per student expenditure, instructional supply per student, student services per student, special instructional programs per student, special state aid per student, and federal aid per student. The question was: Do schools that spend more foster better organisational health?

Data were collected using organisational health questionnaires completed by 1,310 school staff, along with a review of archival data. Four variables were modestly related to the organisational health of the high schools – amount of federal aid per student, per student expenditure, maximum teacher salary, and enrolment (school size). This research supports the assertion that the true profile of “health” of the school as an organisation must take account of perceptions of those most associated with the work environment, as well as objective indicators collected from archival data since these will in turn have an impact on the quality of the school environment.

However, many limitations are inherent in the collection of such data, in that many of these so-called objective variables are ambiguous or determined by factors outside the control of the school. Teacher absenteeism for example may be determined by a multitude of factors, only some of which relate to health or stress-related illness. Others such as class size might also be determined by a range of forces such as school demographics or prevailing political forces. Some variables may be discretionary (influenced by policies set by the school, such as teacher-student ratios and amount of time focused on various learning tasks), whilst others are non-discretionary (influenced by outside factors, such as percentage of minority students) (Anderson, Weinstein, Strykowski and Walberg, 1994). One variable consistently
overlooked is teachers’ wellbeing, which could be measured either directly, or indirectly by determining levels of job stress.

**2.10.1 Teachers’ Job Stress**

Growing scrutiny and criticism of the education system has significantly increased pressure on teachers (Guglielmi and Tatrow, 1998). The expanded social responsibilities of schools, lack of parental support, limited career prospects, lack of recognition from superiors, lack of resources, poor relations with colleagues, inadequate salaries and concerns about increasing levels of student antisocial behaviour or violence are consistently implicated as causative factors of negative health outcomes in teachers (Punch and Tuetteeman, 1991; Tuetteeman, 1991).

The literature is replete with research identifying personal and organisational factors predicting teacher stress. Emotional exhaustion has been associated with work overload and lack of co-worker support (Janssen, Schaufeli and Houkes, 1999). Sources of stress reported by teachers include lack of resources, poor relations with colleagues, inadequate salaries, student misbehaviour, and difficult interactions with parents (Punch and Tuetteeman, 1991).

Nearly twenty percent of replies to an ACTU survey of work stress came from the education sector. The top five most commonly reported causes of work-related stress in the education sector (with percentage of respondents indicating this was a problem in their school) were increased workload

---

(83.3%), organisational change (70.7%), long hours (59.8%), limited career opportunities (46.0%), and job insecurity (35.8%).

These results confirmed two previous Australian studies of teacher stress. O'Connor and Clarke (1990) identified time and workload pressures, student factors, tension with staff and administrative procedures, and community factors as key sources of stress for teachers, while Macdonald (1995) reported dissatisfaction amongst beginning physical education (PE) teachers arising from lack of status, repetitive nature of the work, limited decision-making, personal and professional surveillance, and unprofessional staffroom culture. Neither of these studies linked teacher stress or dissatisfaction with attrition rates.

Boylan's (1993) two-year study of 1,100 teachers in rural New South Wales found that work-related factors contributed to the intention to leave the workforce – turnover intentions - for about two thirds of teachers in the study. Despite steadily increasing teacher attrition in Queensland up to 1996, it appears that there has been only one systematic investigation into reasons underpinning these trends, that is, Hart’s three-year investigation conducted in the mid-1990’s. Attrition has been declining although the trend amongst “new” teachers, those with three or less years of experience, has not changed greatly (Graph 2.1), but no systematic monitoring is undertaken to evaluate these trends or to identify factors that might reduce the prevailing rates of employee losses.
Graph 2.1: Rates of Teacher Attrition in Queensland 1995-1998. (Data provided by Education Queensland, Performance Measurement and Review Section).

In probably the most comprehensive study undertaken in Queensland, Hart and his team (1999) collected measures of the organisational climate, staff satisfaction, intentions to quit, absenteeism, subjective work experiences, coping strategies, and personality variables from 5,000 school staff (representing 27.7% of primary school teachers) across 109 Queensland schools (representing 11% of state primary schools) over a three-year period (between 1996 and 1998). Their report showed that over the three-year period of the study, morale increased and occupational stress levels fell. School climate was the most significant determinant of occupational stress and morale amongst teachers in this department, with leadership style of the principal identified as the most powerful force behind organisational climate. Education Queensland consistently outperformed other public and private
sector organisations, with teachers apparently one of the least stressed occupational groups. One explanation for this proposed by the authors is school size, since clear evidence suggests that size of the organisation contributes significantly to organisational health.

According to the National Occupational Health and Safety Commission, workers compensation claims by teachers for job stress, both nationally and in Queensland, have declined substantially over the past five years. However, whether this is a reflection of improvements in the workforce, or increased difficulty with making and settling claims, is unknown. Comparative figures between the number of claims lodged, and the number of claims accepted, are not available. In addition, these data do not reflect the anecdotal claims by teachers to the effect that the last decade has seen consistently greater stress in the workplace.

Given that organisational stressors determine levels of emotional exhaustion (Hubert, Gable, and Iwanicki, 1984; Greenglass, Burke and Konarski, 1997), McCormick (1997) has suggested that interventions at the level of school “culture” to address teacher stress and mental health are likely to be most worthwhile. Yet few studies have examined the interactive effects of work environment factors in the school and teachers' health outcomes, despite international reports of alarming increases in teacher stress, emotional exhaustion, psychological distress, depression and burnout (Griffith, Steptoe and Cropley, 1999; Janssen, Schaufeli and Houkes, 1999). For example, an International Labour Organization (ILO) United Nations Educational, Scientific and Cultural Organization (ILO-UNESCO) Joint Committee (1994, in Macdonald, 1995) reported on an international survey that revealed that
stress was a significant health problem for 25-33% of teachers, and a major contributing factor to teacher attrition.

Borg’s (1990) review of the occupational stress literature for British educational settings concluded that there is insufficient evidence to suggest that, compared to other professions, there is greater stress-related mental or physical ill-health amongst teachers, since teachers who are unwell may simply report more stress. Whether or not this is the case is yet to be determined, and is dependent on developing measures suitable for assessing the many complex interacting elements.

More recently, O'Halloran and Hart (1996) identified school organisational practices and leadership issues as major determinants of teacher stress, low morale, and “teacher withdrawal” in a longitudinal study investigating the relationship between teacher stress and WorkCare claims in Victoria. However, their research depended on self-report data, which continues to be plagued with methodological controversy. Of even greater concern is the dearth of research directed towards developing interventions aimed at enhancing the school environment as a workplace.

Whilst there is an enormous literature addressing workplace health promotion and evaluating various interventions, few have looked at the school setting from the perspective of being a workplace. The Health Promoting Schools approach, with its conceptual focus on teachers’ as an integral part of the school environment, includes the dimension of school-as-workplace in a framework aimed at enhancing the health not only of children but also of school personnel, families, and local communities. Yet no investigations could
be identified in which this approach was evaluated to determine its impact on
the wellbeing of teachers, or on organisational factors related to teachers’
health outcomes such as job stress, a precursor for employee turnover.

2.10.2 Teachers’ Job Satisfaction

In a series of studies conducted with the Victorian Department of School
Education, Hart and his colleagues showed organisational climate
(employees’ perceptions of their work environment), and positive work
experiences (administrative support, career opportunities, relations with co-
workers, and good management styles), were inversely related to
Personality characteristics had only minimal effects on this dimension of
school organisational health. This study was replicated by Dinham and Scott
(2001) with 71 schools in Western Sydney. They found that 50% of teachers
were dissatisfied with their jobs, and that school-based factors such as
leadership, climate, decision-making, and school infrastructure contributed
significantly to dissatisfaction.

Taking Hart’s model a step further, Fresko, Kfir and Nasser (1997) found that
professional self-image (that is, teachers’ self-rated teaching skills) had a
strong association with intrinsic job satisfaction (defined as including fulfilment
in the areas of interest with the job, opportunities for initiative and
advancement, efficacy, purpose and application of skills). Job satisfaction
predicted commitment to teaching (occupational commitment). It appears that
a complex array of variables, only one of which is personality characteristics,
underpins occupational stress and job commitment.
Finally, a proxy measure for job stress is staff turnover, which can be a reflection of job commitment. Job commitment can be either an outcome determined by organisational processes, or a determinant of organisational climate or health. Job commitment amongst teachers has only recently come under systematic investigation, arising from increasing rates of teacher attrition around the world, but again no research could be found in which job commitment was examined within a defined organisational context such as that offered by the HPS approach.

### 2.10.3 Teachers’ Job Commitment.

In a report by the Australian Senate Employment, Education and Training References Committee, “A Class Act” Crowley (1998) stated, “… all is not well in the teaching profession, and it is generally agreed that there is a widespread crisis of morale amongst teachers”. This report refers to high drop-out rates amongst beginning teachers (highest in the first 2 years of teaching), a decline by 11% since 1991 in the number of higher education students choosing education as their career, and a decline in the number of younger people entering the profession (the percentage of teachers under 40 has decreased from 21.8% to 16% from 1991 to 1996). Employee turnover is considered a reliable indicator of workforce job satisfaction, and is strongly determined by organisational climate (Hart, 1999).

Sturman found that teachers' job satisfaction does not necessarily equate with job commitment. Using a job commitment scale based on ratings to two statements: ‘I often think about leaving my job’ and ‘I will probably look for a

---

23 [http://www.nfer.ac.uk/htmldocs/html/Outcome_QWT.html](http://www.nfer.ac.uk/htmldocs/html/Outcome_QWT.html)
new job in the next year', on a scale of 2-10, the mean was 6.07. There was no significant difference between primary and secondary teachers. She concluded that even though teaching was seen to be a satisfying job, other factors appear to be involved in creating a commitment to that job in a particular school. In a study reported by the UK General Teaching Council (GTC) and the Guardian newspaper addressing the question of teacher commitment, some depressing truths were exposed. Over half of its respondents felt that their morale was lower than when they first entered the profession, a third regretted going into teaching at all, and roughly one in three expected to have left their job within five years\textsuperscript{24}.

Tsui and Cheng (1999) found that morale amongst school staff is one component of school organisational health that strongly predicts teacher commitment through interactions with other variables such as position and years of service. The extent to which personality variables and negative affect influence employees’ intentions to leave the workplace, compared with organisational factors such as social climate and work experiences, have yet to be fully identified.

Finally, in a recent study conducted with 54 schools in Israel, Nir found that teachers’ job commitment was strongly linked to school organisational health. He concluded “teachers in healthy schools reported higher levels of commitment to the school, to students’ academic achievements and to students’ social well being in comparison to teachers working in unhealthy schools” (p.15). Healthy schools were characterized by higher levels of teacher participation in school’s decision-making processes, principal’s

\textsuperscript{24} \url{http://www.spiked-online.com/articles/00000006DCB5.htm}
behavior that was both task and achievement-oriented, and a clear articulation of work expectations, standards of performance and procedures by principals. Other “healthy school” characteristics included good team morale, and a principal who expressed a genuine concern for the welfare of the teachers, a collective sense of friendliness (also referred to as “collegiality”), and openness and trust among staff. In essence, “healthy schools” displayed high levels of “organisational health” and “social capital”, but whether the HPS model can deliver such criteria in empirical evaluations of the approach has yet to be demonstrated.

2.11 CONCLUSION

It is now well established that features of our social environments, and in particular those with which we have most interaction, such as the school and the workplace, play a significant part in shaping health outcomes. This review has examined both empirical evidence demonstrating particular facets of social environments and their respective influences, as well as theoretical models explaining the processes of influence.

The school setting provides a unique environment in which to explore the interactions between environmental factors, and health outcomes, across a number of key dimensions. Not only do schools play a critical role in determining children’s educational outcomes, but they also play a pivotal role in shaping psychosocial development. In addition, schools are also the workplace for adults, and for communities provide a hub which can have considerable influence on community attitudes and functioning, including
population health outcomes. School effectiveness research should take into account the many levels on which the school performance could be assessed, as well as considering these complexities in theoretical modelling of health outcomes related to the school setting.

This review has indicated that evaluations of school effectiveness, both in general as well as in relation to the Health Promoting Schools (HPS) approach, typically address children’s developmental and health outcomes. Few studies have investigated the impact of this approach on teachers, and even fewer have considered the interactions between systemic factors such as human and social capital within the school setting, teachers’ wellbeing, and children’s psychosocial or educational outcomes.

The effects of the school environment on various teachers’ health outcomes, and in particular their mental health, should be a significant focus for research. Teaching is widely regarded as a stressful occupation, and most developed countries face significant problems with high rates of teacher attrition and stress-related compensation claims. Yet little research has addressed the systemic or organisational factors that impact on teachers’ health and wellbeing.

Mental wellbeing, and job satisfaction, as dimensions of human capital, are a resource which forms the building-block for a healthy organisation and ultimately determines levels of productivity or output. Within the school setting, output (or school effectiveness) relates to children’s developmental attainments, both intellectual and social. It is well-established that school organisational “health” or capital determines school effectiveness. Ewing (in
Bolding and Van Patten, 1982) stated “Organisations achieve only what individuals achieve collectively. So the personal wellbeing of the individuals within the organisation is an essential element of organisational health” (p.2). Surprisingly few evidence-based research studies have investigated structural approaches to reducing mental stress in teachers, and those that have been conducted rarely investigate elements of the school organisational or social environment (Jarvis, 2002). None has evaluated any systematically structured approach to school management, such as the Health Promoting Schools model.

Since teachers are the key element for school effectiveness, this thesis argues that it is timely to be paying attention to those dimensions of the school social and organisational environment that affect their wellbeing. This imperative is fuelled by increases in teacher stress and burnout that have been observed in many western countries, adding to the importance of research identifying organisational factors that predict potentially negative outcomes for teachers, in addition to positive developmental outcomes for students.

A number of unique aspects of the school environment have been clearly shown to affect teachers’ health. Typically the focus has been physical health, such as exposure to parasitic and viral infections, fatigue, and work-related injuries. Growing focus is being placed on teachers’ mental health, such as job satisfaction, trauma through exposure to violence, and prolonged stress. There is a plethora of research demonstrating structural approaches to minimising health risks in the workplace, including those related to mental health risk, yet few have addressed the teaching profession or schools.
Given the current status of “duty of care” obligations in Australia, it is concerning that so little research has been directed towards identifying those features of schools that have low rates of compensation claims, absenteeism, or turnover. That is, we know very little about what makes a school “strong” or rich in the assets that foster teachers' commitment and high performance.

This review of the literature suggests that the organisational health variables promoting employee wellbeing coincide with the core principles underpinning the Health Promoting Schools approach. However, more sophisticated approaches are needed to investigate these complex phenomena, most notably drawing on a diverse range of theoretical models as well as empirical research from a variety of fields which intersect to explain the influences of environmental factors on health.

This research draws together contemporary understandings from a number of diverse disciplines, including social ecology, workplace health promotion, organisational healthy psychology, and management theory, to argue that the HPS approach provides a valid and valuable set of principles for managing schools in a way that will significantly reduce teachers’ job stress, and with it the associated costs. The research to be undertaken and reported within this thesis aims to build a metatheory that unifies the disparate literatures previously examined. It aims to investigate pathways of influence between the work environment of the school setting, and teachers’ health outcomes, whilst extrapolating this into a theoretical model that might provide a framework for future research designed to identify structural approaches to promoting children’s psychosocial outcomes such as resilience. It will do so by hypothesising that certain organisational health variables foster the
development of “assets” or capital – both human and social – within complex social systems such as schools. This is reflected at various levels, in the children as educational performance indicators and as measurable psychosocial development, and in the teachers as indicators of occupational health psychology, namely health, psychological wellbeing, and commitment to the workplace, each of which is a form of human capital. This emergent modelling will be integrated into a theoretical proposition that extends the established Demand-Control Model to encompass a third critical dimension, namely that of capital within the system, to be proposed as the Demand-Control-Capital Model of School Effectiveness. Capital within social systems is proposed to play a mediating role between job demands and psychological control.

By adopting a management model that prevents costly teacher burnout by implementing proactive management practices known to promote job satisfaction and commitment in the workplace, the HPS framework should be regarded as a “best practice” model of school management. This research sets out to demonstrate the effectiveness of this approach, whilst also providing a theoretical description of the principles underpinning the success of the model.

The following chapter outlines the key research questions arising from this review, followed by a description of the methods used to investigate the research questions.
CHAPTER 3

Research Design and Methods
3.1 INTRODUCTION AND CONCEPTUAL FRAMEWORK FOR THE RESEARCH.

This chapter outlines the conceptual framework for the research studies conducted for this thesis. There were four stages to this research as set out in Figure 3.1 – the conceptual preparation and review of the literature reported in the previous chapter; development of instruments and procedures for data collection, including pilot studies; data collection; and finally analysis and reporting of the results. The methods followed for each stage of the research will be described in detail in this chapter.

This research encompassed two key themes – examination of conceptual frameworks underpinning organisational health within the school setting, followed by empirical testing of the hypotheses. At conceptual level, the themes addressed issues of organisational culture and climate, and its impact on employee health (workplace injury, specifically work-related stress) and organisational outcomes (job commitment). A theoretical framework linking organisational health and social capital, and exploration of their roles within health outcomes theory, was derived.

On a practical level, the preparatory phase of the research identified suitable methods and instruments for measuring both the extent of adoption of health-promoting practices within schools, and then employee perceptions of organisational culture and climate. Two instruments were developed and their psychometric properties analysed as part of this research. Both provide schools with screening instruments that have considerable potential for use in strategic planning and organisational development, as well as for use in future evaluations of health promotion research within the school setting.
Figure 3.1: Outline of Research Plan
3.2 OVERVIEW OF RESEARCH DESIGN AND PLAN OF ANALYSIS.

The research was conducted with state urban primary schools in Queensland, Australia. A cross-sectional two-group design was used to compare schools that reported adopting a range of strategies consistent with the HPS approach with a control sample of schools not specifically adopting this approach. The research was designed in two phases reflecting the need to pilot test self-report instruments for the research including identifying suitable schools, followed by the main investigation of the key research questions.

A checklist based on World Health Organisation (WHO) indicators defining a HPS was designed for the first phase of the research, and used to conduct a statewide audit of government primary schools. Validation of the instrument was conducted following the audit. Two samples, defined as “high HPS” and “low HPS” using key WHO indicators of HPS status, were selected on the basis of the audit.

A survey of teachers’ perceptions of the school organisational and social capital variables (work environment), as well as personal health and lifestyle variables, was conducted for the second phase of the research. The key outcome variables investigated included teachers’ job stress, health risk behaviours, psychological wellbeing, and job commitment, which was defined as an indicator of organisational health. This phase of the research entailed development of a self-report instrument for teachers, compiled from selected subscales from four relevant published instruments. Work environment variables investigated were grouped into two categories – functional “organisational health” measures
(leadership style, involvement in decision-making, role clarity, goal congruence, professional growth, interpersonal relations, appraisal and recognition, and organisational commitment), and values-focused “organisational capital” measures (social proactivity, feelings of trust and safety, tolerance of diversity, and value to the organisation), which are linked to the social capital literature. This was verified through the inclusion of selected measures of school-level social capital. This instrument was pre-tested.

Regression analyses were calculated to examine inter-relationships between individual and organisational variables. Multivariable analyses were then conducted to assess the relative impact of predictor variables on outcomes, as well as determine the relative proportion of unexplained variance in outcomes.

3.3 CONCEPTUAL PREPARATION FOR THE RESEARCH.

3.3.1 Methods of conducting literature review.

The initial literature search focused on theoretical models explaining determinants and outcomes, at individual and organisational levels, of teachers’ job stress (psychological wellbeing) and job commitment. In addition, it explored theoretical of organisational health and social capital along with measurement approaches for these constructs within the general organisational psychology/management literature, as well as more specifically within schools. The search also investigated empirical studies of the relationships between the work environment and health outcomes with a particular focus on job stress and commitment both in general as well as in relation to teachers.
A comprehensive search was also undertaken to identify the literature pertaining to the Health Promoting Schools approach. This included a search of historical documents through the WHO website, which provided conceptual background to the model. In particular, reports of evaluations of the HPS approach and methods used to conduct such evaluations were explored. Published reports of instruments developed to measure various relevant elements of the school environment, and in particular those that based on HPS principles, were sought.

Wherever possible, full text copies of articles were obtained via electronic journals or print journals held in the QUT Library. Abstracts were included in all other cases. Published reports in which identified instruments were used in the field were also collected, and where necessary, authors contacted to supply copies of their instruments and relevant background data or published reports relating to the instrument.

The following databases were searched: ERIC, WinSPIRS, ProQuest, Education Abstracts, Digital Dissertations, PsychLIT, WebSPIRS, CINAHL, MedLine, Journals@Ovid Full Text, InfoTrac, and FirstSearch. General internet searches were also conducted using various search engines including Google, and meta-search engines such as MetaSearch and Surfwax. No time restrictions were applied, but searches were restricted to articles in English, and those from peer-reviewed journals.

The following keywords were used for the searches: Health Promoting Schools; Health Promoting Schools/evaluation; work environment/health; job stress; job commitment; teachers’ health; job stress/teachers; job commitment/teachers; organisational health; school organisational health; school health; school
environment; school effectiveness; school organisational health instruments; organisational health scales; organisational health questionnaires; measuring organisational health; measuring organisational health in schools; measures of organisational health. Similar terms were also used for searching for social capital reports, substituting the term “social capital” for “organisational health”. In the case of specific research instruments, searches were also applied using the titles and authors of each instrument.

Detailed notes were kept throughout the searches of strengths and weaknesses in research designs and methods, as well as apparent gaps in the evidence base, particularly where these related to possible linkages between the various bodies of literature. These then informed the research questions compiled for the research.

3.3.2 Establishment of networks.

In order for the research to proceed, it was necessary to establish lines of communication with various sectors within the Queensland education department (known as Education Queensland). Initial details of relevant departments was obtained from the Education Queensland website (http://www.eq.gov.au) followed by personal contacts via telephone and interviews. Key contacts included personnel from the Performance Measurement and Review Branch, who provided information about ethics approval processes as well as availability of data relevant for the research, and key contact details for District Offices. Correct protocols for making contact with education department personnel were explained, and relevant policy documents (such as Education 2010) were provided.
For administrative purposes, Education Queensland is divided into 35 districts, each with a District Officer with powers to oversee activities within that district, and to liaise with any research being conducted within the district. Letters were prepared and mailed to each of the 35 District Officers informing them of the proposed research and the procedures to be followed. District officers were invited to make contact if they had any concerns with the proposal.

Two meetings were held with a representative of the Education Queensland Performance Measurement and Review Branch to discuss the proposed data collection methods. A meeting was also held with the research team from the Queensland Teachers’ Union to outline the research proposal and its implications. Consultations were also held with members of these departments regarding development of the data collection instruments, to ensure that they met acceptable standards in terms of language and response time.

3.3.3 Ethics Statement.

This study required ethics approval from the QUT Human Research Ethics Committee, the Education Queensland Ethics Committee, and the Queensland Teachers’ Union. Approval was granted after a number of minor modifications were made to the data collection instruments, with approval from the publishers.
3.4 RESEARCH QUESTIONS.

General Research Question:

Does adoption of the Health Promoting Schools (HPS) approach have an impact on the school environment, and how does this determine teachers' health and job commitment in the HPS?

Specific Research Questions:

PART 1: Identification of schools for participation in the research study:

**RQ1.1:** To what extent is the HPS approach being adopted by state primary schools in Queensland?

**RQ1.2:** Can schools adopting the HPS model be differentiated from others in Queensland state primary schools?

Results of a statewide audit of school health promotion activities are presented in the following order:

- Psychometric properties of the HPS Audit Checklist.
- Profile of HPS activity in state primary schools across Queensland.
- Selection of two samples of schools (High and Low HPS) for participation in the School Environment Study.

PART 2: Evaluation of the school environment and its influence on teachers’ health, job stress and job commitment in the Health Promoting School:

**RQ2.1:** To what extent does the HPS approach influence school social and organisational capital?
**RQ2.2:** Does the HPS approach have any influence on teachers’ job stress (psychosomatic strain, perceived job demands and skill discretion), and if so, which work environment variables have most influence?

**RQ2.3:** Does the HPS approach have any influence on teachers’ health risk behaviours, and if so, which work environment variables have most influence?

**RQ2.4:** Does the HPS approach have any influence on teachers’ job commitment, and if so, which work environment variables have most influence?

The results of this part of the research are presented in the following order:

- Description of the respondent sample.
- Psychometric properties of the Teachers’ School Environment Questionnaire.
- Analysis of the research questions investigating the influences of school organisational health and social capital in Health Promoting Schools.

The research will investigate 11 dimensions of school organisational health and 4 dimensions of school social capital, which together will provide a measure of 15 dimensions of the school environment.
3.5 STUDY DESIGN.

This was a case-control cross-sectional research design, in which the unit of analysis was the school (as reflected in teachers’ reports of school climate), with comparisons of Health Promotion Schools with a non-Health Promoting School sample, as well as teachers within the two school samples (as reflected in self-reported health indicators).

Quantitative data were collected using two self-report instruments – the Health Promoting Schools Audit Checklist, designed purposely for this research; and the Teachers’ School Environment Questionnaire, compiled from six published research instruments.
3.5.1 Power Analysis for Sample Selection

As the unit of analysis for this research was the school, power analysis calculations were conducted to determine the most desirable sample size. These calculations were conducted using free software at Raosoft Inc.\(^1\) Table 3.1 sets out the various calculations used to determine sample size.

Given that calculations indicated that a total of between 37 and 45 schools would be needed, a target of 40 schools was set, to be divided into two samples of 20 schools each (one sample rated as "high HPS" and a comparison sample rated as "low HPS").

<table>
<thead>
<tr>
<th>Option</th>
<th>Option 1</th>
<th>Option 2</th>
<th>Option 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acceptable margin of error</td>
<td>10%</td>
<td>10%</td>
<td>10%</td>
</tr>
<tr>
<td>Confidence level needed</td>
<td>80</td>
<td>85</td>
<td>90</td>
</tr>
<tr>
<td>Population size</td>
<td>297</td>
<td>297</td>
<td>297</td>
</tr>
<tr>
<td>Response distribution</td>
<td>50%</td>
<td>50%</td>
<td>50%</td>
</tr>
<tr>
<td>Recommended sample size</td>
<td>37</td>
<td>45</td>
<td>56</td>
</tr>
</tbody>
</table>

Table 3.1: Power analysis calculations.

\(^1\) [http://www.raosoft.com/samplesize.html](http://www.raosoft.com/samplesize.html)
3.6 METHODS OF RESEARCH.

It was proposed that initial selection of the sample of schools for the research would be through the state-based Health Promoting Schools Association. At the time of planning the research, 14 state primary schools were registered as members of the Queensland Health Promoting Schools Association (HPSA-Q) with only 10 located in SE Queensland. Assuming that all of these would agree to take part in the research, this sample size was not sufficient for the research.

Approaches to Education Queensland indicated that no centralised data were available regarding the extent of implementation of systematic health promotion strategies in Queensland state schools. It was assumed that more state schools than those that were registered members of HPSA-Q were, in fact, adopting a variety of strategies consistent with HPS principles. Therefore, in order to identify schools meeting criteria for inclusion in the main study, it was necessary to design an instrument that could be used to rapidly identify quantitatively different levels of Health Promoting Schools (HPS) activities between state primary schools in Queensland.

A review of published documents that have been developed to guide schools in their HPS endeavours, as well as reports on methods used for evaluating the HPS approach was conducted to identify existing checklists and guidelines used both in Australia and internationally for measuring the level of implementation of strategies associated with the HPS initiative. Specific terms included in the search were “audit”, “evaluation”, and “checklist”. The purpose of the search was to identify instruments and data collection methods that might be useful for conducting an audit of HPS activities in Queensland state schools, with a view to
selecting schools suitable for inclusion in the main research study. Qualitative methods were rejected due to the time constraints placed on the study, as well as the key outcomes being sought, that is, quantitative measures of all variables. Likewise, the search was also designed to identify internationally accepted indicators and related strategies that defined key indicators of the health-promoting school.

This review revealed few instruments that could be used for the purpose of this research, that is, to select two samples of schools ranked according to the extent to which they are “health promoting”. Of those that were available, none had been psychometrically validated, and none appeared useful as a brief screening tool.

On the basis of this finding, it was decided to design an instrument for the purposes of the research, and to conduct basic psychometric analyses in order to determine the validity of the sample selection method for the main research study. Various criteria for the construction and format of the instrument were established in consultation with Education Queensland. The processes of development and validation of this instrument, to be used to select schools to participate in the main research study, informed the first research question.

3.6.1 Development of the HPS Audit Checklist.

The aim of this preliminary phase of the research study was to develop an instrument suitable for providing a brief screening measure of the extent to which strategies consistent with the Health Promoting Schools approach (HPS) were being implemented in state primary schools in Queensland.
On the basis of consultation with strategic planning personnel within Education Queensland, as well as School Liaison Officers involved in another research project being conducted concurrently, it was determined that the instrument needed to meet the following criteria:

- It had to meet stringent validity criteria based upon internationally accepted indicators of the HPS approach;
- It required a user-friendly response format for quick completion;
- It needed to be short, that is, take no more than 10 minutes to complete;
- It needed to use core indicators only and those relevant to the cultural conditions of Queensland primary schools;
- Items and wording had to be acceptable to Education Queensland;
- It should demonstrate good internal consistency, validity and reliability;
- It needed to be sufficiently sensitive to differentiate between schools on the basis of internationally accepted criteria defining a “health promoting school”.

**Stage 1: Compilation of a set of HPS indicators**

Evaluation of the HPS approach has been impeded by the lack of a “universally accepted and clear definition of what constitutes a health promoting school” (Stewart, Parker and Gillespie, 2000). In order to begin to identify suitable instruments that might be used as models, as well as compiling indicators currently used for “measuring” implementation of the HPS approach at school level, the following documents were reviewed:
► Audit of School Based Health Promotion Across Australia (AHPSA, 1997), including “Health Promoting School Survey: What’s Happening in Your School?”

► Effective School Health Promotion: Towards Health Promoting Schools. NH&MRC Health Advancement Standing Committee, 1996.

► Staff Schedule and Guidance Manual used by the National Healthy Schools Standard (NHSS) (Personal communication, G.M. Shaw, Canterbury University, UK 26/6/01).

► The ENHPS Indicators for a Health Promoting Schools (Personal communication, Vivian Barnekow Rasmussen, Acting Regional Adviser, European Network of Health Promoting Schools, WHO Regional Office for Europe, 21/6/01).


► Queensland Health’s “Health Promoting Schools: A How To Manual”.


These documents provided internationally accepted sets of strategies and/or performance indicators that might distinguish schools demonstrating a
commitment to the principles of the HPS approach. For example, the ACT Health Promoting Schools Network Strategic Plan 2000-2003 lists the following:

<table>
<thead>
<tr>
<th>Objective</th>
<th>Strategy</th>
<th>Performance Indicator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Promoting co-operative partnerships</td>
<td>Foster inclusion of parents and students at monthly meetings and events organised by the ACT HPSN.</td>
<td>Number of students and parents present at meetings and ACT HPSN events.</td>
</tr>
</tbody>
</table>

Some documents included selection criteria for Healthy Schools Awards Schemes, which has been the approach developed in the UK to guide and provide recognition for schools’ development of the HPS approach. The WHO, which has established a similar set of core principles, has promoted such a scheme along with “checkpoints” to guide schools in working through various levels of program implementation towards full recognition as a HPS (WHO, 1996). Copies of an Australian proposal for such a scheme, including clearly defined “checkpoints”, were distributed by the NSW Department of Health to all New South Wales state schools in 1996, providing another set of performance indicators.

The 1996 NHMRC Health Advancement Standing Committee report “Towards Health Promoting Schools”, prepared by a working party chaired by Professor Lawrence St Leger, included a proposed set of indicators for monitoring school health promotion developments with clearly articulated performance indicators. For example:
Finally, the WHO (2002) has proposed a core set of indicators “defining” a HPS that are clustered into the following categories:

- management structures and policies;
- partnerships;
- ethos and social environment;
- physical environment;
- resources;
- health education curriculum;
- dissemination of the health promoting school concept;
- teaching and learning styles;
- external supports and links with agencies.

Given that the purpose of the audit was to identify quantitatively different levels of HPS activities between schools, an audit checklist using a 5-point rating scale
based on the most commonly proposed HPS indicators was developed. These core indicators were selected on the basis of their frequency of occurrence across those sets available at the time of the review, with decisions made regarding their level of appropriateness for the Queensland state education system. Two versions of the checklist were then prepared. The versions differed only on the semantic structure of the lead questions.

**VERSION 1:**

**INSTRUCTIONS**

Circle the number on the rating scale that best describes how true that statement is for your school at the present point in time, using the following codes:

1. Always true, fully implemented.
2. Mostly true, significant action taken but not yet fully implemented.
3. Often true, some preliminary action commenced.
4. Sometimes true, has been considered but no significant action commenced.
5. Rarely or never true, no action or preliminary considerations commenced.

**SECTION 1**

To what extent is your school implementing strategies and activities targeting the whole school community to support the following (INSERT INDICATOR HERE):

1 = Not at all
2 = A little
3 = Moderately
4 = Strongly
5 = Very strongly
Both versions contained 40 items clustered into 6 sections, each related to the six core HPS indicators - Health Policies, School Physical Environment, School Social Environment, Community Relationships, Personal Health Skills, and Health Services. A supplementary (optional) section invited respondents to provide examples of their school’s health promotion activities during the past twelve months according to each of the six sections of the checklist.

**Stage 2: Consultation with expert panel**

In order to determine face validity of the checklist, a panel of 32 national and international “experts” familiar with the Health Promoting Schools approach was invited to provide comments and suggestions on the first draft of the audit checklist. Initial contact with the proposed panel members was made via electronic mail, with an invitation to review the draft audit checklists and complete a short feedback sheet. Members of the panel are listed in Appendix 1:

Approximately three weeks later those panellists who agreed to review the material were emailed a copy of both draft audit checklists, a short outline of the proposed research, and a feedback sheet. The panellists were asked to consider:

- Visual appeal of the checklist;
- Quality and clarity of instructions;
- Appropriateness of the scoring format;
- Appropriateness of each section and included items;
- Clarity of wording of items;
- Relevance of items to the Australian school setting;
• Length of time required to complete the checklist;
• Consistency of items with international definitions of the HPS.

Reminders were sent two weeks after the initial distribution of the checklist if no reply had been received by that time. In two cases, the original panellists forwarded the original request to other colleagues. At four weeks after the draft checklists had been sent out, feedback had been received from ten of the panellists. Several had sent emails indicating that they were unable to comment at this point in time due to work commitments but expressed interest in the project.

**Stage 3: Revision of the Audit Checklist**

Whilst not all panellists commented on each point on the feedback sheet, general consensus was that Version 2 was the better form due to greater clarity of the structure of the questions. The comments of each panellist were reviewed to ensure compliance with Education Queensland’s requirements. Brevity was the most crucial requirement of the department. At the same time it was considered critical for the study that the potential for differentiating between schools was optimised whilst at the same time maintaining the integrity of the core criteria for defining a Health Promoting School. For this reason, a question about the extent of collaboration between all levels of the school community (students, staff, parents and local community) in the school’s development of HPS strategies was included in each of the six sections, since several panellists suggested that such collaboration in planning and enacting HPS practices was the crucial factor differentiating a HPS.
The audit checklist was then forwarded to the Principal Policy Officer in the Office of Strategic Planning in Education Queensland for consideration of its appropriateness within the Education Queensland state school context. A meeting was held following the department’s consideration of the draft document, and a number of minor changes made to the checklist. These included deletion of several items considered inappropriate for Education Queensland state schools, along with some minor re-wording of other items to simplify the questions.

The final version of the Health Promoting Schools Audit Checklist consisted of 40 items clustered into 6 sub-scales, with each item rated along a 5-point Likert scale. Each sub-scale related to an internationally accepted indicator associated with the HPS model:

- Indicator 1: Health Policies (9 items)
- Indicator 2: Physical Environment (6 items)
- Indicator 3: Social Environment (7 items)
- Indicator 4: School-Community Relations (5 items)
- Indicator 5: Personal Skill-building (7 items)
- Indicator 6: Access to Health Services (6 items)

A Total Audit Score (composite of each of the 6 sub-scales) was calculated for each school. This was a continuous (interval) variable.

**Stage 4: Pilot testing of HPS Audit Checklist and data Collection Methods**

In order to pilot the audit checklist and associated materials *in situ*, five schools that did not meet criteria for inclusion in the main research study were invited to contribute by piloting the materials. Each of these schools had student
enrolments in excess of 600 students and principals who were known to be interested in approaches to enhancing the social climate.

Initial contact with the principals was by telephone, to gauge their willingness to complete the audit checklist, followed by mailing them a full package which included a cover letter thanking them for their offer to participate and briefly explaining the project, an information sheet designed for the school principal, a consent form for participation in the audit to be signed by the principal, the audit checklist, and a reply paid envelope pre-addressed to the QUT research team. A copy of the same feedback sheet sent to the Expert Panel was also included. Four of the five schools returned completed audit checklists and the feedback sheet. In all cases, comments regarding the audit checklist focused on presentation rather than content, and minor changes were made according to this feedback.

The draft of the audit checklist was then re-submitted to Education Queensland for final approval. Copies of the checklist and all associated materials were subsequently printed for distribution to principals of all Queensland state primary schools.

3.6.2 Validation of Psychometric Properties of the HPS Audit Checklist.

The aim of this phase of the research was to undertake a population-based survey of the extent of implementation of strategies consistent with the HPS initiative in state urban primary schools in Queensland. There were three main purposes to this:
► to provide the data necessary for validation of the psychometric properties of the instrument;

► to identify characteristics of the state’s schools that might influence commitment to health promotion activities;

► to select two samples of schools meeting criteria for inclusion in the main research study.

School size (number of student enrolments), geographic location (urban and rural), and school socio-economic status (IRSED) were also collected from the school demographic data questions and the Education Queensland website. In addition, other factors were considered to be an influence as possible confounding variables: level of awareness of the HPS model within the school administration; participation of key school personnel in HPS training or networks; designation of a staff role to co-ordinate health promotion activities in the school; and having an established multi-sectoral committee to manage school-level health promotion activities. These four variables defined the different stages towards which a school could progress in terms of its implementation of the HPS model, according to studies overseas where awards are provided for health promotion activities in schools.

It was proposed to use Mann-Whitney U Tests to determine the statistical significance of each of the these independent variables (geographic location, school size, and IRSED), and the four potential confounding variables (awareness of the HPS initiative; attendance at HPS cluster meetings or training; having a designated staff member to co-ordinate school-based health promotion; and having a school committee to co-ordinate school-based health promotion).
Relative sizes of their standardised regression co-efficients were to be compared for the Total Audit Score, and for each of the six sub-scale scores.

3.6.3 Implementation and Analysis of a Statewide Audit of Health Promotion in Queensland State Schools.

After ethics approval was granted from Education Queensland, the Queensland Teachers’ Union, and QUT Ethics Committees, and a courtesy letter sent out to each of the 35 Education Queensland District Officers notifying them of the project, the HPS Audit Checklist was mailed to 966 state primary schools that offered grades OP to Year 7 in the second week of Term 4, 2001. This amounted to 97.6% of all state primary schools. Twenty-four schools were excluded on the basis of being Distance Education schools, integrated with high schools, or listed as “community colleges”.

Each audit checklist was sent with a cover letter addressed to the principal explaining the purpose of the survey, an information sheet describing the research project, a consent form to be signed by the principal and returned with the audit, and a reply-paid pre-addressed envelope. Each checklist was also pre-coded to ensure confidentiality. Two follow-up reminders were sent out to schools that had not returned completed surveys, the first one four weeks after the initial mail-out (N=776 or 80.33% of the first mail-out), and the second (in the form of a bulk email sent to all schools on the database) another 4 weeks later (that is, at 8 weeks after the initial mail-out). Limited resources precluded a second paper-based mail-out.
Data cleaning protocols and a codebook were designed during the final stages of development of the audit checklist, and following the pilot study, in order to code categorical variables (including a set of six questions relating to principal’s knowledge and involvement in the HPS movement, and establishment of designated HPS staff or HPS committees). Other school demographic data collected included staff numbers (full-time and part-time), and student enrolments.

The HPS Audit Checklist included questions about whether the school was a member of the HPSA-Q or intending to join within the next twelve months, and whether they would be available to participate in the main study. More details including the part of the audit in the overall research project, the proposed data collection methods, and confidentiality issues were outlined in the information sheet enclosed with the audit checklist. Once the statewide survey was completed, and data entry completed, statistical analyses using SPSS Version 10.0 were conducted in three phases:

1. descriptive analysis of the survey results to provide a profile of health promotion activities in state primary schools across Queensland (including statistical analysis of potential confounding variables);

2. assessment of the psychometric properties of the data collection instrument including investigation of the inter-relationships between variables using multivariable statistical techniques, with Type I error rate set at 5% (p<.05).

3. ranking of schools according to their total audit score (an aggregate of sub-scores) in order to identify suitable schools for inclusion in the main research study.
The prevalence of defined health promotion activities across all schools was calculated based on frequency analyses with 95% confidence intervals calculated for all prevalence estimates. Profiles were derived to provide information about the prevalence of health promotion activities within specific sub-categories including education districts, school socio-economic groupings, and membership of HPSA-Q. Demographic information about each participating school (education district, student enrolment, number of staff, principal band, and socio-economic grouping) was collected from the Education Queensland website.

After completion of the statewide audit, schools were selected for inclusion in the main study according to those which ranked the highest (Sample 1), and those which ranked the lowest (Sample 2) on their Total Audit Score (an aggregate of sub-scores on each of the 6 scales of the checklist). These two samples of schools were used to test the remaining research hypotheses.
3.7 MEASUREMENT OF WORK ENVIRONMENT VARIABLES IN SCHOOLS, AND THEIR IMPACT ON TEACHERS’ HEALTH, WELLBEING & JOB COMMITMENT.

At the time of planning this research, no publications could be found where teachers’ health outcomes, or upstream organisational factors related to teachers’ wellbeing (namely job commitment), had been investigated within the HPS framework. By combining evidence from both the organisational literature and social ecological inquiries, this research aimed to identify a range of contextual factors contributing to teachers’ health and wellbeing.

3.7.1 Development of Teachers’ School Environment Questionnaire and Data Collection Procedures.

A broad search strategy was used to identify publications concerned with the measurement of the social environment factors within the management literature, and refined to focus on organisational health in schools. The concept of “school environment” was defined as a combination of school organisational health variables (a form of “organisational capital”) combined with school social capital. Social capital is a measure of the quality and extent of social inter-relationships within a setting, and is usually measured at the level of communities. In this research, it is argued that the school setting is a form of community, and can by its very nature generate social capital through adoption of well-defined organisational processes that are implicit within the HPS approach.

Eleven dimensions of school “organisational health” (also referred to as “organisational capital”), and four dimensions social capital, were combined to
provide an holistic assessment of both organisational (management) and social (interpersonal) factors within the school setting, and to determine whether one particular model of school management style, the Health Promoting School (HPS) approach, enhances teachers’ wellbeing and reduces job stress, whilst also promoting job commitment.

For the purposes of this research, only subjective (teachers’ self-reports) measures of the “school environment” could be collected due to constraints imposed by Education Queensland, and resource limitations, although collection of “hard” data such as school policy documents and statistical data was considered. The variables to be investigated are listed below:

<table>
<thead>
<tr>
<th>SOCIAL CAPITAL DOMAINS</th>
<th>ORGANISATIONAL CAPITAL DOMAINS</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Value of Life</td>
<td>• School morale</td>
</tr>
<tr>
<td>• Social Proactivity</td>
<td>• Supportive leadership</td>
</tr>
<tr>
<td>• Trust and Safety</td>
<td>• Decision authority</td>
</tr>
<tr>
<td>• Tolerance of Diversity</td>
<td>• Macro-level decision authority</td>
</tr>
<tr>
<td></td>
<td>• Role clarity</td>
</tr>
<tr>
<td></td>
<td>• Co-worker support</td>
</tr>
<tr>
<td></td>
<td>• Appraisal &amp; recognition</td>
</tr>
<tr>
<td></td>
<td>• Professional growth</td>
</tr>
<tr>
<td></td>
<td>• Goal congruence</td>
</tr>
<tr>
<td></td>
<td>• Curriculum co-ordination</td>
</tr>
<tr>
<td></td>
<td>• Student orientation</td>
</tr>
</tbody>
</table>
The following databases were searched: ERIC, WinSPIRS, ProQuest, Education Abstracts, Digital Dissertations, PsychLIT, WebSPIRS, CINAHL, MedLine, Journals@Ovid Full Text, InfoTrac, and FirstSearch. No time restrictions were applied, but searches were restricted to articles in English. Keywords used in all searches included: organisational health, school organisational health, school health, school environment, school effectiveness, school organisational health instruments, organisational health scales, organisational health questionnaires, measuring organisational health, measuring organisational health in schools, measures of organisational health. Searches were also applied using the titles and authors of each instrument. Wherever possible, full text copies of articles were obtained via electronic journals or print journals held in the QUT Library. Abstracts were included in all other cases.

The following questions provided the focus for the literature review:

- What are the key determinants of organisational health in schools?
- What instruments have been developed for measuring organisational health in schools?
- What psychometric evidence is available in support of these instruments?
- What other methods have been used to measure organisational health in schools?

The review indicated that various approaches have been used to measure dimensions of organisational climate, including systematic field observations, interviews, or use of self-report questionnaires. Use of self-report questionnaires is the most common method used, even though this method provides only employee perceptions of the work environment.
Published reports in which identified self-report instruments were used in the field were also collected as part of the review. Well over 15 instruments were identified from the search. Articles were sorted according to the title of the instrument. A database, using a selection criteria proforma, was set up to record the following information about each instrument: title of instrument, author(s), year of publication, source of publication, purpose of instrument, inclusion of definitional variables taken from Miles (1965) rated as Y=Yes (blank = No), other dimensions measured, response format (such as Likert scale), respondents (teachers, parents, students), number of subscales, number of items per domain, response time, psychometric data (reliability and validity), details of validation studies, unit of measurement (individual or school), school level (primary, secondary), availability of inter-school comparisons (Y=Yes, N=No), Australian samples (i.e. used in Australian-based research) (See Appendix). Wherever possible, articles with attached copies of the test instrument were included.

The most outstanding finding from the search was the plethora of terms used to assess the school social environment, particularly “school climate” and “school-level organisational health”. Regularly, articles purporting to measure either one construct or the other used the terms interchangeably, without any effort to draw distinctions between them, even though conceptually the two constructs are distinct.

Secondly, reports of psychometric properties of instruments were poor or non-existent. Only a very small number of studies had compared instruments in any systematic fashion to determine the most appropriate tool for their research, with the result that many research studies used “home-grown” measures of the school environment, or compilations of sub-scales from published instruments but with
little or no attempt to conduct psychometric analyses of the “new” instrument, and without providing any psychometric analyses to confirm the validity of the instrument.

Most significantly, only two instruments included measurement of teachers’, students and parents’ perceptions of the school environment (School Culture Inventory and NASSP’s Comprehensive Assessment of School Environments). The Effective School Battery (Gottfredson, 1984) included measures for teachers and students. The School Level Environment Questionnaire was the only instrument designed for use in primary schools, although NASSP’s CASE Measures could be used with upper primary students.

Given that few published studies provided a rationale for use of their instruments, it was decided that selection of the "best" instrument for assessing school organisational health in this research would be based on comparisons of the variables being measured against Miles’ (1965) definition of “organisational health”, which is taken as the benchmark in this field. Miles’ Taxonomy of Organisational Health has been described in detail in the previous chapter.

On the basis of the review, the **School Organisational Health Questionnaire (SOHQ)** (Hart, Wearing, Conn, Carter and Dingle, 2000) was considered the most appropriate for this research, as it was the most conceptually related to Miles’ Taxonomy and has also been used extensively with Australian studies, thus providing a set of benchmark data against which these results could be compared. The SOHQ was used in a previous study involving 109 Queensland state primary schools in 1996-98 (Hart et al., 1999). This 67-item self-report questionnaire was designed to measure two levels of wellbeing within the
organisation – that of individual employees, as well as providing a profile of the “health” of the organisation. With 14 domains clustered into 3 broad categories (generic components, school components, and wellbeing components), the SOHQ has been used extensively throughout the public and private sector in Queensland as well as Victoria, South Australia, and Western Australia.

The instrument has good psychometric properties, and a very large sample base (well over 30,000 subjects), which has been used for reliability and validity studies. Principal components analyses followed by factor analyses using the Linear Structural Relations Program (LISREL VIII) have confirmed reasonable fit between items and the theoretical factors from a sample of over 1,500 teachers in Victoria. Item reliabilities were all satisfactory with 87% being equal to or greater than .55 (M=. 67, SD=. 11). This study (Hart et al., 2000) confirmed that 38 items of the SOHQ adequately measure seven different dimensions of organisational climate, as well as Morale.

Two subsequent studies were conducted to examine the psychometric properties of the instrument, replicating the original results and confirming its good construct validity. Work is continuing to determine test-retest reliability. The authors concluded that it “provides the only validated measure of teacher morale and school organisational climate that assesses a range of important organisational behaviour and human resource management issues” (Hart et al., 2000 p. 224).
The SOHQ measures the following domains on a 5-point Likert scale:

- School morale
- Participative leadership
- Professional interaction
- Professional growth
- Curriculum co-ordination
- Student orientation
- Student misbehaviour
- Supportive leadership
- Role clarity
- Appraisal and recognition
- Goal congruence
- Effective discipline policy
- School distress
- Excessive work demands

On the basis of the review of the literature on social capital, it was decided to integrate several key domains of *bridging social capital* into the research instrument. No previous research studies could be found that had investigated dimensions of social capital in Australian schools. In addition to determining the role of social capital in Australian schools and its influence on teachers’ health outcomes, the combination of the two sets of variables provided the opportunity to determine whether social capital and “organisational health” variables were measuring the same, or different, aspects of the school social environment.

After a search of the literature to identify potential instruments for measuring social capital, Onyx and Bullen’s (1997) Social Capital Questionnaire (SCQ) was considered the most appropriate for this research. The SCQ is a 35-item questionnaire used to measure social capital in a number of Australian communities. It has been used to evaluate levels of social capital in five communities in New South Wales, with 1,211 respondents. Original items were selected on the basis of an extensive review of the literature on the conceptual domains of “social capital” as well as searches of other instruments being
developed, followed by presentation of a discussion document at the Australian and New Zealand Third Sector Research Conference in 1996.

The instrument has been well validated. Hierarchical Factor Analysis using the STATISTICA package identified a set of oblique factors and correlations. Canonical factor analysis with Varimax rotation (normalised) was then carried out. Results suggested that 36 of the original items contributed to 8 independent factors as well as one general factor. Item-total correlation scores were in the range of .25 to .45. Further analysis then identified the items that best contributed to each of the 8 elements, and these were retained in the questionnaire.

The authors concluded that although the instrument is simplistic, it provides “a reliable and valid indicator of the underlying health of the community” (Onyx and Bullen, 1997 p. 26). The questionnaire measures the following domains on a 5-point Likert scale:

- Participation in the community;
- Feelings of trust and safety;
- Family and friends connections;
- Value of life;
- Social Proactivity;
- Neighbourhood connections;
- Tolerance of diversity;
- Work connections.

Onyx and Bullen suggest that four of the subscales provide a core measure of social capital – Social proactivity (personal and collective efficacy and willingness to engage in a participative community); Feelings of trust and safety; Tolerance
of diversity; and Value of life (a feeling of being a valued member of the community).

Despite strong similarities between various items in the SCQ and the SOHQ, by combining selected subscales from two well-established instruments, a comprehensive assessment of the “school organisational health” can be derived. An analysis of the conceptual similarities and relationships between “organisational health”, “organisational climate”, “organisational capital”, and “social environment” was conducted to determine whether items or domains were distinct.

Approval was granted from the publishers to modify the original instrument for the purposes of this research. In relevant places, wording was changed to refer specifically to the “school community” in which the respondent currently works, rather than the community in general.

3.7.2 Review and selection of research instruments to measure job commitment.

Work experiences, role factors, and organisational factors determine attitudinal commitments in the workplace, which in turn influence behavioural commitment, or the actions individuals take as a result of their level of attitudinal commitment (Brown, 1996). Tsui and Chen (1999) investigated the relationship between teacher commitment and school organisational health. Although none of the school organisational health variables strongly predicted teacher commitment, a number of interactions with other variables significantly affected the relationship. For example, more senior teachers manifest relatively stable commitment despite changes in school morale, whilst degree of commitment by younger teachers is
strongly influenced by changes in morale. Single teachers show higher commitment, in general, than married teachers. Teachers with different years of service react differently to the morale variable of school organisational health in terms of commitment.

The 36-item Organisational and Occupational Commitment Scales (Meyer, Allen and Smith, 1993) were identified as the most relevant outcome measures for this research due to the dimensions they measure, and their psychometric properties. Various studies have confirmed that there are two distinct attitudes related to identification with the job – commitment to the organisation (organisational commitment) and commitment to the profession (occupational commitment) (Brierley, 1996; Cohen, 1996; Johnson, Johnson and Heimberg, 1999). There is widespread evidence that employees with high levels of organisational commitment show higher performance and productivity, as well as lower absenteeism and turnover (Cohen, 1996).

Despite its dominance of the literature over the past twenty years, the Organisational Commitment Questionnaire (Porter et al., 1974) has recently been criticised (Cohen, 1996), with the result that Meyer and Allan’s (1984) three-dimensional measure of organisational commitment is emerging as a more popular instrument. Their factor analyses confirm three levels of commitment to either the occupation or the organisation:

- Affective commitment is defined as the positive feelings of identification with, attachment to, and involvement in the workplace.
• Continuance commitment is defined as the extent to which employees feel committed to the workplace by virtue of the costs they feel are associated with leaving (such as investments or lack of alternatives).

• Normative commitment is defined as employees’ feelings of obligation to remain with the organisation.

Meyer, Allen and Smith (1993) developed the Organisational and Occupational Commitment Scales based on this model. The full inventory is a 36-item self-report measure of job commitment encompassing affective, continuance, and normative commitment to the organisation (the school at which they presently work) and the occupation (teaching), rated on a 7-point Likert scale. Three additional questions measuring Turnover Intention (giving consideration to leaving the current job) have been added to this scale (Jaros, 1997). Response time for the full scale is about 10 minutes.

Tarter, Hoy and Kottkamp (1990) found positive correlations ranging from .28 (Institutional Integrity) to .44 (Principal Influence) between school organisational health variables and teacher commitment. Meyer, Allen and Smith (1993) found strong positive correlations between affective commitment and job satisfaction (.49) and loyalty (-.38), but little relationship between this and school organisational health variables such as professional activity (r = .07), performance appraisal (r=. 16), and use of time (r =. 13). Neither continuance commitment nor normative commitment was found to have any significant relationships with organisational health variables.

Strong correlations have been obtained for organisational and occupational commitment (Meyer, Allen and Smith, 1993). For the sake of parsimony,
measuring other forms of commitment (continuance and normative commitment) in a setting where response load has to be seriously considered, and where previous research has cast some doubt on their association with employee health, was deemed unnecessary. Thus only the Affective Commitment to the Organisation and the Occupation Scales (12 items plus 3 turnover intention items) were used in this research. The final scale consisted of 15 items rated on a 5-point Likert scale.

3.7.3 Review and selection of research instruments to measure job stress.

Stress, following the definition put forward by Hans Selye in 1975, refers to an individual's response to either internal or external demands. A certain amount of stress can in fact be beneficial for health and wellbeing, providing motivation and an enhanced capacity to produce. But if the demands on the individual increase beyond a threshold level, performance typically weakens, along with subjective wellbeing and health.

The US National Institute for Occupational Safety and Health (NIOSH, 1999), defines work stress as being the harmful physical and emotional responses that occur when the requirements of the job do not match the capabilities, resources or needs of the worker. A vast literature indicates the many health ramifications of job stress. This research indicates that measures of work-related stress must encompass various domains – the perceived level of demand arising from the work situation, the extent to which the employee has control over that demand, personality factors, and coping skills. Health outcomes arising from prolonged

---

stress will also have an interactive effect, setting up a “vicious cycle” of stress-response.

Distinguishing job stress from more serious psychological disorders can be a complex process that further complicates examinations of job-related stress. Inevitably, stress in one domain of life, such as one’s personal life, impacts on work performance and one’s perceptions of the work environment. At the same time, factors within the work environment can impact in significant ways upon personal life stress.

After extensively reviewing the literature to identify valid measures of job stress, the Job Content Questionnaire (JCQ) (Version 1.5) (Karasek, 1996) was selected. This instrument was designed to measure the psychological and social structure of the work situation, including issues such as work demands, decision-making opportunities, social interactions, and psychosocial strain. Extensive research using the JCQ has validated the instrument around the world, and across numerous occupational groups. Five scales from the JCQ were used for this research – Decision-authority and Macro-level Decision Authority, Co-worker social support, Psychosomatic strain, and Psychological Job Demands.

As well as the JCQ, a short clinical assessment scale was included in order to determine the extent to which teachers are affected by the most common general outcomes from stress, anxiety and depression. The Australian National Survey of Mental Health and Well-Being used two new scales, the K6 and K10, to assess the prevalence of DSM-IV mood and anxiety disorders in a nation-wide survey of over 10,000 Australians. Because of the large normative sample and reported validity of these scales, 6 items from the Non-specific Psychological Distress
3.7.4 Measurement of teachers’ health risk and lifestyle behaviours.

The measurement of health status has an enormous literature, with a multitude of scales having been developed. Health outcomes can be measured across numerous dimensions from the purely objective (such as measures of biomedical functioning like blood pressure, heart rate, serum cholesterol, and cortisol levels) through to the purely subjective (such as perceived quality of life).

Hepworth (1997) suggests that this escalating measurement of health status is the result of the WHO call for improved health throughout the world and the need to evaluate interventions as well as establish causal relationships between physical, social or environmental factors and level of functioning. However, as she rightly points out, the diversity of paradigms upon which definitions of “health” are founded directly influences the selection of methods for measuring it. She suggests that “in a social approach health is defined in both positive and negative ways, by evaluating changes that enhance health and wellbeing produced through structural, social and community conditions” (p. 236).

The most extensively used generic self-report health outcomes/quality of life instrument is the SF-36 (Ware, 2000). It measures eight concepts that are generally affected by “disease and treatment”, and was derived from a range of instruments developed throughout the last three decades. These include physical functioning, role-physical (impact of physical conditions on life), bodily pain,
general health, vitality, social functioning, role-emotional (impact of emotional status on life), and mental health. However, the most notable criticism of the SF-36 relates to questions of its utility in non-clinical studies, specifically in research where clinical (either physical or mental) or “functional status” outcomes are not being investigated. It was decided not to use this instrument in preference for a less “clinical” instrument and one more relevant to health promotion outcomes.

After extensive review of the literature, fifteen items were adapted from the CDC Behavioral Risk Factor Surveillance System Questionnaire (2001), which has been used extensively to assess self-rated health (general) and mental and physical wellbeing, along with self-ratings of physical activity levels, smoking, alcohol use, dietary habits, preventative health behaviours (health insurance, physical health check-ups, use of natural supplements), weight, blood pressure and cholesterol, were included in the questionnaire. Of the instruments reviewed, this questionnaire was selected on the basis of its simple format, and although not used widely in Australia has in fact been used extensively in the US. This section contained 15 items rated in a similar fashion to the previous sections.

3.7.5 Pilot of Teachers’ School Environment Questionnaire (TSEQ) and Data Collection Methods.

Since Education Queensland advised that school staff would not be able to commit more than about 30 minutes to complete the self-report questionnaire, only 9 of the subscales from the School Organisational Health Questionnaire (SOHQ), 4 from the Social Capital Questionnaire (SCQ), the Affective Commitment subscales from the Organisational and Occupational Commitment Scales, 5 scales from the Job Content Questionnaire (JCQ), the Kessler-6, and
the 15 items from the CDC Surveillance System were used in this research. Selection of the scales was based on the review of published literature that identified those variables with the strongest relationships between organisational variables and employee health outcomes.

Relevant scales from each instrument were compiled into one self-report instrument referred to as the Teachers’ School Environment Questionnaire (TSEQ). The 134-item questionnaire was designed to measure teachers’ perceptions of the school climate, levels of social capital in the school, a range of health-related variables including job stress and psychosomatic strain, and levels of commitment to their current job and the teaching profession. All scales were based on Likert-scale responses (either 5-point or 7-point). The questionnaire booklet was subdivided into five sections, with an additional sheet for demographic information.

Following the HPS audit and selection of suitable schools for the main study, a random selection of schools not meeting selection criteria suitable for the main study (that is, they were not ranked in the top or bottom 40 schools in terms of implementation of HPS strategies). Three schools were selected for the first part of the pilot study, which was proposed to:

- confirm response time needed to complete the questionnaire;
- identify potentially ambiguous questions;
- confirm appropriateness of methods of data collection
- develop data cleaning protocols;
- provide the framework for setting up data storage and analysis systems;
- refine the research design.
Principals were contacted via telephone to invite their participation. Two methods of survey distribution were piloted, one which included a short presentation to staff with on-the-spot distribution of questionnaire packages, and the other a mail-out to the school (without a formal presentation to the staff).

A formal agreement confirming their participation, acknowledging their full understanding of the aims of the research, methods to be implemented to ensure confidentiality of teacher-level data, expected outcomes, benefits for the school, and data collection requirements, which was to be signed by the principal, was included. An information sheet to be distributed to teachers was provided. Dates were set for a short presentation about the project to the teachers of those schools piloting the first method (staff presentation group). A letter confirming this and outlining the purpose of the research and the pilot study was mailed to the principals volunteering to participate. For the purposes of the pilot study, a set of evaluation questions relating to the format of the data collection instrument and procedures, and the data collection procedures was included.

When the two methods of data collection were compared there was no significant difference in response rates, and teachers were evenly divided in their feedback as to which method would influence their participation, that is, neither one nor the other was regarded as superior.

On the basis of this result, and the fact that to recruit a sufficient number of schools (N=40) to allow for minimal statistical power to conduct the proposed analyses would require selecting schools from around the whole state of Queensland rather than just Brisbane, the decision was made to mail the
questionnaire packages to teachers in the schools without offering a school-based presentation.

A review of the literature was undertaken to identify strategies known to optimise response rates to mail-out surveys, and the following strategies were integrated into the data collection methods:

- a personalized cover letter was included in each teacher's package explaining the value of the study and inviting their participation;
- each package was sealed and labelled with the individual teacher's name;
- stamped return envelopes were provided; and
- questionnaires were printed on green paper.

These procedures were piloted with one school (March, 2002), with a 98% response rate. A short feedback questionnaire was included with each teacher's package. This was structured to provide opportunities for free-form feedback as well as objective measures related to methods to promote a good response rate. The pilot study confirmed that the questionnaire required approximately 30 - 45 minutes to complete. It was not prescribed whether this was to be done by teachers in their own time as individual schools could determine this.

A data-cleaning manual was compiled on the basis of the pilot study. This included decision rules to be followed in the case of ambiguous responses.

Support for the research was provided from the Queensland Teachers' Union, through a short article outlining the project included in the teacher's union gazette.
3.8 SURVEY OF SCHOOL ORGANISATIONAL HEALTH & SOCIAL CAPITAL, TEACHERS’ JOB STRESS, WELLBEING AND JOB COMMITMENT.

The aim of this phase of the research was to determine the extent to which adoption of strategies associated with the HPS initiative affects the school social environment, and teachers’ health and job commitment.

A sample of schools suitable for participation in this study was selected from the statewide survey of school health promotion activities, on the basis of their Total Audit Scores. From the full sample of 274 schools completing the HPS Audit Checklist, all schools were rank ordered, and those schools in the top, and bottom, one-third were identified. They were then checked for school demographic data that were to be used for sample selection. Initially, these criteria were to be school size, IRSED and geographic location. However, the latter two were abandoned when it became clear that more flexibility was necessary to find a sufficiently large sample of schools.

On the basis of the literature review, three potential influences on schools’ organisational practices were identified: school size (Page and Hammermeister, 1996; Bowen, Bowen and Richman, 2000), urban or rural geographic location (Capper, 1993; Ennis and Chen, 1995), and the socio-economic status of the school (Crosnoe, Johnson and Elder, 2004). These data were collected as part of the audit survey; missing details were collected through the Education Queensland website. In order to control for the possible influences of these variables, only schools with 300 – 700 students were considered for inclusion in the main study. Thus all schools meeting criteria were ranked, from low to high.
Distribution of invitations to participate was undertaken in two waves, the first to 56 schools (25 Low HPS and 31 High HPS), and the second wave to 35 schools selected from the sample to replace schools from Wave 1 that either did not respond, or declined to participate. Selection of schools was based on simply working from the top, and the bottom, of the list of schools, in sequential order. A letter was sent to the principal of each school, explaining the purpose of the research and including an information sheet, which was to be disseminated amongst the teaching staff. Principals were asked to confirm the commitment of their staff to participate, or their intention to decline, within two weeks. For those schools that declined, the next school on the list (in either the Low or High HPS category) was contacted using the same procedure. This process was continued until 40 schools had confirmed their intention to participate.

Unfortunately, shortly before the next phase of the data collection, one school dropped out of the study and could not be replaced within the time frame available. The final sample of 39 participating schools was divided into two groups, 20 schools in the High HPS group and 19 schools in the Low HPS group.

Each participating school was required to provide a list of names of their teaching staff. No other identifying information was required. Each name was allocated an ID number based on the school ID number, followed by the personal ID, and a master sheet set up electronically to track responses form each teacher.

A large envelope containing the research materials was then prepared for every teacher in each participating school. Envelopes contained a personally addressed letter inviting participation in the study; another copy of the project information sheet; a consent form requiring teachers to agree to participate or
note their intention to decline; a demographic data sheet; and the Teachers’ School Environment Questionnaire. A stamped, pre-addressed envelope was included for the return of the survey materials. Packages were sent out to a total of 1,273 teachers in 39 state primary schools across Queensland. Each was sealed and labelled with the teachers’ name and school. The bundles of questionnaire packages were mailed to each school with a cover letter addressed to the principal requesting that he/she distribute the packages to staff in the manner most convenient for the school.

3.8.1 Data management.

A database was set up to record responses from teachers. These could be one of five possible responses:

- Return of completed TSEQ plus demographic data sheet, and signed consent to participate;
- Return of demographic data sheet only and consent form refusing to participate;
- Return of TSEQ and consent form (but no demographic data sheet);
- Return of consent form only noting refusal to participate; or
- No response.

Follow-up reminder notices were sent to teachers who had not responded at 2 weeks (FU1) and 4 weeks (FU2) after distribution of the package. The first wave of reminder letters was mailed to 747 teachers who had not returned their completed questionnaires. Three weeks later a replacement package (containing
a second TSEQ plus demographic data sheet and consent form) was sent to 571 teachers who had still not responded.

Original questionnaires were managed and stored according to relevant NH&MRC guidelines. Data cleaning and data entry were conducted according to the guidelines developed from the pilot study. A professional data entry agent entered data into a spreadsheet for data cleaning, using the procedures developed from the pilot study, and then transferred into the Statistical Package for the Social Sciences (SPSS) program for data analysis.

As an expression of appreciation for their contribution, each school was provided with a profile report of their own results, which was mailed to the school with a cover letter offering to discuss the results of the survey with the staff if necessary. These profiles were sent out approximately ten months after data collection.

3.8.2 Data Analysis Plan.

Differences between high-HPS and low-HPS on each dimension of school environment were compared using independent samples t-tests. This statistic is the analytical tool of choice when comparing two independent groups with one categorical independent variable (in this case, low and high HPS) and one continuous dependent variable (in this case, standard scores on 4 social capital variables and 11 organisational health variables.

The scales for all school environment variables (that is, social capital and organisational health) were subjected to confirmatory principal components analysis (PCA analysis) using SPSS 10.0 to determine whether the two variables were measuring the same, or different, dimensions of the school environment.
Job stress was measured across three scales – psychosomatic strain, job demands, and skill discretion – using multiple linear regression analyses.

Commitment to the job was measured using two scales of affective commitment, one to the organisation and one to the occupation of teaching. A third scale measuring Turnover Intentions was also included. Differences between high-HPS and low-HPS were compared using independent samples t-tests.

The following chapter presents the results from both studies, including the profile of health promotion activities in state primary schools in Queensland which provided the basis for selection of the sample of schools for the main study. Results of the survey to investigate teachers’ health (including job stress), lifestyle risk behaviours, and job commitment, are provided. Details of the analyses to validate the data collection instruments are provided.
CHAPTER 4

Research Findings
4.1 REVIEW OF RESEARCH QUESTIONS

The results of the research are presented in two parts according to the manner in which it was conducted. For each part, the relevant research questions (RQ) are provided.

General Research Question

Does adoption of the Health Promoting Schools (HPS) approach have an impact on the school environment, and how does this determine teachers' health and job commitment in the HPS?

Specific Research Questions

PART 1:

The purpose of this phase of the research was to identify two sets of schools suitable for participation in the research study. One set (High HPS) was to be the research sample, those actively implementing policies and strategies consistent with the Health Promoting Schools framework, as defined by the World Health Organisation. The second set of schools (Low HPS) was to be a comparison sample of schools not adopting this framework or undertaking school-level HPS activities. As described in Chapter 3, it was necessary to develop an audit instrument, and conduct a statewide survey of schools, in order to identify the two samples of schools.

RQ1.1: To what extent is the HPS approach being adopted by state primary schools in Queensland?
Purpose:

- Profile of HPS activity in state primary schools across Queensland.
- Selection of two samples of schools (High and Low HPS) for participation in the School Environment Study.

**RQ1.2:** Can schools adopting the HPS model be differentiated from others in Queensland state primary schools?

Purpose:

- To examine psychometric properties of the HPS Audit Checklist to confirm that schools selected for the main study were validly meeting sample selection criteria.

**PART 2:**

Purpose:

The purpose of the main research study was to evaluate any differences in the school environment, and teachers’ health (including job stress) and job commitment, between the two samples of schools (High and Low HPS), and to determine how the school environment affected these variables in the HPS. The results of this part of the research are presented in the following order:

- Description of the respondent sample.
- Psychometric properties of the Teachers’ School Environment Questionnaire.
- Analysis of the research questions investigating the influences of school organisational health and social capital in Health Promoting Schools. The research investigated 11 dimensions of school
organisational health and 4 dimensions of school social capital, teachers’ job stress (psychosomatic strain, job demands, skill discretion), self-rated physical and mental health as well as a selection of health risk behaviours, and job commitment (organisational and occupational commitment, and turnover intentions).

**RQ2.1:** To what extent does the HPS approach influence school social and organisational capital?

**RQ2.2:** Does the HPS approach have any influence on teachers’ job stress (psychosomatic strain, perceived job demands and skill discretion), and if so, which work environment variables have most influence?

**RQ2.3:** Does the HPS approach have any influence on teachers’ health risk behaviours, and if so, which work environment variables have most influence?

**RQ2.4:** Does the HPS approach have any influence on teachers’ job commitment, and if so, which work environment variables have most influence?
4.2 DATA MANAGEMENT.

The HPS Audit Checklist comprised six scales, each reflecting a core indicator associated with the HPS approach (as defined by the WHO). The Total Audit Score was an aggregate of scores from each sub-scale:

INDICATOR 1: Health Policies (9 items)
INDICATOR 2: Physical Environment (6 items)
INDICATOR 3: Social Environment (7 items)
INDICATOR 4: School-Community relations (5 items)
INDICATOR 5: Personal skill building (7 items)
INDICATOR 6: Access to health services (6 items)

Since the main research study was designed to compare two sets of schools, one actively adopting HPS principles (High HPS) and one comparison sample not adopting the HPS model (Low HPS), cut-off points, using percentiles in SPSS V10.0 from the Total Audit Score, were calculated to divide the respondent sample into three roughly equal groups (Low, Moderate and High HPS). Schools with total scores less than or equal to 131 were ranked as “Low HPS”, schools with total scores of 132-146 were ranked “Moderate HPS”, and schools with scores above 146 were ranked “High HPS”. A Moderate group was used to ensure clear distinctions between the two sets of schools used for the main study. The number of schools in each group is shown in Table 4.1.
Data were analysed using both the Total Audit Score (an aggregate of the scores from each of the 6 sub-scales), as well as the score for each of the 6 sub-scales in order to identify differences between the two samples on specific aspects of the HPS model.

Three confounding variables were selected for analysis on the basis of an extensive literature review to identify factors that affect the uptake of school health programs, particularly those that have been used in other evaluative research into the HPS model. The three variables selected were:

- **School geographic location** (urban/rural) – this was defined as a categorical nominal variable.

- **School size** – this was defined as a continuous scale variable but for some analyses it was collapsed into a categorical nominal variable (small, medium, large) depending on the sample size for each group.

- **Index of Relative Socio-economic Disadvantage** (IRSED) – this was defined as a continuous scale variable but for some analyses it was collapsed into a categorical nominal variable (low, medium, high) based on the sample size for each group.

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>%</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low HPS</td>
<td>101</td>
<td>34.4</td>
<td>34.4</td>
<td>34.4</td>
</tr>
<tr>
<td>Moderate HPS</td>
<td>96</td>
<td>32.7</td>
<td>32.7</td>
<td>67.0</td>
</tr>
<tr>
<td>High HPS</td>
<td>97</td>
<td>33.0</td>
<td>33.0</td>
<td>100.0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>294</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

Table 4.1: Distribution of Schools x HPS Status.
4.3 **PART 1: IDENTIFICATION OF SCHOOLS FOR PARTICIPATION IN THE RESEARCH STUDY.**

4.3.1 Description of Respondent Sample:

The HPS Audit Checklist was mailed to principals of 966 (97.6%) state primary schools in the second week of Term 4, 2001 (October). Reminders were sent to those who had not responded by Week 4, and again at Week 6. By the end of December 2001 (8 weeks), a total of 39 replacement packages had been sent to schools that had not received, or had misplaced, their packages and contacted the project manager for a replacement. A total of 294 completed audits were returned, a response rate of 30.43%. Graph 4.1 shows the rate at which audits were returned. Only 2 schools actively refused to participate. All 35 school districts were represented in the final sample, although response rates varied across districts (Table 4.2).

![Graph 4.1: Return rate of HPS Audit Checklist.](image-url)
<table>
<thead>
<tr>
<th>District</th>
<th>No. Schools</th>
<th>No. Responses</th>
<th>Response Rate %</th>
<th>Avg. Enrolments</th>
<th>Avg. F/T Teachers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bayside</td>
<td>27</td>
<td>7</td>
<td>25.93</td>
<td>489.9</td>
<td>17.2</td>
</tr>
<tr>
<td>Bundaberg</td>
<td>34</td>
<td>12</td>
<td>35.29</td>
<td>247.9</td>
<td>11.5</td>
</tr>
<tr>
<td>Cairns &amp; Cape</td>
<td>42</td>
<td>17</td>
<td>40.48</td>
<td>246.9</td>
<td>13.6</td>
</tr>
<tr>
<td>Chinchilla</td>
<td>22</td>
<td>7</td>
<td>31.82</td>
<td>95.9</td>
<td>1.2</td>
</tr>
<tr>
<td>Coopers Plains</td>
<td>28</td>
<td>8</td>
<td>28.57</td>
<td>783.0</td>
<td>34.0</td>
</tr>
<tr>
<td>Corinda</td>
<td>30</td>
<td>8</td>
<td>26.67</td>
<td>423.4</td>
<td>17.3</td>
</tr>
<tr>
<td>Darling Downs</td>
<td>34</td>
<td>12</td>
<td>35.29</td>
<td>95.3</td>
<td>3.6</td>
</tr>
<tr>
<td>Emerald</td>
<td>20</td>
<td>7</td>
<td>35.00</td>
<td>200.0</td>
<td>6.7</td>
</tr>
<tr>
<td>Fraser Cooloola</td>
<td>27</td>
<td>10</td>
<td>37.04</td>
<td>318.3</td>
<td>15.2</td>
</tr>
<tr>
<td>Geebung</td>
<td>30</td>
<td>7</td>
<td>23.33</td>
<td>541.1</td>
<td>22.1</td>
</tr>
<tr>
<td>Gladstone</td>
<td>25</td>
<td>4</td>
<td>16.00</td>
<td>221.5</td>
<td>6.7</td>
</tr>
<tr>
<td>Gold Coast North</td>
<td>24</td>
<td>7</td>
<td>29.17</td>
<td>683.7</td>
<td>27.8</td>
</tr>
<tr>
<td>Gold Coast South</td>
<td>22</td>
<td>3</td>
<td>13.64</td>
<td>691.7</td>
<td>29.0</td>
</tr>
<tr>
<td>Ipswich</td>
<td>28</td>
<td>6</td>
<td>21.43</td>
<td>413.8</td>
<td>20.2</td>
</tr>
<tr>
<td>Isis Burnett</td>
<td>28</td>
<td>11</td>
<td>39.29</td>
<td>202.8</td>
<td>5.6</td>
</tr>
<tr>
<td>Logan Beaudesert</td>
<td>32</td>
<td>10</td>
<td>31.25</td>
<td>537.1</td>
<td>24.5</td>
</tr>
<tr>
<td>Longreach</td>
<td>15</td>
<td>4</td>
<td>26.67</td>
<td>93.5</td>
<td>6.8</td>
</tr>
<tr>
<td>Mackay Hinterland</td>
<td>29</td>
<td>9</td>
<td>31.03</td>
<td>185.1</td>
<td>9.7</td>
</tr>
<tr>
<td>Mackay North</td>
<td>26</td>
<td>14</td>
<td>53.85</td>
<td>327.4</td>
<td>15.9</td>
</tr>
<tr>
<td>Mooloolaba</td>
<td>26</td>
<td>8</td>
<td>30.77</td>
<td>443.0</td>
<td>19.0</td>
</tr>
<tr>
<td>Mt Gravatt</td>
<td>28</td>
<td>7</td>
<td>25.00</td>
<td>336.9</td>
<td>14.2</td>
</tr>
<tr>
<td>Mt Isa</td>
<td>13</td>
<td>5</td>
<td>38.46</td>
<td>97.4</td>
<td>6.4</td>
</tr>
<tr>
<td>Murrumba</td>
<td>28</td>
<td>13</td>
<td>46.43</td>
<td>650.0</td>
<td>31.5</td>
</tr>
<tr>
<td>Nambour</td>
<td>26</td>
<td>8</td>
<td>30.77</td>
<td>370.0</td>
<td>20.1</td>
</tr>
<tr>
<td>Rockhampton</td>
<td>38</td>
<td>9</td>
<td>23.68</td>
<td>340.3</td>
<td>16.0</td>
</tr>
<tr>
<td>Roma</td>
<td>21</td>
<td>4</td>
<td>19.05</td>
<td>10.0</td>
<td>1.0</td>
</tr>
<tr>
<td>South Burnett</td>
<td>21</td>
<td>6</td>
<td>28.57</td>
<td>120.5</td>
<td>5.2</td>
</tr>
<tr>
<td>Stafford</td>
<td>30</td>
<td>9</td>
<td>30.00</td>
<td>280.4</td>
<td>11.0</td>
</tr>
<tr>
<td>Tablelands Johnson</td>
<td>35</td>
<td>12</td>
<td>34.29</td>
<td>150.2</td>
<td>8.8</td>
</tr>
<tr>
<td>Toowoomba</td>
<td>31</td>
<td>11</td>
<td>35.48</td>
<td>191.5</td>
<td>11.3</td>
</tr>
<tr>
<td>Torres Strait Islands</td>
<td>16</td>
<td>5</td>
<td>31.25</td>
<td>91.0</td>
<td>7.4</td>
</tr>
<tr>
<td>Townsville Burdekin</td>
<td>31</td>
<td>11</td>
<td>35.48</td>
<td>395.4</td>
<td>19.7</td>
</tr>
<tr>
<td>Townsville N &amp; W</td>
<td>32</td>
<td>7</td>
<td>21.88</td>
<td>146.4</td>
<td>7.6</td>
</tr>
<tr>
<td>Warwick</td>
<td>35</td>
<td>6</td>
<td>17.14</td>
<td>46.5</td>
<td>3.2</td>
</tr>
<tr>
<td>West Moreton</td>
<td>37</td>
<td>10</td>
<td>27.03</td>
<td>155.2</td>
<td>6.4</td>
</tr>
</tbody>
</table>

Table 4.2: Response Rates by District. *(Data sourced from Education Queensland website)*.
Most completed audits were returned promptly (within 3 weeks of the mail-out), although the reminders, particularly the final reminder at Week 6, clearly prompted a noticeable response. Four districts had response rates lower than 20% (Gladstone, Gold Coast South, Roma, and Warwick), while three districts had response rates above 40% (Cairns & Cape, Mackay North, and Murrumba). The highest response rate was from the Cairns & Cape School District (17 schools), and the lowest was from the Gold Coast South School District (3 schools or 13.6% of the sample).

**Geographic Location**

State primary schools are organised into 35 districts with between 13 schools (Mt Isa District) and 42 schools (Cairns and Cape District) per district. Schools that completed the audit were classified as Rural/Remote, Regional, or Metropolitan, according to Education Queensland’s (EQ) classification system, available at the EQ website.

Education Queensland classifies eight school districts as Rural/Remote; fourteen districts as Regional; and thirteen districts as Metropolitan. Most responses were from Regional districts (50%), 35% were from Metropolitan districts, and 15% from rural districts.

Listed below is each of Education Queensland’s 35 school districts clustered into the geographic locations to which they are assigned:
**School Size**

The average school size (student enrolments) was 307 students, although over half the sample (57.81% of schools) had enrolments of fewer than 300 students. The smallest school to complete the audit had 7 students, and the largest had 1,243. School size was positively skewed (skewness = .91, kurtosis = .02) (Graph 4.2). The average number of full-time teachers was 13.3 (range 1 – 34). This number varied according to school district, ranging from 1 (Roma) to 34 (Coopers Plains).
An independent samples t-test was conducted to compare school demographic variables for high and low HPS. There were significant differences in school size (student enrolments) between high HPS schools (M=348.31, sd=294.26) and low HPS (M=229.61, sd=246.86) (t = -3.057). High HPS had higher enrolments (larger school size) and more staff – the mean number of staff for High HPS was 15.26 (sd = 13.49), and the mean number of staff for Low HPS was 10.39 (sd = 10.97) (t = -2.67 for full-time staff).
**IRSED**

Education Queensland assigns a ranking of socio-economic level for all schools across the state (Index of Relative Socio-economic Disadvantage, or IRSED), which is used primarily for allocation of resources. The mean IRSED rating from the respondent sample was 962.1. Only 4.0% of schools had IRSED ratings below 800, while 29.3% of schools had ratings above 1000. IRSED scores were negatively skewed (skewness = -1.41, kurtosis = 4.06).

![Graph 4.3: Sample distribution of IRSED Rankings.](image-url)
4.3.2 Level of Awareness and Implementation of HPS Infrastructure in Queensland State Schools.

The following results provide a profile of the extent to which state schools in Queensland are setting up the infrastructure to support HPS initiatives. The audit instrument included a set of questions designed to identify these details using the following questions:

- Do you know anything about the HPS initiative?
- Was this school previously a member of the HPS Network?
- Does this school plan to join HPSA-Qld in the next year?
- Have members of your school attended a local HPS meeting or training workshop?
- Does your school have a designated staff role for health promotion?
- Does your school have a committee overseeing health promotion?

The survey showed that:

- 49.8% of principals indicated they had heard about the HPS initiative;
- more principals in rural schools indicated that they did not know about the HPS initiative (30.97%) compared to principals in urban schools (14.14%);
- 14.3% of responding schools were current members of the HPSA-Q;
- 52.4% did not know if their school was planning to join the HPSA-Queensland;
- 8.8% (26 schools) intended to join the state association;
• 27.2% (80 schools) reported having a designated teacher responsible for school health promotion;

• 24.8% of schools reported having a committee to address school-based health promotion. The school health promotion committees comprised mainly staff (24.5%) or parents (15%).

• few schools included students or community representatives on the committees (7.8% included students and 6.1% included community members);

• 2.4% (7 schools) had been or were members of the HPS Network;

• 14.5% (43 schools) had participated in local HPS network meetings or training workshops.

The samples differed significantly in terms of their responses to the six HPS awareness questions. As would be expected, principals of High HPS were much more likely to have an awareness of the HPS approach, and were twice as likely to have previously been members of the HPS Network, or to have attended a local area cluster meeting or a HPS workshop. High HPS were also far more likely to have a staff member designated to co-ordinate health promotion activities, and to have a committee overseeing school health promotion (Graph 4.4).
4.3.3 Comparison of High and Low HPS Audit Scores.

**Geographic Location and HPS Activity**

**RQ 1.2A: Is there any association between geographic location (IV) and HPS activities (7 x DV)?**

The IV is categorical and each of the DV’s is continuous. A one-way between-groups ANOVA was conducted to determine whether geographic location (rural/remote, regional, and metropolitan) had an effect on total audit scores. Table 4.3 summarises the data comparing low, moderate and high HPS across geographic regions.
Table 4.3: Comparison of Audit Total Scores for Geographic Regions.

<table>
<thead>
<tr>
<th>Region</th>
<th>N</th>
<th>Mean (Total Score)</th>
<th>Std. Dev</th>
<th>Std. Error</th>
<th>MIN</th>
<th>MAX</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rural/Remote</td>
<td>44</td>
<td>133.36</td>
<td>20.80</td>
<td>3.14</td>
<td>86</td>
<td>180</td>
</tr>
<tr>
<td>Regional</td>
<td>147</td>
<td>137.66</td>
<td>20.48</td>
<td>1.69</td>
<td>81</td>
<td>187</td>
</tr>
<tr>
<td>Metropolitan</td>
<td>103</td>
<td>139.31</td>
<td>23.22</td>
<td>2.29</td>
<td>69</td>
<td>193</td>
</tr>
<tr>
<td>Total</td>
<td>294</td>
<td>137.60</td>
<td>21.54</td>
<td>1.26</td>
<td>69</td>
<td>193</td>
</tr>
</tbody>
</table>

A gradient of Total Audit scores was found, indicating that progressive distance from major cities systematically reduces the likelihood that a school will adopt health promotion strategies, as reflected in the Audit Total Score for each of the 3 geographic regions. The mean Audit Total for rural/remote schools was 133.4 compared with the mean Audit Total of 139.3 for metropolitan schools. Differences between groups were statistically significant (F = 3.74, p = .01).

When each of the 6 HPS indicators was investigated, mean scores were consistently lower in rural schools for all indicators except for Indicator 4 (school-community relations), which was higher in rural schools, although the differences were only very small (Graph 4.5).
Graph 4.5: Comparison of Mean HPS Audit Indicator Scores x Geographic Location.

RQ 1.2B: Is there any association between school size (IV) and HPS activities (7 x DV)?

The IV is continuous and the DV is categorical (3 levels). Statistical associations were tested using one-way between groups ANOVA. Levene’s test of homogeneity indicated that there was no violation of the assumptions underlying this statistic (p = .50).

Mean Total Audit Scores were similar for small and medium sized schools (134.14 and 135.46 respectively), but noticeably higher for large schools (143.20). The ANOVA revealed a significant difference between mean Total Audit scores for small and large schools (F = 3.74, p = .01).
The lowest Total Audit Scores were found in the smaller schools, and as school size increased, HPS activity also increased, the increase most marked once schools reached moderate size (Graph 4.6).

**Graph 4.6: Total Audit Score x School Size.**

**RQ 1.2C:** *Is there any association between IRSED (IV) and HPS activities (7 x DV)?*

Statistical associations were tested using the Pearson Product Moment Correlation as the analysis was conducted on one sample with two continuous variables (total audit score and IRSED rating, with IRSED defined as Low = <948.5; Moderate = 948.5 – 994.0; High = >994.0). Low IRSED represents a less disadvantaged school, and high IRSED indicates a more disadvantaged school.
Despite indications of a gradient of Total Audit scores for the full sample (Graph 4.7) suggesting that HPS activity decreased as IRSED (relative disadvantage) increased, the statistical correlation between IRSED and Total Audit Score was negligible ($r = -.03$).

Six of the seven correlations between IRSED and HPS Indicators were negligible suggesting that a school’s socio-economic ranking is not associated with five of the six HPS indicators. There was a small but significant inverse relationship between IRSED and Indicator 4 (access to health services), suggesting that as the school’s socio-economic disadvantage decreased, that is, general socio-economic status of the school increased, relations between the school and its local community increased. Results are presented below:

<table>
<thead>
<tr>
<th>Correlation $(IRSED \times Indicator)$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indicator 1</td>
</tr>
<tr>
<td>Indicator 2</td>
</tr>
<tr>
<td>Indicator 3</td>
</tr>
<tr>
<td>Indicator 4</td>
</tr>
<tr>
<td>Indicator 5</td>
</tr>
<tr>
<td>Indicator 6</td>
</tr>
<tr>
<td>Total Audit Score</td>
</tr>
</tbody>
</table>

* $p = .01$
RQ1.2D: Are there any consistent relationships between the 3 confounding variables?

Inter-relationships between the three confounding variables – geographic location, school size, and IRSED - were investigated to determine whether they might have a combined effect on schools.

**Geographic Location x IRSED**

A Mann-Whitney U Test was conducted to determine whether there was any relationship between IRSED and geographic location. Rural schools were more likely to have a low IRSED rating (57.6% compared to 42.4% of low-IRSED schools in urban locations). The association was statistically significant (chi-Square = 16.21, df=2, p = .00).
**IRSED x School Size**

The distribution of scores for IRSED and school size was assessed for normality using the Kolmogorov-Smirnov Test. In both cases the K-S value was greater than .05, indicating that both these distributions were not normally distributed. Of the full sample, 37.4% of small schools had low IRSED ratings, compared to 31.3% of large schools with low IRSED ratings. In high IRSED schools, 23.2% were small, 32.3% were medium, and 43.4% were large, confirming a gradient of IRSED rank dependent on school size. The Spearman Rank Order Correlation was small and positive ($r = .23, p < .01$) suggesting that the two variables were weakly related.

Partial correlation was used to explore the relationship between IRSED and school size, while controlling for geographic location. An inspection of the zero order correlation suggested that controlling for geographic location significantly reduced the strength of relationship between school size and IRSED ($r = .17, p = .01$).

**RQ 1.2F: Is there any association between the possible confounding variables (IRSED, school size, and geographic location) and Total Audit Score?**

A series of partial correlations were carried out to determine the degree of association (correlation) between IRSED, Geographic Location (GEOGLOC), School size (Students) and Total Audit Score, while controlling for each of the postulated confounding variables.
Urban schools with low IRSED rankings were most likely to be implementing HPS strategies, and rural schools with high IRSED rankings were least likely to be implementing HPS strategies (Graph 4.8).

When all four confounding variables were included, a statistically significant negative correlation was found between geographic location and schools size ($r = -.61$, $p = .00$). A small positive statistically significant correlation was also found between IRSED and school size ($r = .24$, $p = .00$). A very small but positive association was found between Total Audit Score and school size ($r = .18$, $p = .00$).

When the analysis controlled for each of the confounding variables individually, very little variation was observed in the output, although the correlation between Total Audit Score and school size was strongest when...
the variable “Attended HPS meeting” was controlled, (r = .19, p = .00) and weakest (r = .18, p = .00) when the variable Designated HPS Staff was controlled.

**Comparison of Low & High HPS on All HPS Indicators**

Independent samples t-tests were conducted to compare low and high HPS across each of the six HPS indicators. Statistically significant differences were found between high and low HPS on scores for each of the six HPS indicators (Graph 4.9). For each of the six sub-scales, High HPS had higher mean scores, indicating a significantly greater focus on that HPS dimension. The greatest difference between High and Low HPS was for Indicator 5 (Personal Skill Building), closely followed by Indicator 2 (Physical Environment).

Statistically significant differences were found for the following variables (Table 4.4):

- High HPS put significantly more focus on Personal Skill-Building than did Low HPS (t = -18.01, df = 196, p = .00).
- High HPS also addressed the Physical Environment more actively than Low HPS (t = -15.03, df = 196, p = .00).
- High HPS were more likely to have polices in place to support health promotion strategies (t = -15.18, df = 179.2, p = .00).
- High HPS undertook more active promotion of positive social environments was fostered in High HPS (t = -15.41, df = 191, p = .00).
- High HPS put greater effort put into building strong school-community relations (t = -14.06, df = 196, p = .00) High HPS provided the school
community with access to supportive health services \((t = -15.17, \ df = 189.2, \ p = .00)\).

Eta squared values for each of the six indicators were calculated to determine the relative effect size of the differences. Large effects were found for each of the 6 indicators, particularly Indicators 3 and Indicator 5. Results are shown below:

<table>
<thead>
<tr>
<th>Indicator</th>
<th>(t^2)</th>
<th>den.</th>
<th>eta squared</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indicator 1</td>
<td>230.52</td>
<td>426.52</td>
<td>.54</td>
</tr>
<tr>
<td>Indicator 2</td>
<td>225.99</td>
<td>421.99</td>
<td>.54</td>
</tr>
<tr>
<td>Indicator 3</td>
<td>237.53</td>
<td>433.53</td>
<td>.55</td>
</tr>
<tr>
<td>Indicator 4</td>
<td>197.80</td>
<td>393.80</td>
<td>.50</td>
</tr>
<tr>
<td>Indicator 5</td>
<td>324.18</td>
<td>520.18</td>
<td>.62</td>
</tr>
<tr>
<td>Indicator 6</td>
<td>230.19</td>
<td>426.19</td>
<td>.54</td>
</tr>
</tbody>
</table>
Results revealed that High HPS are distinguished by their greater emphasis on promoting the development of personal health skills, creating a positive social environment, providing access to health services and supporting this with positive school health policies, and building a school physical environment which promotes health.

Schools that are not actively adopting the HPS framework (Low HPS) are notable for their emphasis on school policies with regards to health, and, consistent with high HPS, place least emphasis on school-community relations.
Table 4.4: Statistical Results for Comparison of High & Low HPS x Indicators.

**Influence of Geographic Location and IRSED on HPS**

**Indicators**

The mean scores for each of the six sub-scales were compared to determine the extent to which they were each influenced by Geographic Location (Urban and Rural) and IRSED levels (three levels: Low = <948.5; Moderate = 948.5 – 994.0; High = >994.0).
Indicator 1: School Health Policies

The mean score for Indicator 1 (School Health Policies) was highest in high-IRSED urban schools, and lowest in Low IRSED rural schools. The greatest disparity was between Low IRSED rural and urban schools. Low IRSED rural schools were least likely to be developing HPS policies, compared with all urban schools that were most likely to be developing such policies (Graph 4.10).

Graph 4.10: Health Policies x IRSED and Geographic Location.
Indicator 2: Physical Environment

The mean score for Physical Environment was highest in High-IRSED urban schools, and lowest in Low-IRSED rural schools, with the greatest disparity between mean scores appearing in Low-IRSED schools (Graph 4.11). High IRSED urban schools had the highest mean score for Physical Environment, and Low IRSED rural schools had the lowest mean score.

Graph 4.11: Physical environment x IRSED and Geographic.
Indicator 3: Social Environment

Low-IRSED urban schools had the highest mean score on Indicator 3, with the lowest mean score found for High-IRSED rural schools. The greatest disparity again was found between urban and rural Low-IRSED schools (Graph 4.12).

**Graph 4.12**: Social Environment x IRSED and Geographic Location.
Indicator 4: School-community Relations

Low-IRSED schools in both rural and urban locations place greatest emphasis on building strong school-community relations, with rural schools having a slightly higher mean score than urban schools. The lowest mean score was found for mid-IRSED urban schools, and the greatest disparity between mean scores was found for mid-IRSED schools (Graph 4.13).

Graph 4.13: School-Community Relations x IRSED & Geographic Location.
Indicator 5: Building Personal Skills

Low IRSED urban schools had the highest mean score on this indicator, whilst the lowest was found for mid-IRSED urban schools. The greatest disparity was between mid-IRSED urban and rural schools (Graph 4.14).

Graph 4.14: Personal Skill Building x IRSED and Geographic Location.
Indicator 6: Access to Health Services

The highest mean score on Indicator 6 was found for Low-IRSED urban schools, and the lowest for High-IRSED rural schools. The greatest disparity was found between low-IRSED schools (Graph 4.15).

Graph 4.15: Access to Health Services x IRSED and Geographic Location.
4.3.4 Summary of Results

Urban schools of all socio-economic levels (IRSED) are consistently more actively implementing HPS strategies related to school health policies, the social environment, and providing access to health services than rural schools. However, rural schools at all SES levels are consistently placing greater emphasis on strategies to improve school-community relations.

Rural schools, traditionally regarded as the most disadvantaged of the state’s schools as reflected in lower IRSED ratings, appear to be placing least emphasis on health policies, physical environment, and access to health services.

Results of the statistical analyses suggest that there are strong associations between each of the 6 sub-scales contributing towards the total score, and that potential confounding of the results from several variables, including knowledge about the HPS approach, attendance at HPS meetings, and having designated staff roles or school-based HPS committees, did not significantly affect the results.
4.4 Psychometric Properties of the Health Promoting Schools Audit Checklist.

Statistical analyses were conducted to determine the psychometric properties of the HPS Audit Checklist. Analyses were calculated on the total audit score (the sum of all the sub-scales) as well as each individual sub-scale.

Assumptions Underlying Statistical Analyses

Multiple regression analyses assume that the IV’s are correlated with the DV but not with the other IV’s. Outliers were deleted, and multicollinearity assessed to ensure it was absent. Scatterplots were produced to determine normality of the distribution of scores. Homoscedasticity was assessed to ensure that standard deviations of errors of prediction were approximately equal for all predicted DV scores. The following characteristics of the data were used to assess normality of the distribution, with the results further confirming acceptable normality of the distribution:

► Skewness (-3 to +3): -.212;
► Kurtosis (-3 to +3): .342;
► Standard deviation ≤ half the mean;
► Mean/Median within 10% of each other.

1 Personal communication Dr Diana Battistuta, QUT School of Public Health.
<table>
<thead>
<tr>
<th>Indicator</th>
<th>Mean</th>
<th>Median</th>
<th>StDev</th>
<th>Skewness</th>
<th>Kurtosis</th>
<th>Normality</th>
<th>K-S Test</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indicator 1</td>
<td>33.92</td>
<td>34</td>
<td>5.55</td>
<td>-.44</td>
<td>.06</td>
<td>√</td>
<td>.09</td>
<td>.00</td>
</tr>
<tr>
<td>Indicator 2</td>
<td>22.24</td>
<td>22</td>
<td>3.86</td>
<td>-.36</td>
<td>-.24</td>
<td>√</td>
<td>.10</td>
<td>.00</td>
</tr>
<tr>
<td>Indicator 3</td>
<td>25.28</td>
<td>25</td>
<td>4.16</td>
<td>-.34</td>
<td>.08</td>
<td>√</td>
<td>.07</td>
<td>.00</td>
</tr>
<tr>
<td>Indicator 4</td>
<td>15.86</td>
<td>16</td>
<td>3.66</td>
<td>-.11</td>
<td>.71</td>
<td>√</td>
<td>.08</td>
<td>.00</td>
</tr>
<tr>
<td>Indicator 5</td>
<td>21.24</td>
<td>21</td>
<td>4.87</td>
<td>.03</td>
<td>.07</td>
<td>√</td>
<td>.07</td>
<td>.00</td>
</tr>
<tr>
<td>Indicator 6</td>
<td>18.98</td>
<td>19</td>
<td>4.68</td>
<td>-.01</td>
<td>-.43</td>
<td>√</td>
<td>.06</td>
<td>.01</td>
</tr>
</tbody>
</table>

**Table 4.5:** Tests of Normality for the 6 Sub-scales.

**Graph 4.16:** Distribution of Total Audit Scores.
Normality of the distribution of Total Audit Scores was calculated using the Kolmogorov-Smirnov Test, which was significant (.05, p = .04), suggesting that these scores were not normally distributed. However, the histogram showed a reasonably normally distributed set of scores (Graph 4.16) and statistical analyses were calculated on the basis of accepting the distribution as “normal”, according to Pallant (2001).

Normality of the 6 sub-scales was also calculated using the Kolmogorov-Smirnov Test. All six subscales had K-S values above .05, indicating normal distributions for each. This was confirmed by the histograms of sub-scale distributions.

**Associations between Sub-scales and Total Audit Score (Internal Consistency)**

Statistical analyses were conducted to assess the extent to which each of the sub-scales (HPS Indicators) was associated with the Total Audit Score. High correlations were found between the Audit Total Score and each of the 6 sub-scales, indicating strong internal consistency within the survey instrument (Table 4.6) These ranged from $r = .75$ (Audit Total with Indicator 6, Access to Health Services) to $r = .84$ (Audit Total with Indicator 5, Personal Skill Building).

The most notable result from this analysis is the weaker association between Indicators 1 and 2 ($r = .46$), and Indicators 1 (Health Policies) and 6 (Access to Health Services) ($r = .47$), complemented by the stronger association
between Indicators 1 (Health Policies) and 2 (Physical Environment) \( (r = .68) \) although all inter-correlations were reasonably strong and positive.

<table>
<thead>
<tr>
<th></th>
<th>Audit Total</th>
<th>IND 1</th>
<th>IND 2</th>
<th>IND 3</th>
<th>IND 4</th>
<th>IND 5</th>
<th>IND 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Audit Total</td>
<td>1.00</td>
<td>.82</td>
<td>.78</td>
<td>.83</td>
<td>.77</td>
<td>.84</td>
<td>.75</td>
</tr>
<tr>
<td>IND 1</td>
<td>.82</td>
<td>1.00</td>
<td>.68</td>
<td>.65</td>
<td>.49</td>
<td>.58</td>
<td>.47</td>
</tr>
<tr>
<td>IND 2</td>
<td>.78</td>
<td>.68</td>
<td>1.00</td>
<td>.61</td>
<td>.52</td>
<td>.54</td>
<td>.46</td>
</tr>
<tr>
<td>IND 3</td>
<td>.83</td>
<td>.65</td>
<td>.61</td>
<td>1.00</td>
<td>.61</td>
<td>.63</td>
<td>.54</td>
</tr>
<tr>
<td>IND 4</td>
<td>.77</td>
<td>.49</td>
<td>.52</td>
<td>.61</td>
<td>1.00</td>
<td>.64</td>
<td>.52</td>
</tr>
<tr>
<td>IND 5</td>
<td>.84</td>
<td>.58</td>
<td>.54</td>
<td>.63</td>
<td>.64</td>
<td>1.00</td>
<td>.60</td>
</tr>
<tr>
<td>IND 6</td>
<td>.75</td>
<td>.47</td>
<td>.46</td>
<td>.54</td>
<td>.52</td>
<td>.60</td>
<td>1.00</td>
</tr>
</tbody>
</table>

Table 4.6: Inter-correlations between Audit Total and 6 Sub-scales.

**Measurement of internal consistency within subscales**

Internal consistency refers to the reliability of a scale, or the “degree to which the items that make up the scale hang together” (Pallant, 2001). It is a measure of the extent to which the items making up the scale are all measuring the same underlying attribute. Pallant recommends that good internal consistency be recognised by a Cronbach alpha co-efficient of above 0.7.

Cronbach’s alpha was run on the sets of items making up each sub-scale of the HPS Audit Checklist. The Cronbach alpha co-efficient for the Total Audit Score was .88, indicating excellent internal consistency. Inter-item correlations ranged from .46 to .68, again suggesting good internal consistency.
Cronbach’s alpha for each sub-scale is listed below. The lowest value was .77 and the highest was .82, indicating very good internal consistency both within each sub-scale as well as across all six sub-scales* (Alpha = .80):

- Health policies (9 items): Alpha = .82
- Physical environment (6 items): Alpha = .77
- Social environment (7 items): Alpha = .77
- School Community Relations (5 items): Alpha = .80
- Personal Skill Building (7 items): Alpha = .79
- Access to Health Services (6 items): Alpha = .79

* Corrected item-total correlations were all above .6.

**Factor Analysis**

The 40 items of the HPS Audit Checklist were subjected to confirmatory principal components analysis (PCA) using SPSS 11.0. The suitability of performing a PCA was assessed prior to factor analysis. Inspection of the correlation matrix indicated a large number of co-efficients of .3 and above. The Kaiser-Meyer-Olkin value of .9 exceeded the recommended value of .6, and the Bartlett’s Test of Sphericity was highly significant (p=. 00), therefore it was considered appropriate to conduct a factor analysis.

PCA revealed the presence of 8 components with eigenvalues exceeding 1, explaining a cumulative value of 62.1% of the variance. Nearly half of this (34.5%) was explained by the first component, with another 11.9% made up from the next two components. Thus nearly 50% of the variance was explained by the first 3 components and only another 15.69% of the variance
made up from the remaining 5 components. Nearly all the items loaded on the first component, with only 10 loading on the second component and 9 loading on the third component:

- Factor 1: 34.07%
- Factor 2: 6.38%
- Factor 3: 5.71%
- Factor 4: 3.95%
- Factor 5: 3.45%
- Factor 6: 3.00%
- Factor 7: 2.70%
- Factor 8: 2.56%

An inspection of the scree plot (Graph 4.17) revealed a clear break after the second component. Using Catell’s scree test (1966, in Pallant, 2001), it was decided to retain three components for further investigation.

**Graph 4.17:** Scree plot for Factor Analysis.
Rotated sum of square loadings were compared for both 4 and 6 component factor analyses, revealing percentages of total variance explained as 50.30% and 56.82% respectively. It was decided to perform Varimax rotation on the 4-component analysis. The rotated solution, presented in Table 4.7, revealed that the first component explained 13.73% of the variance; each of the subsequent 3 components explained slightly less than this (10 – 12% of the variance).

Varimax rotation revealed that items most strongly loading on Factor 1 were: Qs 32, 31, 28, 34, 29, 33, and 40. These items all related to resources available to teaching staff.

Items most strongly loading in Factor 2 were: Qs 22, 25, 15, 27, and 9, all of which relate to participation of the whole school community in strategic planning.

Items most strongly loading on component 3 were Qs 4, 7, 3, 5 and 10, all of which related to injury risk reduction.

Items most strongly loading onto component 4 were Qs 38, 36, 37, 39, and 35, all of which related to access to health services.
<table>
<thead>
<tr>
<th>Factor</th>
<th>Total</th>
<th>% of Variance</th>
<th>Cumulative %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resources for Teaching</td>
<td>5.494</td>
<td>13.734</td>
<td>13.734</td>
</tr>
<tr>
<td>Participation of school community</td>
<td>5.179</td>
<td>12.949</td>
<td>26.682</td>
</tr>
<tr>
<td>Injury risk reduction</td>
<td>5.152</td>
<td>12.881</td>
<td>39.563</td>
</tr>
<tr>
<td>Access to health services</td>
<td>4.294</td>
<td>10.736</td>
<td>50.299</td>
</tr>
</tbody>
</table>

**Table 4.7: Proportion of Variance Explained by 4 Component Factor Analysis Using Principal Component Analyses.**
4.5 **PART 2: EVALUATION OF THE SCHOOL ENVIRONMENT AND ITS INFLUENCE ON TEACHERS’ HEALTH AND JOB COMMITMENT IN THE HEALTH PROMOTING SCHOOL.**

*The following research questions guided statistical analyses for this part of the research:*

**RQ2.1:** To what extent does the HPS approach influence school social and organisational capital?

**RQ2.2:** Does the HPS approach have any influence on teachers' job stress (psychosomatic strain, perceived job demands and skill discretion), and if so, which work environment variables have most influence?

**RQ2.3:** Does the HPS approach have any influence on teachers' health risk behaviours, and if so, which work environment variables have most influence?

**RQ2.4:** Does the HPS approach have any influence on teachers' job commitment, and if so, which work environment variables have most influence?

The results of this part of the research are presented in the following order:

- Description of the respondent sample.
- Psychometric properties of the Teachers’ School Environment Questionnaire.
- Analysis of the research questions investigating the influences of school organisational health and social capital in Health Promoting Schools.
4.5.1 Description of Respondent Sample

Each participating school provided a list of all teaching staff. Survey packages were sent to 1,282 teachers in 39 schools. At the conclusion of the data collection period, responses had been received from 915 teachers. Responses included:

- completed TSEQ plus demographic sheets: N = 858 (67.9%);
- TSEQ only: N = 16 (1.8%);
- demographic data sheets only: N = 57 (4.5%)  
- active refusals: N = 58 (4.5%)

The response rate was slightly higher from teachers in High HPS (N = 437 surveys or 54.8% of respondents) compared to the comparison sample of Low HPS (N = 360 completed questionnaires, or 45.2% response rate) (Table 4.8).

Some questionnaires were not sufficiently completed to be useable, with the result that the final sample for analyses comprised responses from 797 teachers (62.6% of the total sample), 360 in Low HPS and 437 in High HPS. Sixteen teachers returned only the questionnaire (without the demographic data sheet); in this case the questionnaire date were included in the analysis.
The 57 demographic data sheets that were returned without completed questionnaires were used to determine any demographic differences between responders and non-responders. Those who completed only the demographic datasheet (non-responders) were more likely to be separated/divorced, or widowed (Graph 4.18), to be part-time or relief staff (Graph 4.19), to have less than 13 years’ teaching experience (Graph 4.20), and to have post-graduate academic qualifications (Graph 4.21).
Graph 4.18: Comparison of Responders/Non-responders (Marital Status)

Graph 4.19: Comparison of Responders/Non-responders (Tenure).
Graph 4.20: Comparison of Responders/Non-responders (Teaching Experience).

Graph 4.21: Comparison of Responders/Non-responders (Educational qualifications).
<table>
<thead>
<tr>
<th>SCHOOL</th>
<th>HPS</th>
<th>TOTAL SENT</th>
<th>TOTAL NOT IN</th>
<th>TOTAL IN</th>
<th>RESPONSE RATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>114</td>
<td>H</td>
<td>26</td>
<td>5</td>
<td>21</td>
<td>80.77</td>
</tr>
<tr>
<td>203</td>
<td>H</td>
<td>29</td>
<td>8</td>
<td>21</td>
<td>72.41</td>
</tr>
<tr>
<td>209</td>
<td>H</td>
<td>42</td>
<td>23</td>
<td>19</td>
<td>45.24</td>
</tr>
<tr>
<td>314</td>
<td>H</td>
<td>32</td>
<td>10</td>
<td>22</td>
<td>68.75</td>
</tr>
<tr>
<td>335</td>
<td>H</td>
<td>47</td>
<td>14</td>
<td>33</td>
<td>70.21</td>
</tr>
<tr>
<td>339</td>
<td>H</td>
<td>33</td>
<td>14</td>
<td>19</td>
<td>57.58</td>
</tr>
<tr>
<td>404</td>
<td>H</td>
<td>51</td>
<td>16</td>
<td>35</td>
<td>68.63</td>
</tr>
<tr>
<td>506</td>
<td>H</td>
<td>33</td>
<td>3</td>
<td>30</td>
<td>90.91</td>
</tr>
<tr>
<td>519</td>
<td>H</td>
<td>32</td>
<td>17</td>
<td>15</td>
<td>46.88</td>
</tr>
<tr>
<td>607</td>
<td>H</td>
<td>27</td>
<td>5</td>
<td>22</td>
<td>81.48</td>
</tr>
<tr>
<td>611</td>
<td>H</td>
<td>37</td>
<td>19</td>
<td>18</td>
<td>48.65</td>
</tr>
<tr>
<td>1010</td>
<td>H</td>
<td>43</td>
<td>25</td>
<td>18</td>
<td>41.86</td>
</tr>
<tr>
<td>1601</td>
<td>H</td>
<td>49</td>
<td>16</td>
<td>33</td>
<td>67.35</td>
</tr>
<tr>
<td>1609</td>
<td>H</td>
<td>27</td>
<td>1</td>
<td>26</td>
<td>96.30</td>
</tr>
<tr>
<td>1625</td>
<td>H</td>
<td>27</td>
<td>12</td>
<td>15</td>
<td>55.56</td>
</tr>
<tr>
<td>2018</td>
<td>H</td>
<td>28</td>
<td>7</td>
<td>21</td>
<td>75.00</td>
</tr>
<tr>
<td>2418</td>
<td>H</td>
<td>48</td>
<td>17</td>
<td>31</td>
<td>64.58</td>
</tr>
<tr>
<td>2502</td>
<td>H</td>
<td>38</td>
<td>20</td>
<td>18</td>
<td>47.37</td>
</tr>
<tr>
<td>2532</td>
<td>H</td>
<td>17</td>
<td>1</td>
<td>16</td>
<td>94.12</td>
</tr>
<tr>
<td>2715</td>
<td>H</td>
<td>31</td>
<td>11</td>
<td>20</td>
<td>64.52</td>
</tr>
<tr>
<td>205</td>
<td>L</td>
<td>24</td>
<td>3</td>
<td>21</td>
<td>87.50</td>
</tr>
<tr>
<td>341</td>
<td>L</td>
<td>49</td>
<td>20</td>
<td>29</td>
<td>59.18</td>
</tr>
<tr>
<td>802</td>
<td>L</td>
<td>27</td>
<td>6</td>
<td>21</td>
<td>77.78</td>
</tr>
<tr>
<td>923</td>
<td>L</td>
<td>24</td>
<td>4</td>
<td>20</td>
<td>83.33</td>
</tr>
<tr>
<td>1025</td>
<td>L</td>
<td>37</td>
<td>13</td>
<td>24</td>
<td>64.86</td>
</tr>
<tr>
<td>15171</td>
<td>L</td>
<td>35</td>
<td>12</td>
<td>23</td>
<td>65.71</td>
</tr>
<tr>
<td>1603</td>
<td>L</td>
<td>36</td>
<td>13</td>
<td>23</td>
<td>63.89</td>
</tr>
<tr>
<td>1828</td>
<td>L</td>
<td>32</td>
<td>9</td>
<td>23</td>
<td>71.88</td>
</tr>
<tr>
<td>1901</td>
<td>L</td>
<td>33</td>
<td>4</td>
<td>29</td>
<td>87.88</td>
</tr>
<tr>
<td>2116</td>
<td>L</td>
<td>26</td>
<td>8</td>
<td>18</td>
<td>69.23</td>
</tr>
<tr>
<td>2305</td>
<td>L</td>
<td>40</td>
<td>17</td>
<td>23</td>
<td>57.50</td>
</tr>
<tr>
<td>2308</td>
<td>L</td>
<td>26</td>
<td>8</td>
<td>18</td>
<td>69.23</td>
</tr>
<tr>
<td>2409</td>
<td>L</td>
<td>33</td>
<td>8</td>
<td>25</td>
<td>75.76</td>
</tr>
<tr>
<td>2424</td>
<td>L</td>
<td>25</td>
<td>5</td>
<td>20</td>
<td>80.00</td>
</tr>
<tr>
<td>2425</td>
<td>L</td>
<td>18</td>
<td>7</td>
<td>11</td>
<td>61.11</td>
</tr>
<tr>
<td>2916</td>
<td>L</td>
<td>33</td>
<td>14</td>
<td>19</td>
<td>57.58</td>
</tr>
<tr>
<td>3004</td>
<td>L</td>
<td>36</td>
<td>13</td>
<td>23</td>
<td>63.89</td>
</tr>
<tr>
<td>3502</td>
<td>L</td>
<td>26</td>
<td>8</td>
<td>18</td>
<td>69.23</td>
</tr>
<tr>
<td>3517</td>
<td>L</td>
<td>25</td>
<td>8</td>
<td>17</td>
<td>68.00</td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td>1282</td>
<td>424</td>
<td>858</td>
<td>AVG = 68.50%</td>
</tr>
</tbody>
</table>

Table 4.9: Response Rate x School.
Response rates between the 39 schools varied from 41.9% to 96.3% (Table 4.9). Demographic data from the full respondent set are reported here for four variables that have been widely recognised in the literature as being associated with teachers’ job commitment and subjective job stress: relationship status, teaching qualifications and experience, and tenure of teaching position.

**Relationship Status**

The majority of respondents were females in both High HPS and the Low HPS (79.5% and 70.0% respectively). Table 4.10 indicates that most were married or cohabiting, with slightly fewer “coupled” teachers in Low HPS (74.1% in High HPS compared with 71.8% in Low HPS).

<table>
<thead>
<tr>
<th>HPS Status</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Low HPS</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single</td>
<td>53</td>
<td>13.7</td>
</tr>
<tr>
<td>Married/De Facto</td>
<td>277</td>
<td>71.8</td>
</tr>
<tr>
<td>Separated/Divorced</td>
<td>42</td>
<td>10.9</td>
</tr>
<tr>
<td>Widowed</td>
<td>7</td>
<td>1.8</td>
</tr>
<tr>
<td>Total</td>
<td>379</td>
<td>98.2</td>
</tr>
<tr>
<td>Missing</td>
<td>7</td>
<td>1.8</td>
</tr>
<tr>
<td>N =</td>
<td>386</td>
<td>100.0</td>
</tr>
<tr>
<td><strong>High HPS</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single</td>
<td>68</td>
<td>14.5</td>
</tr>
<tr>
<td>Married/De Facto</td>
<td>347</td>
<td>74.1</td>
</tr>
<tr>
<td>Separated/Divorced</td>
<td>33</td>
<td>7.1</td>
</tr>
<tr>
<td>Widowed</td>
<td>6</td>
<td>1.3</td>
</tr>
<tr>
<td>Total</td>
<td>454</td>
<td>97.0</td>
</tr>
<tr>
<td>Missing</td>
<td>14</td>
<td>3.0</td>
</tr>
<tr>
<td>N =</td>
<td>468</td>
<td>100.0</td>
</tr>
</tbody>
</table>

_Table 4.10:_ Relationship status across High and Low HPS.
Chi-square tests of independence were conducted to determine whether the two groups (High and Low HPS) differed in any statistically significant way in terms of teachers’ relationship status, as research indicates that this can be a variable that is related to job commitment. No statistically significant difference was found between teachers in High versus Low HPS in terms of Relationship Status (chi-square = 3.53, df = 3, p = .32).

**Teachers’ Qualifications**

Few differences were noted between High and Low HPS with regard to teachers’ qualifications (Graph 4.22). In both samples, the majority of teachers had undergraduate degrees, although High HPS were somewhat more likely to have staff with undergraduate university qualifications in comparison with Low HPS (40.0% in High HPS compared with 35.5% in Low HPS). However, a slightly higher percentage of teachers had postgraduate diplomas in Low HPS but this trend reversed when postgraduate degrees were compared.

Chi-square tests of independence were conducted to determine whether the two groups (High and Low HPS) differed in any statistically significant way in terms of teachers’ qualifications. No statistically significant difference was found (Chi squared = 2.64, df = 5, p = .75), suggesting that educational qualifications of teachers in High HPS compared to Low HPS are no different.
A large number of respondents had twenty or more years of teaching experience (38.4% of the sample), whilst only a small proportion of respondents had less than three years’ experience (9.1% of the sample). A trend towards there being slightly more inexperienced teachers (those with less than three years experience) was found for High HPS compared with Low HPS (10.0% and 8.0% respectively), and this trend extended to teachers with six or less years of teaching experience. However, this trend seemed to reverse when considering teachers with 14+ years of experience, with slightly more highly experienced teachers found in Low HPS (65% compared to 62.7% in High HPS) (Graph 4.23).
Chi-square test of independence was conducted to determine whether the two groups (High and Low HPS) differed in any statistically significant way in terms of teaching experience. The difference was not statistically significant (Chi-square = 5.39, df = 7, p = .61).

Graph 4.23: Comparison of teachers' experience across High and Low HPS.

**Employment Tenure**

High HPS were more likely to have teachers in part-time positions (11.5% compared to 7.9% for permanent staff, and 2.0% versus 1.3% for relief staff), although any differences in tenure were not statistically significant (Chi-square = 4.31, df = 4, p = .37). The majority of respondents had permanent full-time tenure (72.7%), although the sample comprised 19.4% with permanent part-time roles, 4.3% full-time relief and 3.3% part-time relief teachers (Graph 4.24).
Most respondents were employed on a permanent full-time basis, with slightly more in this category being in Low HPS. However, slightly more permanent part-time teachers were in High HPS, and likewise, High HPS were slightly more likely to attract relief staff (both full-time and part-time).

Chi-square tests of independence were conducted to determine whether the two groups (High and Low HPS) differed in any statistically significant way in terms of tenure status of teachers. The differences were not statistically significant (Chi square = 4.31, df = 4, p = .36).
4.5.2 Summary of Demographic Results.

- Respondents were mostly females with slightly fewer from Low HPS compared to High HPS.
- Most were married or cohabiting, with slightly more separated/divorced teachers in Low HPS.
- The majority of respondents had undergraduate degrees, with Low HPS having slightly more teachers with postgraduate diplomas.
- High HPS were slightly more likely to have part-time teachers, and somewhat more relief teachers than Low HPS.
- No statistically significant differences were found across all demographic variables when comparing Low and High HPS.

4.6 Psychometric Properties of the Teachers’ School Environment Questionnaire

The Teachers School Environment Questionnaire (TSEQ) was compiled from selected scales from six published instruments –

- Social Capital Questionnaire (Onyx, J. and Bullen, P., 1997: Centre for Australian Community Organisations, UTS, Sydney, 1997).
- Job Content Questionnaire (Version 1.5) (Karasek, 1996).

• Non-specific Psychological Distress Scale (Kessler, R. and Mroczek, D., 1994).

• CDC Behavioral Risk Factor Surveillance System Questionnaire (2001).

Each of these instruments has been widely used in published research, and was selected on the basis of well-established psychometric properties. Therefore it was not considered necessary to conduct extensive psychometric analyses on the sub-scales of each of these instruments. However, in order to establish the model being promoted by this thesis, namely that measures of the school environment should encompass a range of both organisational and social variables, psychometric analyses were conducted on the 11 dimensions measuring school organisational health, and the 4 dimensions measuring social capital within the school setting, in order to verify that each measured a unique component of the school environment. These analyses were conducted twice, firstly with the full sample, and secondly with the sample split into High and Low HPS groups.
4.6.1 Tests for Normality of Distributions

In addition to the Kolmogorov-Smirnov statistic, the following characteristics of the data were used to assess normality of the distribution:

- Skewness (-3 to +3);
- Kurtosis (-3 to +3);
- Standard deviation < half the mean; and
- Mean and Median within 10% of each other.

In all 15 domains assessed, a significance value of .00 was found, indicating that none of the scales was normally distributed in the full sample. However, this result is not uncommon for large samples (Pallant, 2001). A similar result was found for the split sample, that is, in both High and Low HPS. Table 4.11 below sets out the results for all 15 dimensions from the full sample.

All four criteria for normality were satisfied for all but one of the domains (Student Orientation), and from this it is reasonable to conclude that the distributions of scores are acceptably close to normal.

---

2 Reference: Personal communication, Dr Diana Battistuta, QUT (2003).
<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>Median</th>
<th>Variance</th>
<th>Std. Deviation</th>
<th>Skewness</th>
<th>Kurtosis</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SS School Morale</strong></td>
<td>65.35</td>
<td>70.00</td>
<td>376.65</td>
<td>19.41</td>
<td>-.53</td>
<td>-.08</td>
</tr>
<tr>
<td><strong>SS Supportive Lead</strong></td>
<td>67.04</td>
<td>70.00</td>
<td>463.47</td>
<td>21.53</td>
<td>-.73</td>
<td>.12</td>
</tr>
<tr>
<td><strong>Decision Authority</strong></td>
<td>10.97</td>
<td>11.00</td>
<td>4.83</td>
<td>2.20</td>
<td>-.50</td>
<td>.12</td>
</tr>
<tr>
<td><strong>Macro-level Decision Authority</strong></td>
<td>19.69</td>
<td>20.00</td>
<td>9.24</td>
<td>3.04</td>
<td>-.39</td>
<td>1.17</td>
</tr>
<tr>
<td><strong>SS Role Clarity</strong></td>
<td>67.37</td>
<td>68.75</td>
<td>247.04</td>
<td>15.72</td>
<td>-.456</td>
<td>.53</td>
</tr>
<tr>
<td><strong>Co-Worker Support</strong></td>
<td>22.64</td>
<td>23.00</td>
<td>11.45</td>
<td>3.38</td>
<td>-.51</td>
<td>.86</td>
</tr>
<tr>
<td><strong>SS Appreciation</strong></td>
<td>52.00</td>
<td>50.00</td>
<td>420.78</td>
<td>20.51</td>
<td>-.10</td>
<td>-.67</td>
</tr>
<tr>
<td><strong>SS Professional Growth</strong></td>
<td>61.78</td>
<td>65.00</td>
<td>330.51</td>
<td>18.18</td>
<td>-.50</td>
<td>.15</td>
</tr>
<tr>
<td>Variable</td>
<td>Mean</td>
<td>Median</td>
<td>Variance</td>
<td>Std. Deviation</td>
<td>Skewness</td>
<td>Kurtosis</td>
</tr>
<tr>
<td>--------------------------</td>
<td>-------</td>
<td>--------</td>
<td>----------</td>
<td>----------------</td>
<td>----------</td>
<td>----------</td>
</tr>
<tr>
<td>SS Goal Congruity</td>
<td>66.03</td>
<td>70.00</td>
<td>264.74</td>
<td>16.27</td>
<td>-.54</td>
<td>.54</td>
</tr>
<tr>
<td>SS Curriculum Coordination</td>
<td>62.36</td>
<td>62.50</td>
<td>353.90</td>
<td>18.81</td>
<td>-.43</td>
<td>-.09</td>
</tr>
<tr>
<td>SS Student Orientation</td>
<td>77.52</td>
<td>75.00</td>
<td>192.50</td>
<td>13.87</td>
<td>-1.36</td>
<td>7.73 N</td>
</tr>
<tr>
<td>Value for Life</td>
<td>7.36</td>
<td>7.00</td>
<td>1.9</td>
<td>1.38</td>
<td>-.35</td>
<td>1.59</td>
</tr>
<tr>
<td>Social Proactivity</td>
<td>24.62</td>
<td>24.00</td>
<td>17.85</td>
<td>4.23</td>
<td>-.35</td>
<td>2.36</td>
</tr>
<tr>
<td>Trust</td>
<td>16.52</td>
<td>17.00</td>
<td>13.51</td>
<td>3.68</td>
<td>-.30</td>
<td>.79</td>
</tr>
<tr>
<td>Tolerance for Diversity</td>
<td>7.35</td>
<td>7.00</td>
<td>2.51</td>
<td>1.59</td>
<td>-.52</td>
<td>1.71</td>
</tr>
</tbody>
</table>

**Table 4.11:** Normality check for Organisational and Social Capital Variables.
4.6.2 Factor Analysis

An exploratory factor analysis was conducted to determine the interrelationships amongst the school environment variables (school organisational health and school social capital).

A substantial number of the item inter-correlations were .3 or above, and the Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) of .96 indicated that conducting a factor analysis was appropriate. This was further confirmed by Bartlett’s Test of Sphericity (Chi square = 28147.30, df = 3321, p = .00), which produced a statistically significant result.

To determine how many factors to extract, Kaiser’s criterion was used to identify those components with eigenvalues of 1 or more. Twenty-three components met this criterion. These components explained a total of 68.34% of the variance. Most components loaded onto Factor 1, which explained 28.57% of the variance; Factor 2 explained 5.20% of the variance; and Factor 3 explained another 3.29% of the variance. The relative contributions of all components after this were all even lower and thus considered insignificant. On this basis it was decided to retain only Factors 1, 2, and 3. Twelve items loaded very strongly (above .7) on Factor 1 with an additional 36 items loading moderately well (above .5) on this factor. On Factor 2, only 5 items loaded above .5 (range .50 to .62). No loadings on Factors 3 and 4 loaded above .5.

Varimax rotation was performed on the two main factors. The rotated solution revealed strong loadings mostly on Factor 1 (48 items above .5). The two-factor solution explained a total of 33.78% of the variance, with Factor 1
contributing 27.75% and Factor 2 contributing an additional 6.02% of the variance. As would be expected, those components with loadings above .5 that comprised Factor 1 consisted of 41 items from the School Organisational Health Questionnaire, but did include 3 items from the Social Capital Questionnaire (items B1, B8, and B11). Those items that loaded most strongly on Factor 2 consisted of 5 items from the SOHQ and 2 from the SCQ.

Those items from the SOHQ that loaded more strongly onto Factor 2 rather than Factor 1 related consistently to workload pressures – hectic pace of the job; frequent interruptions prior to completion of tasks; excessive workload; high skill demands; and lengthy periods of intense concentration.

The two items from the SCQ that also contributed to this factor also related to workload issues – helping a colleague above and beyond one’s position, and taking initiative to undertake tasks without being asked to do so.

Multiple regression analyses were conducted to determine the extent to which each of the school organisational health variables and social capital subscales was correlated (Table 4.12).

All correlations were positive and ranged from weak (.20 between Tolerance for Diversity and Appreciation) to moderately strong (.53 between Value for Life and two organisational health variables, Role Clarity and Appreciation).
Table 4.12: Inter-correlations between SOH and Social Capital variables.

The social capital scale “Value for Life” was moderately correlated with 8 of the organisational health variables, indicating that this scale could safely be removed, as it did not contribute a unique dimension to measurement of the school organisational environment. Similarly, “Social Proactivity” was moderately correlated with most of the organisational health variables and therefore could effectively be removed from the instrument. Although Trust was weakly correlated with most of the organisational health variables, its strongest association was with Student Orientation \((r = .42)\). This variable appears to add a significantly unique dimension to the measurement of school organisational health.

The social capital variable “Tolerance for Diversity”, with only weak correlations with each of the organisational health variables, appears to be the
only social capital variable that adds a substantially unique dimension to measurement of the school organisational health.

**4.6.3 Summary: Psychometric Properties of TSEQ**

In summary, this research identified two core factors that comprise the school organisational environment – Factor 1: the quality of interpersonal relations between staff, and Factor 2: the demands of the job. The nature of these two factors suggests that any measure of school environments should encompass two levels of assessment: the nature and quality of social relationships within the workplace (social capital), and the quality of the organisational environment (organisational capital), which is through employees’ perceptions of the job demands.

These results suggest that the School Organisational Health Questionnaire provides the most comprehensive and consistent measure of the school environment, but that a number of variables from the Social Capital Questionnaire contribute additional value to this assessment of the school climate, namely (and most importantly) staff “feeling valued” by the organisation (appreciation); staff indicating that the workplace “feels like home” (subjective comfort); and staff feeling comfortable about speaking out on issues where there may be differences of opinion amongst the employee body (opportunity for assertive communication).

The Teachers’ School Environment Questionnaire, a composite of these two instruments, provides the best measure available at present to comprehensively assess work environments within the school setting.
4.7 Comparison of High and Low HPS on School Organisational Health Variables.

Differences between high-HPS and low-HPS on each dimension of school environment were compared using independent samples t-tests. This statistic is the analytical tool of choice when comparing means of two independent groups with one categorical independent variable (in this case, low and high HPS) and one continuous dependent variable (in this case, standard scores on the 4 social capital variables and 11 organisational health variables).

Levene’s test of equality of variances was used to test whether the variance of scores for the two groups (High and Low HPS) was the same. For school organisational health variables, the significance value was larger than .05 on all scales except Appreciation, confirming that the data did not violate the assumption of equal variances, which is necessary for t-tests. Results are shown in Table 4.13.

<table>
<thead>
<tr>
<th></th>
<th>F (Levene's Test)</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>School Morale</td>
<td>.391</td>
<td>.532</td>
</tr>
<tr>
<td>Supportive Leadership</td>
<td>.935</td>
<td>.334</td>
</tr>
<tr>
<td>Decision Authority</td>
<td>.281</td>
<td>.596</td>
</tr>
<tr>
<td>Macro Decision Authority</td>
<td>.023</td>
<td>.878</td>
</tr>
<tr>
<td>Role Clarity</td>
<td>2.369</td>
<td>.124</td>
</tr>
<tr>
<td>Co Worker Support</td>
<td>.471</td>
<td>.493</td>
</tr>
<tr>
<td>Appreciation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Professional Growth</td>
<td>.631</td>
<td>.427</td>
</tr>
<tr>
<td>Goal Congruity</td>
<td>1.453</td>
<td>.228</td>
</tr>
<tr>
<td>Curriculum Coordination</td>
<td>.069</td>
<td>.792</td>
</tr>
<tr>
<td>Student Orientation</td>
<td>.277</td>
<td>.598</td>
</tr>
</tbody>
</table>

Table 4.13: Results of Levene’s Test of Equality of Variances.
Statistically significant differences were found between mean scores for High and Low HPS on all 11 of the school organisational health variables. Mean scores were consistently higher in High HPS. The magnitude of the differences (eta squared) was very small to small for all dimensions. Effect size was most significant for School Morale (3.3% of variance), Decision Authority (2.9% of variance), and Co-worker Support (2.7% of variance).

When means for High and Low HPS were compared on the school organisational health variables, the greatest difference was for the dimension Supportive Leadership, with the mean for High HPS 8.26 points higher than for Low HPS. The mean for School Morale was 7.71 points higher in High HPS; Goal Congruity was 6.51 points higher in High HPS, as was Professional Growth, Appreciation, and Curriculum Co-ordination (each of these last 3 dimensions was more than 5 points higher in High HPS) (Table 4.14).

<table>
<thead>
<tr>
<th></th>
<th>Low HPS (Mean)</th>
<th>High HPS (Mean)</th>
<th>t</th>
<th>df</th>
<th>p (2-tailed)</th>
<th>Eta sq</th>
</tr>
</thead>
<tbody>
<tr>
<td>School Morale</td>
<td>61.1</td>
<td>68.8</td>
<td>-5.17</td>
<td>797</td>
<td>.00</td>
<td>0.03</td>
</tr>
<tr>
<td>Supportive Leadership</td>
<td>62.5</td>
<td>70.8</td>
<td>-3.87</td>
<td>794</td>
<td>.00</td>
<td>0.02</td>
</tr>
<tr>
<td>Decision Authority</td>
<td>10.6</td>
<td>11.3</td>
<td>-4.86</td>
<td>798</td>
<td>.00</td>
<td>0.03</td>
</tr>
<tr>
<td>Macro Decision Authority</td>
<td>19.3</td>
<td>20.0</td>
<td>-3.15</td>
<td>798</td>
<td>.00</td>
<td>0.01</td>
</tr>
<tr>
<td>Role Clarity</td>
<td>65.2</td>
<td>69.1</td>
<td>-2.11</td>
<td>804</td>
<td>.04</td>
<td>0.01</td>
</tr>
<tr>
<td>Co Worker Support</td>
<td>22.0</td>
<td>23.2</td>
<td>-4.75</td>
<td>798</td>
<td>.00</td>
<td>0.03</td>
</tr>
<tr>
<td>Appreciation</td>
<td>48.8</td>
<td>54.5</td>
<td>-3.11</td>
<td>789.4</td>
<td>.00</td>
<td>0.01</td>
</tr>
<tr>
<td>Professional Growth</td>
<td>58.6</td>
<td>64.4</td>
<td>-3.60</td>
<td>806</td>
<td>.00</td>
<td>0.02</td>
</tr>
<tr>
<td>Goal Congruity</td>
<td>62.5</td>
<td>69.0</td>
<td>-4.08</td>
<td>806</td>
<td>.00</td>
<td>0.02</td>
</tr>
<tr>
<td>Curriculum Co-ordination</td>
<td>59.3</td>
<td>64.9</td>
<td>-3.31</td>
<td>804</td>
<td>.00</td>
<td>0.01</td>
</tr>
<tr>
<td>Student Orientation</td>
<td>74.9</td>
<td>79.7</td>
<td>-2.92</td>
<td>809</td>
<td>.004</td>
<td>0.01</td>
</tr>
</tbody>
</table>

**Table 4.14: Comparison of High & Low HPS on Organisational Health Indicators.**
4.8 Comparison of High and Low HPS on Social Capital Variables.

The significance value for Levene’s Test was larger than .05 for 3 of the Social Capital dimensions (Value for Life, Social Proactivity, and Tolerance for Diversity), indicating that the variances for the two groups (High and Low HPS) were equal. However, equal variance could not be assumed for the dimension Trust (p = .03). Differences between means for all 4 Social Capital variables were statistically significant, with means consistently higher for High HPS (Table 4.15).

<table>
<thead>
<tr>
<th></th>
<th>Low HPS (Mean)</th>
<th>High HPS (Mean)</th>
<th>t</th>
<th>df</th>
<th>p</th>
<th>Mean Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Value for Life</td>
<td>7.20</td>
<td>7.49</td>
<td>-3.12</td>
<td>799</td>
<td>.002</td>
<td>-.34</td>
</tr>
<tr>
<td>Social Proactivity</td>
<td>24.09</td>
<td>25.05</td>
<td>-3.39</td>
<td>798</td>
<td>.001</td>
<td>-1.04</td>
</tr>
<tr>
<td>Trust</td>
<td>16.10</td>
<td>16.85</td>
<td>-3.15</td>
<td>789.9</td>
<td>.002</td>
<td>-.83</td>
</tr>
<tr>
<td>Tolerance for Diversity</td>
<td>7.12</td>
<td>7.53</td>
<td>-3.53</td>
<td>798</td>
<td>.000</td>
<td>-.40</td>
</tr>
</tbody>
</table>

**Table 4.15:** Statistical comparison of Social Capital Across Low and High HPS.

On the basis of these results, the hypothesis that there was no difference between High and Low HPS on any dimensions of the work environment was rejected, and it was concluded that schools actively implementing the HPS approach offer teachers not only a consistently better organisational climate, but that Social Capital in these schools is also significantly higher.
4.9 COMPARISON OF HIGH AND LOW HPS ON MEASURES OF TEACHERS SELF-RATED HEALTH.

General Health

The majority of teachers reported “good” to “very good” general health. However, up to 12% reported only fair health. Comparisons of teachers’ ratings of general health between High HPS and Low HPS are shown below (Graph 4.25). There was no statistically significant difference between the two groups (chi square = .78, df = 4, p = .94), although there was a slight trend towards more teachers in High HPS reporting good general health.

![Graph 4.25: Teachers' Ratings of General Health.](image-url)
**Physical Health**

Despite there being no statistically significant difference between High and Low HPS on teachers’ ratings of physical health (chi square = 4.416, df = 4, p = .35), the results indicated that almost twice as many teachers in Low HPS reported experiencing poor physical health (including physical illness and injury) at least several times per week, and the percentage of teachers reporting good physical health, or rarely having health problems, was consistently higher in High HPS. Overall, nearly half of all teachers reported physical health problems several times each month (Graph 4.26).

![Graph 4.26: Teachers’ self-ratings of poor physical health.](image-url)
Mental Health

Ratings of poor mental health include stress, depression and problems with emotions. Differences between high and Low HPS were statistically significant (chi square  = 10.130, df = 4, p = .04). More teachers in High HPS reported having no problems with mental health (25.7% in High HPS compared with 19.7% in Low HPS).

Reports of daily mental health problems were three times higher for teachers in Low HPS (3.9% in Low HPS compared with 1.1% with daily problems in High HPS). Overall, about 1 in 5 teachers reported having mental health problems at least once per week, and nearly half had problems several times a month (Graph 4.27).

Graph 4.27: Self-ratings of frequency of mental health problems.
4. 10 COMPARISON OF HIGH AND LOW HPS ON TEACHERS’ LIFESTYLE & HEALTH BEHAVIOURS.

The analyses carried out for this part of the study aimed to assess the prevalence of common health behaviours related to lifestyle. Chi square tests were conducted to explore the relationships between lifestyle and health behaviours, and HPS status. Both variables were categorical.

**Private health insurance**

There was no difference between the two groups, with 80.1% of teachers in Low HPS having private health insurance compared with 80.5% of teachers in High HPS (chi square = .00, df = 1, p = .93).

**Personal doctor or health care provider**

No difference was found between the two groups, with 77.8% of teachers in Low HPS compared with 76.2% of teachers in High HPS having a personal health care provider (chi square = 1.92, df = 2, p = .38).

**Physical activity**

Overall, fewer than half of all teachers were exercising at least several times weekly, and there was very little difference in the patterns of physical activity between High and Low HPS. Slightly more teachers in High HPS (6.4%) were taking no physical exercise compared to teachers in Low HPS (5.8%), while daily exercise was slightly more prevalent amongst teachers from High HPS. There was no significant difference between the two groups (chi-square = 3.11, df = 4, p = .54) (Graph 4.28).
Blood pressure

From the full sample of respondents, 16.2% of teachers had been advised that they had high blood pressure. Of those with high blood pressure, 51.2% were from High HPS and 48.8% were from Low HPS.

Cholesterol checks

Almost one third of all teachers had either never had a cholesterol check-up, or had taken one within the past 12 months. Results indicated that a higher proportion of teachers in High HPS had *never* had a cholesterol check-up – 34.0% compared to 29.1% in Low HPS, although the difference between groups was not statistically significant (chi square = 2.995, df = 4, p = .55) (Graph 4.29).
Graph 4.29: Frequency of cholesterol check-ups.

**Smoking**

Most teachers were non-smokers, with no difference between the High and Low HPS (chi square = 4.61, df = 4, p = .33). However, there were almost three times as many teachers in Low HPS smoking 10 – 20 cigarettes per day compared with smokers in Low HPS (Graph 4.30).

**Alcohol consumption (1+ standard drinks per day)**

No significant difference in drinking patterns between teachers in Low and High HPS was found. Somewhat more than 1 in 4 of all teachers drank alcohol several times per week, and about 11% of all teachers consumed alcohol on a daily basis (Graph 4.31). Excess use of alcohol was not investigated in this study. The difference between High and Low HPS was not significant (chi square = .941, df = 4, p = .91).
Graph 4.30: Frequency of Smoking Status.

Graph 4.31: Rates of Alcohol Consumption.
Preventive health screenings (e.g. Pap smears, mammograms, testicular or prostate cancer checks)

In the overall sample, 75% of teachers reported undergoing regular preventive health screenings. In High HPS, 75.5% of teachers compared to 74.5% of LOW HPS teachers, underwent health screenings on a regular basis. The difference was not statistically significant (chi square = .49, df = 2, p = .78).

Dental Check-up

In the full sample, 59.3% of all teachers had undergone a dental treatment or check-up within the past year, with 56.8% of teachers in Low HPS undergoing dental treatment, and 61.5% of High HPS teachers, having dental treatment in the last twelve months. The difference between groups was not statistically significant (Chi square = 9.26, df = 4, p = .06).

Diet

No significant differences were found between the two groups across all measures of diet. Results indicated that 68.2% of all teachers were consuming fruit and vegetables every day, however, the proportion of daily fruit and vegetable consumption was slightly higher amongst teachers in Low HPS. This trend was similar for grain consumption, which was slightly higher in teachers from Low HPS. Teachers in Low HPS were more likely to consume dairy products almost every day compared with teachers in High HPS (10.6% in Low HPS compared with 9.4% in High HPS).

However, with regards to limiting fat intake, only 14.7% of the full sample reported “never” eating high-fat foods, and avoidance of high-fat foods was
more common amongst teachers in Low HPS. Well over half the teachers were consuming high-fat foods at least once per week, with slightly more being from High HPS (65.4% compared to 63% in Low HPS) (Table 4.16). These results suggest that overall, teachers in Low HPS tend to be following recommended dietary guidelines, although the high proportion of teachers still consuming excessive fat in the diet is cause for concern.

<table>
<thead>
<tr>
<th></th>
<th>Never</th>
<th>1-2 times/week</th>
<th>3-4 times/week</th>
<th>5-6 times/week</th>
<th>Daily</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Grains</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High HPS</td>
<td>0.9</td>
<td>3.2</td>
<td>13.8</td>
<td>21.4</td>
<td>60.7</td>
</tr>
<tr>
<td>Low HPS</td>
<td>0.8</td>
<td>2.8</td>
<td>10.0</td>
<td>21.4</td>
<td>64.9</td>
</tr>
<tr>
<td><strong>Dairy</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High HPS</td>
<td>25.1</td>
<td>11.0</td>
<td>9.2</td>
<td>9.4</td>
<td>45.3</td>
</tr>
<tr>
<td>Low HPS</td>
<td>19.5</td>
<td>14.5</td>
<td>7.8</td>
<td>10.6</td>
<td>47.6</td>
</tr>
<tr>
<td><strong>Protein</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High HPS</td>
<td>0.0</td>
<td>3.0</td>
<td>10.3</td>
<td>23.8</td>
<td>62.9</td>
</tr>
<tr>
<td>Low HPS</td>
<td>0.0</td>
<td>3.3</td>
<td>12.5</td>
<td>18.9</td>
<td>65.3</td>
</tr>
<tr>
<td><strong>Fruit/Veg</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High HPS</td>
<td>0.0</td>
<td>4.4</td>
<td>12.6</td>
<td>18.1</td>
<td>64.9</td>
</tr>
<tr>
<td>Low HPS</td>
<td>0.3</td>
<td>3.3</td>
<td>12.2</td>
<td>18.6</td>
<td>65.7</td>
</tr>
<tr>
<td><strong>HighFat</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High HPS</td>
<td>14.1</td>
<td>65.4</td>
<td>14.3</td>
<td>4.1</td>
<td>2.1</td>
</tr>
<tr>
<td>Low HPS</td>
<td>15.4</td>
<td>63.0</td>
<td>15.4</td>
<td>4.2</td>
<td>2.0</td>
</tr>
</tbody>
</table>

*Table 4.16: Dietary Intake Patterns (Low/High HPS).*
Weight

Of the full sample of respondents, 51.2% reported being overweight to obese. Teachers in Low HPS were slightly more likely to be “very overweight”, while teachers in High HPS were slightly more likely to be normal or under weight.

There appeared no difference in the distribution patterns of weight across the two samples, and the groups were not statistically different (chi square = .61, df = 4, p = .96). However, 52% of teachers in Low HPS and 50.4% of teachers in High HPS were above normal weight (Graph 4.32).

Graph 4.32: Body Weight (Self-rated).
4.11 TEACHERS' JOB STRESS

Three measures of job stress were examined in this study – Psychosomatic Strain, Skill Discretion, and Job Demand (workload pressure).

Results of independent samples t-tests demonstrated that differences between means from High and Low HPS were statistically significant for Psychosomatic Strain ($t = 2.15$, $p = .03$) and Skill Discretion ($t = -5.38$, $p = .00$). A lower mean score for Psychosomatic Strain was found for teachers from High HPS (Mean High HPS = 19.03, Mean Low HPS = 19.98). However, the difference between High and Low HPS on the variable Psychosomatic Strain disappeared when the analysis controlled for the effect of Teaching Experience (Years).

A one-way between groups analysis of covariance was conducted to compare the effect of school health promotion status (High versus Low) on teachers’ Psychosomatic Strain. The variable Years of Teaching Experience was used as the covariate. There was no significant difference between the two groups ($F = 3.38$, $p = .07$, $\eta^2 = .004$).

The mean score for Job Demand was higher in High HPS schools (High HPS Mean = 22.08 and Low HPS 21.37), however the difference between groups was not statistically significant ($t = -1.61$, $p = .11$).

The mean score for Skill Discretion was also higher for High HPS (High HPS Mean = 19.7, Low HPS Mean = 18.81), and the difference between groups was statistically significant ($t = -5.37$, $p = .00$). This difference was also
statistically significant when the data were controlled for years of teaching experience (F = 27.99, p = .00).

It would appear that higher skill discretion in schools adopting a HPS framework mitigates psychosomatic strain in these schools, despite slightly higher job demands, and this is not affected by teacher’s experience (Graph 4.33).

![Graph 4.33: Job Stress in High and Low HPS.](image)

Spearman’s Rank Order Correlation was conducted to determine the strength of associations between each of the three job stress variables. A moderate but inverse correlation was found between Job Demand and Psychosomatic Strain (r = -.37). Likewise Psychosomatic Strain and Skill Discretion were inversely related to a small degree (r = -.15). Skill Discretion and Job Demand were not correlated (r = -.05).
4.12 Comparison of High and Low HPS on Teachers’ Non-Specific Psychological Distress.

In order to test whether teachers in Health Promoting Schools experience less (or more) general stress than teachers in non-HPS, chi-square tests for independence were conducted on each item from the Non-specific Psychological Distress Scale (Kessler and Mroczek, 1994). A comparison between Low and High HPS was made for each of the 14 items on the scale.

Statistically significant differences were found between teachers’ ratings from High and Low HPS on the following measures of general psychological distress:

- Becoming tired out for no good reason.
- Feeling nervous.
- Feeling depressed.
- Feeling that everything was an effort.
- Feeling worthless.

Unexplained Fatigue

In High HPS, 34.7% of teachers reported often or always feeling unexplained fatigue, compared to 47.1% of teachers in Low HPS (Graph 4.34). The difference between the two groups was statistically significant (chi square = 14.44, df = 4, p = .006).
**Nervousness**

A greater proportion of teachers in High HPS reported never suffering feelings of nervousness, compared with those from Low HPS (Graph 4.35). More teachers in Low HPS reported “Sometimes” or “Often” feeling nervous. Differences were statistically significant (chi square = 15.16, df = 4, p = .004).  

**Graph 4.34: Comparison of Low and High HPS x Fatigue.**
Graph 4.35: Comparison of Low and High HPS x Nervousness.

Depression

Teachers in High HPS were significantly less likely to feel depressed than teachers in Low HPS (Graph 4.36). The difference was statistically significant (chi square = 16.77, df = 4, p = .002). Interestingly, there was no difference between teachers in Low or High HPS on ratings of “often” feeling depressed, although teachers in Low HPS were more likely to report “always” feeling depressed (Graph 4.36).
**Excess Effort**

Proportionately more teachers in Low HPS reported “often” or “always” feeling that **everything was an effort** – 20.1% compared to 13.1% of teachers in High HPS feeling the same. The difference was statistically significant (chi square = 15.57, df = 4, p = .004). The inverse relationship also held true – a higher percentage of teachers in High HPS reported “never” feeling as if everything was always an effort (Graph 4.37).

**Worthlessness**

Feelings of **worthlessness** were more prevalent in teachers from Low HPS compared to teachers in High HPS (6.4%). This difference was statistically significant (chi square = 11.65, df = 4, p = .02). Overall, feeling worthless was not a significant problem for teachers, with fewer than 10% reporting feeling this way (Graph 4.38).

There was no statistically significant difference between teachers in Low or High HPS on any of the other psychosomatic strain variables – use of sedatives, sleep problems, poor appetite, restlessness, sweaty hands, chest pain, breathing problems neck or back pain. However, despite the lack of statistical differences, some interesting observations emerged from the data.
Graph 4.36: Comparison of Low & High HPS x Depression.

Graph 4.37: Comparison of Low and High HPS x Effort.
Graph 4.38: Comparison of Low and High HPS x Worthlessness.

Back pain seemed to be more common amongst teachers in High HPS (Graph 4.39), whilst neck pain was more prevalent amongst teachers in Low HPS (Graph 4.40).

Appetite problems were less of a problem for teachers in High HPS, and overall seemed to affect fewer than 5% of teachers (Graph 4.41).

Nearly one third of all teachers reported some problems with sleep, with about one in five reporting often having a problem sleeping. It was more likely to be a problem for teachers in Low HPS except for serious sleeping problems (those reporting “always” having this problem), which surprisingly was more commonly reported by teachers in High HPS (Graph 4.42).
**Graph 4.39: Back Pain in Teachers from Low/High HPS.**

**Graph 4.40: Neck Pain in Teachers from Low/High HPS.**
**Graph 4.41:** Appetite in Teachers from Low/High HPS.

**Graph 4.42:** Sleep problems in Teachers from Low/High HPS.
ASSOCIATIONS BETWEEN SCHOOL ENVIRONMENT AND TEACHERS HEALTH.

The following research question guided the data analysis:

**RQ2.2:** To what extent do school organisational health and social capital variables in Health Promoting Schools predict teachers’ job stress (psychosomatic strain), work demands, or skill discretion?

After splitting the data file to allow concurrent analyses for both Low and High HPS, three sets of regression analyses were conducted to test the strength of relationships between 15 dimensions of the work environment within the school setting, and the 3 dependent variables relating to job stress (psychosomatic strain, job demand, and skill discretion). This latter is the statistic of choice when the data consist of one continuous dependent variable (in this case, each of the job stress dimensions) and two or more continuous independent variables (in this case, the 11 dimensions of school organisational health and 3 dimensions of school social capital). The data set was split according to HPS status and analyses run simultaneously on both sets so comparisons could be made between the two samples.

**4.13.1 Psychosomatic Strain**

Associations between Psychosomatic Strain and each dimension of the work environment were tested using multiple regression analyses. Both variables were continuous. The relationships between the work environment and Psychosomatic Strain were weak and inversely related in both High and Low
HPS, suggesting that strain increases as various aspects of the work environment deteriorate (Table 4.17).

The association appeared to be more significant in Low HPS, 5 of the 15 dimensions being correlated above .30. The strongest associations were between Supportive Leadership, Role Clarity, School Morale, Co-worker Support, and Value for Life. In High HPS, only 2 of the 15 dimensions had moderate correlations, these being Value for Life and Co-worker Support.

<table>
<thead>
<tr>
<th>Psychosomatic Strain x</th>
<th>Correlations</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Low HPS</td>
</tr>
<tr>
<td>School Morale</td>
<td>-0.26</td>
</tr>
<tr>
<td>Supportive Leadership</td>
<td>-0.27</td>
</tr>
<tr>
<td>Decision Authority</td>
<td>-0.15</td>
</tr>
<tr>
<td>Macro Decision Authority</td>
<td>-0.12</td>
</tr>
<tr>
<td>Role Clarity</td>
<td>-0.26</td>
</tr>
<tr>
<td>Co Worker Support</td>
<td>-0.25</td>
</tr>
<tr>
<td>Appreciation</td>
<td>-0.23</td>
</tr>
<tr>
<td>Professional Growth</td>
<td>-0.14</td>
</tr>
<tr>
<td>Goal Congruity</td>
<td>-0.21</td>
</tr>
<tr>
<td>Curriculum Coordination</td>
<td>-0.20</td>
</tr>
<tr>
<td>Student Orientation</td>
<td>-0.14</td>
</tr>
<tr>
<td>Value for Life</td>
<td>-0.25</td>
</tr>
<tr>
<td>Social Proactivity</td>
<td>-0.11</td>
</tr>
<tr>
<td>Trust</td>
<td>-0.15</td>
</tr>
<tr>
<td>Tolerance for Diversity</td>
<td>-0.07</td>
</tr>
</tbody>
</table>

Table 4.17: Inter-correlations between Psychosomatic Strain and Work Environment Variables.
4.13.2 Job Demands

An independent samples t-test was used to test the hypothesis that there was no difference in perceived job demands between High and Low HPS. Results confirmed the hypothesis, that there was no statistically significant difference between High and Low HPS in relation to job demands on teachers ($t = -1.61$, df = 798, $p = .11$).

Associations between perceived job demands and all dimensions of the work environment were stronger, albeit only small, in Low HPS for 4 of the 15 work environment variables. The biggest differences between the two groups were for Goal Congruity and Curriculum Co-ordination. Associations between Job Demand and dimensions of the organisational and social environment were negligible in High HPS, but in Low HPS, 4 dimensions of the school environment were correlated weakly with Job Demand.

This result suggests that teachers in High HPS tend to perceive little, if any, association between the work environment and demands of the job, whereas for teachers in Low HPS, Job Demand is correlated with goal congruity, curriculum co-ordination, school morale, and role clarity (Table 4.18).
<table>
<thead>
<tr>
<th></th>
<th>Low HPS</th>
<th>High HPS</th>
</tr>
</thead>
<tbody>
<tr>
<td>School Morale</td>
<td>0.23</td>
<td>0.13</td>
</tr>
<tr>
<td>Supportive Leadership</td>
<td>0.20</td>
<td>0.14</td>
</tr>
<tr>
<td>Decision Authority</td>
<td>0.11</td>
<td>0.00</td>
</tr>
<tr>
<td>Macro Decision Authority</td>
<td>0.06</td>
<td>-0.14</td>
</tr>
<tr>
<td>Role Clarity</td>
<td>0.23</td>
<td>0.10</td>
</tr>
<tr>
<td>Co Worker Support</td>
<td>0.20</td>
<td>0.20</td>
</tr>
<tr>
<td>Appreciation</td>
<td>0.12</td>
<td>0.19</td>
</tr>
<tr>
<td>Professional Growth</td>
<td>0.11</td>
<td>0.06</td>
</tr>
<tr>
<td>Goal Congruity</td>
<td>0.24</td>
<td>0.14</td>
</tr>
<tr>
<td>Curriculum Coordination</td>
<td>0.24</td>
<td>0.09</td>
</tr>
<tr>
<td>Student Orientation</td>
<td>0.02</td>
<td>0.01</td>
</tr>
<tr>
<td>Value for Life</td>
<td>0.08</td>
<td>0.09</td>
</tr>
<tr>
<td>Social Proactivity</td>
<td>-0.06</td>
<td>-0.06</td>
</tr>
<tr>
<td>Trust</td>
<td>0.04</td>
<td>0.01</td>
</tr>
<tr>
<td>Tolerance for Diversity</td>
<td>-0.02</td>
<td>-0.06</td>
</tr>
</tbody>
</table>

Table 4.18: Inter-correlations between Job Demand and Work Environment Variables.

**4.13.3 Skill Discretion**

Skill discretion refers to the extent to which the job offers opportunities for new learning and creativity, variety, high skills, development of one’s own abilities, and repetitive work.

Results indicated that the mean score for Skill Discretion in High HPS was statistically higher than the mean score for this variable in Low HPS (t = -5.37, df = 800, p = .00). Skill Discretion was more strongly associated with
dimensions of the organisational climate in High HPS, with all but two
correlations being above .3 (Table 4.9). The association was weaker in Low
HPS.

Two dimensions of the school social capital were also moderately associated
with skill discretion in the High HPS. These were Value for Life ($r = .42$) and
Social Proactivity ($r = .41$).

<table>
<thead>
<tr>
<th>Skill Discretion x</th>
<th>Correlations</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Low HPS</td>
</tr>
<tr>
<td>School Morale</td>
<td>0.23</td>
</tr>
<tr>
<td>Supportive Leadership</td>
<td>0.22</td>
</tr>
<tr>
<td>Decision Authority</td>
<td>0.29</td>
</tr>
<tr>
<td>Macro Decision Authority</td>
<td>0.36</td>
</tr>
<tr>
<td>Role Clarity</td>
<td>0.24</td>
</tr>
<tr>
<td>Co Worker Support</td>
<td>0.31</td>
</tr>
<tr>
<td>Appreciation</td>
<td>0.24</td>
</tr>
<tr>
<td>Professional Growth</td>
<td>0.44</td>
</tr>
<tr>
<td>Goal Congruity</td>
<td>0.26</td>
</tr>
<tr>
<td>Curriculum Coordination</td>
<td>0.25</td>
</tr>
<tr>
<td>Student Orientation</td>
<td>0.21</td>
</tr>
<tr>
<td>Value for Life</td>
<td>0.23</td>
</tr>
<tr>
<td>Social Proactivity</td>
<td>0.28</td>
</tr>
<tr>
<td>Trust</td>
<td>0.06</td>
</tr>
<tr>
<td>Tolerance for Diversity</td>
<td>0.14</td>
</tr>
</tbody>
</table>

**Table 4.19:** Inter-correlations between Skill Discretion and Work
Environment Variables.
4.13.4 Summary of Results

Job Demand and Skill Discretion were both higher in High HPS. For teachers in both Low and High HPS, Job Demand was the variable contributing most to job stress, while Skill Discretion and Psychosomatic Strain appeared to be inversely related.

These results suggest that in schools actively adopting a HPS approach, there is a greater emphasis on teachers' professional growth, opportunities to make autonomous decisions (Decision Authority), roles within the school system are more clearly articulated, leadership is more supportive, and teachers are more overtly valued as members of the school community. These principles are reflected in higher school morale and greater social proactivity in HPS.
4.14 COMPARISON OF LOW AND HIGH HPS ON TEACHERS’ JOB COMMITMENT.

The research question guiding this analysis was:

**RQ2.4A: Does the Health Promoting Schools approach strengthen teachers’ job commitment?**

Independent samples t-tests were conducted to test the research hypothesis. This is the statistic of choice for comparing two independent groups where the dependent variables (organisational commitment, occupational commitment, and turnover intention) are continuous, and the independent variable (level of HPS status) is categorical (two levels, High and Low HPS).

The mean **Organisational Commitment** score for Low HPS was 19.95, and for High HPS the mean score was 21.56. Statistical analyses indicated that equal variances could be assumed ($F = 1.89, p = .16$). The difference between means was statistically significant ($t = -4.23, df = 799, p = .00$).

The mean **Occupational Commitment** score for Low HPS was 23.90, and for High HPS the mean score was 24.82. Levene’s test for equality of variance indicated that the variances were equal. The difference between means for Low and High HPS was statistically significant ($t = -2.95, df = 799, p = .00$).

The mean score for **Turnover Intention** for Low HPS was 7.24, and for High HPS it was 6.49. Levene’s test for equality of variance indicated that equal variances could not be assumed. The difference between means was statistically significant ($t = 3.43, df = 730, p = .00$).
These results confirmed that Organisational Commitment and Occupational Commitment were both higher for teachers in High HPS, and Turnover Intention (plans to leave the workforce/workplace) was lower for teachers in High HPS. Even though these results were statistically significant, it should be noted that the differences between means were, in reality, not large, and the statistical results reflect the high power associated with having a large sample size.

**RQ 2.4B:** Which work environment variables (social capital and organisational capital) best predicted teachers’ organisational commitment (commitment to the school at which they now teach) and is there a difference between Low HPS and High HPS for any associations?

Multiple regression analyses were conducted to test this hypothesis, with the independent variables being each of the 11 school organisational health dimensions and the 4 social capital dimensions (continuous variables) and the dependent variable being organisational commitment. The dataset was split in order to run the analyses on Low and High HPS concurrently, so that comparisons of the two sets of data could be made.

Multicollinearity was checked and confirmed that the assumption was not violated for any of the independent variables (Tolerance r ranged from .28 to .82). No major deviations from normality were found in either the normal probability plot of the regression standardised residuals or the residuals scatterplot. However, Organisational and Occupational Commitment were positively correlated.
Work environment variables (organisational health and social capital) were more strongly associated with organisational commitment than they were with occupational commitment. Occupational commitment was most strongly associated with the social capital variable Value for Life ($r = .37$), while Organisational Commitment was most strongly associated with School Morale ($r = .61$).

Other organisational health variables strongly associated with organisational commitment were Co-worker Support ($r = .58$), Goal Congruity ($r = .56$), Decision Authority ($r = .55$), Supportive Leadership and Appreciation and Professional Growth (all $r = .50$), Role Clarity ($r = .49$) and Macro Decision Authority ($r = .45$) (Table 4.20).

<table>
<thead>
<tr>
<th>Organisational Health x</th>
<th>Correlations</th>
<th>Organisational Commitment</th>
<th>Occupational Commitment</th>
</tr>
</thead>
<tbody>
<tr>
<td>School Morale</td>
<td>.61</td>
<td>.20</td>
<td></td>
</tr>
<tr>
<td>Supportive Leadership</td>
<td>.50</td>
<td>.23</td>
<td></td>
</tr>
<tr>
<td>Decision Authority</td>
<td>.55</td>
<td>.23</td>
<td></td>
</tr>
<tr>
<td>Macro Decision Authority</td>
<td>.45</td>
<td>.22</td>
<td></td>
</tr>
<tr>
<td>Role Clarity</td>
<td>.49</td>
<td>.30</td>
<td></td>
</tr>
<tr>
<td>Co Worker Support</td>
<td>.58</td>
<td>.25</td>
<td></td>
</tr>
<tr>
<td>Appreciation</td>
<td>.50</td>
<td>.18</td>
<td></td>
</tr>
<tr>
<td>Professional Growth</td>
<td>.50</td>
<td>.24</td>
<td></td>
</tr>
<tr>
<td>Goal Congruity</td>
<td>.56</td>
<td>.20</td>
<td></td>
</tr>
<tr>
<td>Curriculum Coordination</td>
<td>.42</td>
<td>.22</td>
<td></td>
</tr>
<tr>
<td>Student Orientation</td>
<td>.43</td>
<td>.14</td>
<td></td>
</tr>
<tr>
<td>Value for Life</td>
<td>.56</td>
<td>.37</td>
<td></td>
</tr>
<tr>
<td>Social Proactivity</td>
<td>.45</td>
<td>.29</td>
<td></td>
</tr>
<tr>
<td>Trust</td>
<td>.44</td>
<td>.17</td>
<td></td>
</tr>
<tr>
<td>Tolerance for Diversity</td>
<td>.22</td>
<td>.11</td>
<td></td>
</tr>
</tbody>
</table>

Table 4.20: Correlations Between Organisational Health Variables & Commitment.
Differences between the two samples (High and Low HPS) were found in the work environment variables that made the strongest contribution to explaining organisational commitment (Table 4.21). The relationship between all organisational health variables and organisational commitment was consistently stronger in High HPS, as was the case for three of the four social capital variables and organisational commitment.

In both Low and High HPS, there was a strong positive correlation (greater than $r = .5$) between Organisational Commitment and the following variables: School Morale, Co-worker Support, Professional Growth, Goal Congruity, and Value for Life. In High HPS, the correlations between Supportive Leadership, Decision Authority, Macro Decision Authority, Role Clarity, Appreciation, and Trust, were also strong and positive.

Results indicated that in Low HPS, the predictors (school organisational health and social capital variables) explained 52% of the variance in Organisational Commitment, and in High HPS they explained 56.8% of the variance in Organisational Commitment. The model was statistically significant for both Low HPS ($F = 24.04$, $df = 15$, $p = .00$) and High HPS ($F = 35.96$, $df = 15$, $p = .00$).

From these results, it was concluded that teachers’ commitment to the school in which they are currently working (organisational commitment) is determined to a large extent by distinct variables within the work environment, and that in schools adopting the HPS framework, a more complex array of factors determined teachers’ job commitment.
<table>
<thead>
<tr>
<th>Organisational Health x</th>
<th>Organisational Commitment</th>
<th>Low HPS $r$</th>
<th>High HPS $r$</th>
</tr>
</thead>
<tbody>
<tr>
<td>School Morale</td>
<td></td>
<td>0.61</td>
<td>0.63</td>
</tr>
<tr>
<td>Supportive Leadership</td>
<td></td>
<td>0.45</td>
<td>0.56</td>
</tr>
<tr>
<td>Decision Authority</td>
<td></td>
<td>0.49</td>
<td>0.60</td>
</tr>
<tr>
<td>Macro Decision Authority</td>
<td></td>
<td>0.39</td>
<td>0.53</td>
</tr>
<tr>
<td>Role Clarity</td>
<td></td>
<td>0.45</td>
<td>0.55</td>
</tr>
<tr>
<td>Co Worker Support</td>
<td></td>
<td>0.54</td>
<td>0.64</td>
</tr>
<tr>
<td>Appreciation</td>
<td></td>
<td>0.48</td>
<td>0.53</td>
</tr>
<tr>
<td>Professional Growth</td>
<td></td>
<td>0.50</td>
<td>0.54</td>
</tr>
<tr>
<td>Goal Congruity</td>
<td></td>
<td>0.57</td>
<td>0.60</td>
</tr>
<tr>
<td>Curriculum Coordination</td>
<td></td>
<td>0.43</td>
<td>0.48</td>
</tr>
<tr>
<td>Student Orientation</td>
<td></td>
<td>0.40</td>
<td>0.49</td>
</tr>
<tr>
<td>Job Demand</td>
<td></td>
<td>0.05</td>
<td>0.02</td>
</tr>
<tr>
<td>Skill Discretion</td>
<td></td>
<td>0.32</td>
<td>0.39</td>
</tr>
<tr>
<td>Value for Life</td>
<td></td>
<td>0.59</td>
<td>0.53</td>
</tr>
<tr>
<td>Social Proactivity</td>
<td></td>
<td>0.44</td>
<td>0.47</td>
</tr>
<tr>
<td>Trust</td>
<td></td>
<td>0.41</td>
<td>0.50</td>
</tr>
<tr>
<td>Tolerance for Diversity</td>
<td></td>
<td>0.19</td>
<td>0.27</td>
</tr>
<tr>
<td>N</td>
<td></td>
<td>363</td>
<td>438</td>
</tr>
</tbody>
</table>

**Table 4.21:** Comparison between High and Low HPS on Organisational Commitment.
<table>
<thead>
<tr>
<th>Low HPS</th>
<th>Std. Error</th>
<th>Standardized Coefficients Beta</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>School Morale</td>
<td>.018</td>
<td>.225</td>
<td>3.47</td>
<td>.00</td>
</tr>
<tr>
<td>Supportive Leadership</td>
<td>.015</td>
<td>-.134</td>
<td>-2.23</td>
<td>.03</td>
</tr>
<tr>
<td>Decision Authority</td>
<td>.129</td>
<td>.115</td>
<td>2.19</td>
<td>.03</td>
</tr>
<tr>
<td>Macro Decision Authority</td>
<td>.086</td>
<td>-.020</td>
<td>-.40</td>
<td>.69</td>
</tr>
<tr>
<td>Role Clarity</td>
<td>.017</td>
<td>.029</td>
<td>.57</td>
<td>.57</td>
</tr>
<tr>
<td>Co Worker Support</td>
<td>.087</td>
<td>.147</td>
<td>2.70</td>
<td>.01</td>
</tr>
<tr>
<td>Appreciation</td>
<td>.016</td>
<td>.007</td>
<td>.13</td>
<td>.90</td>
</tr>
<tr>
<td>Professional Growth</td>
<td>.016</td>
<td>.123</td>
<td>2.32</td>
<td>.02</td>
</tr>
<tr>
<td>Goal Congruity</td>
<td>.021</td>
<td>.180</td>
<td>2.85</td>
<td>.01</td>
</tr>
<tr>
<td>Curriculum Coordination</td>
<td>.015</td>
<td>-.054</td>
<td>-1.06</td>
<td>.29</td>
</tr>
<tr>
<td>Student Orientation</td>
<td>.019</td>
<td>-.104</td>
<td>-1.98</td>
<td>.05</td>
</tr>
<tr>
<td>Value for Life</td>
<td>.215</td>
<td>.262</td>
<td>4.42</td>
<td>.00</td>
</tr>
<tr>
<td>Social Proactivity</td>
<td>.071</td>
<td>.019</td>
<td>.33</td>
<td>.74</td>
</tr>
<tr>
<td>Trust</td>
<td>.069</td>
<td>.166</td>
<td>3.73</td>
<td>.00</td>
</tr>
<tr>
<td>Tolerance for Diversity</td>
<td>.141</td>
<td>-.043</td>
<td>-.97</td>
<td>.33</td>
</tr>
</tbody>
</table>

**Table 4.22:** School Environment Variables Influencing Job Commitment in Low HPS.

<table>
<thead>
<tr>
<th>High HPS</th>
<th>Std. Error</th>
<th>Standardized Coefficients Beta</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>School Morale</td>
<td>.016</td>
<td>.221</td>
<td>3.63</td>
<td>.00</td>
</tr>
<tr>
<td>Supportive Leadership</td>
<td>.013</td>
<td>-.036</td>
<td>-0.67</td>
<td>.51</td>
</tr>
<tr>
<td>Decision Authority</td>
<td>.112</td>
<td>.203</td>
<td>4.20</td>
<td>.00</td>
</tr>
<tr>
<td>Macro Decision Authority</td>
<td>.08</td>
<td>.090</td>
<td>1.88</td>
<td>.06</td>
</tr>
<tr>
<td>Role Clarity</td>
<td>.02</td>
<td>.05</td>
<td>.98</td>
<td>.33</td>
</tr>
<tr>
<td>Co Worker Support</td>
<td>.08</td>
<td>.11</td>
<td>1.98</td>
<td>.05</td>
</tr>
<tr>
<td>Appreciation</td>
<td>.01</td>
<td>.07</td>
<td>1.26</td>
<td>.21</td>
</tr>
<tr>
<td>Professional Growth</td>
<td>.01</td>
<td>-.00</td>
<td>-.05</td>
<td>.96</td>
</tr>
<tr>
<td>Goal Congruity</td>
<td>.02</td>
<td>.05</td>
<td>.76</td>
<td>.45</td>
</tr>
<tr>
<td>Curriculum Coordination</td>
<td>.01</td>
<td>-.07</td>
<td>-1.30</td>
<td>.19</td>
</tr>
<tr>
<td>Student Orientation</td>
<td>.02</td>
<td>.00</td>
<td>.09</td>
<td>.93</td>
</tr>
<tr>
<td>Value for Life</td>
<td>.19</td>
<td>.10</td>
<td>1.93</td>
<td>.06</td>
</tr>
<tr>
<td>Social Proactivity</td>
<td>.06</td>
<td>-.01</td>
<td>-.15</td>
<td>.88</td>
</tr>
<tr>
<td>Trust</td>
<td>.05</td>
<td>.20</td>
<td>5.14</td>
<td>.00</td>
</tr>
<tr>
<td>Tolerance for Diversity</td>
<td>.12</td>
<td>.07</td>
<td>2.03</td>
<td>.04</td>
</tr>
</tbody>
</table>

**Table 4.23:** Comparison Low and High HPS x Organisational Health and Social Capital.
RQ 2.4.C To what extent is teachers’ commitment to the occupation of teaching (occupational commitment) predicted by work environment variables (social capital and organisational capital), and is there a difference between Low HPS and High HPS for any associations?

Multiple regression analyses were conducted to test this hypothesis, with the independent variables being each of the 11 school organisational health dimensions and the 4 social capital dimensions (continuous variables) and the dependent variable being occupational commitment. The dataset was split in order to run the analyses on Low and High HPS concurrently, so that comparisons could be made of the two sets of data.

Multicollinearity was assessed and found to range between .34 and .74 for Low HPS, and .29 and .82 for High HPS.

Correlations between occupational commitment and each of the work environment variables were small but positive for both Low and High HPS (Table 4.24). In addition, it was found that Value for Life, broadly defined as appreciation for one’s contribution to the community, closely followed by clarity of one’s role within the setting and social proactivity (taking the initiative to get things done) were the variables most strongly correlated with occupational commitment in both Low and High HPS.

The model summary indicated that work environment variables only explained 18.4% of the variance in occupational commitment for teachers in Low HPS, and 19.2% of the variance in occupational commitment for teachers in High HPS.
From these results it was concluded that characteristics within the work environment had minimal influence on teachers’ commitment to the occupation of teaching in either Low or High HPS, and that teachers’ commitment to the profession (rather than the school itself) must be determined to a large extent by factors other than the school environment, although having a sense of being valued, having a clearly defined role, and an environment that supports altruistic action were factors contributing to some extent to commitment to the teaching profession.
**Interactions between Organisational and Occupational Commitment**

In order to explore differences in organisational commitment between the High and Low HPS, while statistically controlling for occupational commitment and turnover intention, a one-way analysis of covariance (ANCOVA) was conducted. The scatterplot generated with occupational commitment as the covariate indicated that only 18.4% of the variance in organisational commitment in High HPS was explained by occupational commitment, and 27.7% of the variance in organisational commitment in Low HPS was explained by occupational commitment (Graph 4.43).

**Graph 4.43: Scatterplot of Organisational & Occupational Commitment.**
The significance level for the interaction between HPS status and occupational commitment was .19 (F = 1.73, df = 1), indicating that the interaction was statistically significant and that the assumption of homogeneity of regression slopes was not violated.

Results of the ANCOVA confirmed that there was a statistically significant difference between High and Low HPS on organisational commitment scores after controlling for occupational commitment (F = 10.20, df = 1, p = .001), although the effect size was only small (Partial Eta Squared = .01). The covariate (occupational commitment) explained 22.7% of the variance in organisational commitment (F = 234.45, df = 1, p = .00), which was statistically significant.

![Graph 4.44: Scatterplot for Organisational Commitment and Turnover Intention.](image-url)
The scatterplot generated with turnover intention as the covariate indicated that 40.7% of the variance in organisational commitment in High HPS was explained by turnover intention, and 35.1% of the variance in organisational commitment in Low HPS was explained by turnover intention (Graph 4.44). The significance level for the interaction between HPS status and turnover intention was .54 (F = .39, df = 1) indicating that the interaction was significant and that the assumption of homogeneity of regression slopes was not violated.

Results of the ANCOVA confirmed that there was a statistically significant difference between High and Low HPS on organisational commitment scores after controlling for turnover intention (F = 6.96 df = 1, p = .01), although the effect size was only small (Partial Eta Squared = .01). The covariate (turnover intention) explained 37.8% of the variance in organisational commitment (F = 484.82, df = 1, p = .00). After adjusting for turnover intention, the estimated marginal mean for organisational commitment in High HPS was 21.19, and for Low HPS it was 20.39, indicating that even after controlling for turnover intention, teachers in High HPS were still more committed to the school at which they were teaching than teachers in Low HPS.

**Summary: Job Commitment**

Results indicated that work environment variables play an important role in determining teachers’ commitment to the school, but that they are less important in determining commitment to the teaching profession. Work environment variables have different levels of influence on teachers’ job
commitment depending on the extent to which the school is healthy promoting. The influence of work environment is greater in Low HPS.

In general, organisational commitment was more strongly correlated with dimensions of the work environment than occupational commitment. The strength of associations, for organisational commitment, varied between .23 and .61. School Morale most strongly predicted organisational commitment, followed by Co-worker Support and Value for Life. For occupational commitment, correlations varied between .12 and .37, the weakest association being for the dimension Tolerance for Diversity, and the strongest being for Value for Life.

4.15 Test of the Hypothesised Model: Work Environment as a Determinant of Teachers’ Job Stress.

One of the key questions explored by this research was the relationship between work environment variables and teachers' job stress. It was hypothesised that factors within the school organisational environment, such as quality of leadership, school morale, work pressure (job demand), and autonomy, would be associated with psychosomatic strain related to work. Furthermore, it was hypothesised that job commitment (that is, to the organisation) would be a mediating variable for job stress. Whether this model held true for both Low and High HPS, and which particular work environment variables would most strongly predict teachers’ job stress, has been a key research question guiding this study. This model is presented below:
A series of partial correlations were conducted to explore the relationships between organisational health and social capital variables, and psychosomatic strain, while controlling for organisational commitment. The analyses were conducted after splitting the data in order to compare the two samples of schools, High and Low HPS. Preliminary analyses confirmed no violations of the assumptions of normality, linearity, and homoscedasticity.

Zero order partials indicated weak inverse relationships between all organisational health variables and psychosomatic strain, and negligible correlations between three of the four school social capital variables and psychosomatic strain (Table 4.25).

There were several clear differences between the associations when High and Low HPS were compared. Correlations were stronger in Low HPS for 6 variables (supportive leadership; skill discretion; curriculum co-ordination; role clarity; goal congruity; and trust). When the variable Job Demand (workload pressure) was added, the correlation between this and psychosomatic strain was stronger in High HPS ($r = -.38$ compared to $r = -.27$ for Low HPS).
These results suggest that in High HPS, fewer factors contribute to perceived job stress than in Low HPS, and work pressure plays a more significant part in teachers’ subjective job strain in High HPS than it does in Low HPS.

It also appears that controlling for organisational commitment significantly reduces the strength of the relationships between all organisational health and social capital variables. This effect was more pronounced in Low HPS than it was in High HPS, again confirming the mediating role played by job commitment particularly in Low HPS.

When the mediating role of organisational commitment was taken out, Co-worker Support was most strongly inversely related to psychosomatic strain in High HPS, followed by Value for Life and School Morale. In Low HPS, Role Clarity most strongly predicted Psychosomatic Strain when organisational commitment was controlled, followed by Co-worker Support and Supportive Leadership.
<table>
<thead>
<tr>
<th>Organisational Health</th>
<th>Psychosomatic Strain (r)</th>
<th>Psychosomatic Strain (controlling for Organisational Commitment) (r)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Low HPS</td>
<td>High HPS</td>
</tr>
<tr>
<td>School Morale</td>
<td>-0.25</td>
<td>-0.24</td>
</tr>
<tr>
<td>Supportive Leadership</td>
<td>-0.24</td>
<td>-0.18</td>
</tr>
<tr>
<td>Decision Authority</td>
<td>-0.15</td>
<td>-0.17</td>
</tr>
<tr>
<td>Macro Dec Authority</td>
<td>-0.16</td>
<td>-0.13</td>
</tr>
<tr>
<td>Role Clarity</td>
<td>-0.26</td>
<td>-0.21</td>
</tr>
<tr>
<td>Co Worker Support</td>
<td>-0.26</td>
<td>-0.26</td>
</tr>
<tr>
<td>Appreciation</td>
<td>-0.23</td>
<td>-0.23</td>
</tr>
<tr>
<td>Professional Growth</td>
<td>-0.15</td>
<td>-0.17</td>
</tr>
<tr>
<td>Goal Congruity</td>
<td>-0.18</td>
<td>-0.22</td>
</tr>
<tr>
<td>Curriculum Coord</td>
<td>-0.19</td>
<td>-0.08</td>
</tr>
<tr>
<td>Student Orientation</td>
<td>-0.12</td>
<td>-0.19</td>
</tr>
<tr>
<td>Job Demand</td>
<td>-0.27</td>
<td>-0.38</td>
</tr>
<tr>
<td>Skill Discretion</td>
<td>-0.09</td>
<td>-0.15</td>
</tr>
<tr>
<td>Value for Life</td>
<td>-0.22</td>
<td>-0.24</td>
</tr>
<tr>
<td>Social Proactivity</td>
<td>-0.13</td>
<td>-0.15</td>
</tr>
<tr>
<td>Trust</td>
<td>-0.14</td>
<td>-0.11</td>
</tr>
<tr>
<td>Tolerance for Diversity</td>
<td>-0.07</td>
<td>-0.07</td>
</tr>
</tbody>
</table>

Table 4.25: Results of Partial Correlations for Work Environment Variables and Job Stress.
4.16 OVERALL SUMMARY OF RESULTS

Following an audit of HPS activity based on responses from 297 state primary schools in Queensland, two samples of schools were selected on the basis of the extent to which they were implementing school-level strategies consistent with the HPS approach. Schools were grouped into High HPS (those actively engaging in HPS strategies), and a comparison sample called Low HPS (those not actively engaged in such activities).

A questionnaire, known as the Teachers’ School Environment Questionnaire, was designed to measure two dimensions of the work environment in schools (school organisational health and social capital), as well as three dimensions of job stress (psychosomatic strain, job demand, and decision latitude), psychological distress related to the job, two dimensions of job commitment (organisational and occupational commitment), and lifestyle-related health risk behaviours. The work environment dimensions included 11 variables related to school organisational health, and 4 variables related to social capital within the school community.

Useable questionnaires were returned by 797 teachers in 39 schools (360 in Low HPS and 437 in High HPS). Demographic details indicated there were no statistically significant differences between teachers in the two samples.

Factor analyses conducted on the questionnaire indicated that it was measuring two core factors related to the work environment – the quality of interpersonal relationships within the workplace, and the demands of the job.
Mean scores for all 11 school organisational health variables, and all 4 school social capital variables, were statistically higher in High HPS, confirming that schools actively adopting a HPS approach provide a substantially more positive work environment than non-health promoting schools. Effect size was most significant for School Morale, Decision Authority, and Co-worker Support.

Teachers in High HPS experienced significantly less psychosomatic strain, and had significantly more skill discretion (latitude to exercise their own discretion over doing the job), than teachers in Low HPS, but no difference was found between the samples in terms of job demand (pressure arising from the job).

Psychosomatic strain was most strongly associated with co-worker support, appreciation, and school morale in High HPS, but in Low HPS strain was related to school morale and role clarity, and inversely related to supportive leadership. These results suggest that guidelines for developing a healthy school organisational environment should focus on these key strategies in a “developmental” sequence – building supportive leadership, establishing clarity of roles, promoting mutually supportive interpersonal relations between staff, setting up systems to demonstrate appreciation of staff, and boosting school morale.

There were no differences between teachers’ in Low and High HPS on measures of in self-rated general health or physical health. However, teachers in Low HPS reported significantly more unexplained fatigue, nervousness, depression, feeling that everything is an effort, and feelings of
worthlessness, than teachers in High HPS. Reports of daily mental health problems were three times higher for teachers in Low HPS, while self-rated mental health (wellbeing) was higher in teachers working in High HPS.

The HPS approach does not appear to influence teachers’ health management behaviours. No differences were found between the two groups in terms of teachers’ rates of exercise, smoking, regular alcohol consumption, preventive health screenings, dental check-ups, dietary habits, or weight. There was no difference between the groups in terms of teachers having private health insurance, having a personal health care provider, or undergoing regular health check-ups (screenings).

Work environment variables only explained a small amount of the variance in occupational commitment for teachers in both High and Low HPS, with the figure being slightly higher for High HPS. However, the strength of teachers’ commitment to the workplace is influenced to some extent by factors within the work environment, with this being a more complex relationship within HPS.

The theoretical model was confirmed, suggesting that job commitment mediates job stress to some extent, but that factors within the work environment determine job commitment, and the HPS approach (management style of the school) plays a part in this relationship.

The following chapter discusses these findings in more detail, in relation to contemporary understanding of the influence of work environments on health and job commitment.
CHAPTER 5

Discussion & Implications of the Research Findings
There has been scant research applying organisation theory derived from research within the corporate sector to educational settings, particularly where teachers’ health and wellbeing is concerned. Additionally, in Australia if not in other parts of the world, school effectiveness research has not focused on identifying organisational models of “best practice” that contribute to successful performance from an organisational perspective, and comprehensive guidelines to steer school management practices are lacking. Currently the only guidelines available to schools are those relating to promotion of specific health outcomes such as the CDC guidelines for school and community programs to promote physical activity, or comprehensive school health education programs, and these do not address the issue of promoting the human capital vested within the teaching workforce through demonstrably superior organisational frameworks.

The research reported in this thesis has explored these issues within the Australian context, and demonstrated that one model of school management, the Health Promoting Schools approach, provides a framework for effectively creating a positive school climate, with clear benefits for the teaching workforce.

In this chapter, key findings of this research are discussed in relation to the main research question of the study, that is, the extent to which the HPS approach provides a work environment that promotes psychological wellbeing, health, and job commitment in the teaching workforce. The purpose of this discussion is to set the scene for further research exploring school effectiveness from a socio-ecological perspective, one in which the school is
viewed as a social system impacting on health outcomes of all members of the system, and which views teachers as a critical element determining children’s psycho-educational outcomes. The implications of the results are considered from a number of perspectives:

- Its contribution to the development of practical instruments to measure the school environment.
- Its potential contribution to school effectiveness research and theory building.
- Its contribution to international evaluations of the Health Promoting Schools approach.
- Its relevance to human resource management within the education sector.
- Its contribution to research on capital theories of health.
- Its contribution to international research on job stress.
5.1 CONTRIBUTION TO DEVELOPMENT OF INSTRUMENTS TO MEASURE THE SCHOOL ENVIRONMENT.

This thesis has reported on the development and preliminary psychometric analysis of two instruments, the Health Promoting Schools Audit Checklist, and the Teachers’ School Environment Questionnaire, the latter compiled from existing published questionnaires with some adaptations for the purposes of this study. These adaptations were founded on the theoretical model underpinning the research.

Preliminary reviews of the existing research literature revealed that a serious issues commonly raised with regards to evaluations of the Health Promoting Schools approach was the lack of available instruments capable of making a reliable and valid assessment of the extent to which a school is implementing the HPS approach. Whilst several instruments have been in use both in Australia as well as overseas, they have not been regarded as practical within the school sector due to the time and human resources required to complete them.

The principle behind development of a brief screening tool was based on the model of “rapid appraisal”, which has been successfully used for several decades to profile communities, particularly in rural areas (Crawford, 1997). There is now a considerable literature supporting the use of such techniques, but few applications within the school setting. The key criterion underpinning the development of the instrument was brevity without sacrificing validity.
The 40-item HPS Audit Checklist is a short screening instrument designed and subsequently tested on a sample of 294 state primary schools in Queensland to assess the extent to which state primary schools in Queensland had adopted key strategies consistent with the HPS approach. The items selected for the subscales are consistent with internationally accepted indicators of the HPS approach, with selection based on those HPS indicators most relevant to Australian conditions, bearing in mind that overall environmental conditions in Australian can in fact vary dramatically. Although it was not the original intention of this research to develop such an instrument, this serendipitous outcome has now produced what appears to be a highly useful tool to “diagnose” the extent of HPS activity either at individual, district, state, or national levels.

The instrument proved more than adequate in providing a continuum of Total Scores that clearly differentiated between schools actively implementing practices consistent with the HPS framework, and those not undertaking such an approach. It has good internal consistency both across and within the six sub-scales. Factor analysis indicated that it measures 4 discrete factors – school resources, active participation of the community in school planning, reduction of health risks, and access to health services. The instrument has good face validity. Both test-retest reliability and construct validity have yet to be calculated. The instrument has yet to be tested at secondary school level, and further research to verify the consistency of ratings across various sectors of the school, such as teachers, parents, and students, is needed. Overall, the
instrument proved to be robust and reliable as a short screening survey with high acceptance within the primary school environment.

The school setting is a complex social environment with a multiplicity of factors impinging it, from national and state government policies and agendas determining resource availability, to responding to the psychosocial needs of individual children within the dynamics of a group situation. External demands are placed on teachers from state and national curriculum boards, to parents’ demands for a “better deal” for their child. All this occurs within the context of an increasingly unstable and complex society, with the ramifications for this in terms of children’s’ development and general health and wellbeing being potentially serious. Measuring the many dimensions of the school environment poses considerable challenges. Most significantly, there is limited published research demonstrating efficacy of any one particular instrument or methodology.

Comprehensive auditing of school environments, using data collected from a range of sources including self-reports of relevant stakeholders (teachers, principals, parents, and students), or statistical data such as teacher turnover rates, sickness and absenteeism rates, use of human resource services such as Employee Assistance Programs or staff complaints, levels of union membership and activity, staff/student ratios, teacher qualifications, parental involvement in the school, fiscal management, ethnic balance of staff and students, and so on, should be encouraged in order to strengthen our understanding of schools as organisational entities, as well as identify those organisational processes that produce the most beneficial outcomes.
Effective organisational processes are essential if schools are to successfully accomplish their core business of educating the young. Such data profiles the unique qualities of each school, and when compared against national benchmarks can provide valuable information about the level of effectiveness of a school, the district in which it is located, or state level educational performance.

However, collecting data pertaining to school performance poses practical difficulties, not least of which are potential political implications in an environment where the risk of litigation is high if one school or another is identified as “under-performing”. Against this backdrop, most school principals are committed to the development of their organisations as places that achieve the outcomes for which they are intended – social, emotional and intellectual development of their students. To be able to do this, they require an evidence base of the effectiveness of various organisational development approaches that underpin educational productivity, and the tools to be able to collect such evidence.

The use of self-report data collection for providing a valid assessment of school environments has been challenged, on the basis that questionnaires provide only respondents’ perceptions or opinions about aspects of the environment. The small amount of research investigating use of self-report data within organisational contexts suggests that perceptions may in fact vary considerably from the facts. Furthermore, most instruments used in school level research, with the exception of only two examples (School Culture Inventory and School Level Environment Questionnaire) collect only teachers’
perceptions of the school environment at one point in time, rather than collecting 360° measures (that is, collecting perceptions of all stakeholders within the setting, or comparing self-reports with quantifiable data), or comparing perceptions of the prevailing environment with respondents’ views of the way it should be, that is, the ideal. However, where resources for data collection are limited, it may be the only method available, and in such cases careful consideration given to optimising response rates may overcome some of the inherent problems.

There are few instruments available for measuring social and organisational capital in schools, and where this has been done, the outcomes typically measured relate to children’s development. The present study has combined selected scales from various published and widely used instruments, thus providing a tool that is short yet sufficiently powerful to deliver a comprehensive profile of the school organisational and social capital in combination with aspects of teachers’ health including psychosomatic strain and lifestyle risk behaviours.

Such profiling has significant potential for school planning but there is little evidence of widespread adoption of such methods within schools across Queensland. The annual School Opinion Survey, conducted by Education Queensland collects perceptions of the school environment from teachers, students and parents, but the extent to which these data are put to practical use by teachers and school principals is unknown.
The School Organisational Health Questionnaire (Hart et al., 2000), adapted for use in the present study, is used by education departments in several other states of Australia, but again, the extent to which the data are used at local level by schools is unknown, and the application of these data for either state or national monitoring of school performance, or determining effectiveness of various models of school planning, cannot be determined. However, in times of increasing accountability, it is imperative that tools and methods for determining school effectiveness, and models of “best practice” that determine school performance, be developed. The research reported here has contributed towards this, but considerably more research is needed to refine the tools developed for this research, assess their psychometric properties with larger and more diverse samples, and determine their acceptability within the school context through use of qualitative evaluation methods.
5.2 CONTRIBUTION TO SCHOOL EFFECTIVENESS RESEARCH.

Until now, most theory informing school effectiveness has focused on learning outcomes and pedagogy, rather than unpacking those elements within the psychosocial environment of the school that provide the context in which educational strategies are but one way to promote children’s development. It is now widely accepted that the school environment provides an important setting in which children acquire common cultural norms and ethical values, civic virtues, cultural sensitivity, and skills for building social cohesion (Gradstein and Justman, 2000), Goldstein and Myers (1997), and more recently Myburgh and Poggenpoel (2002) suggest that much of the school effectiveness research fails to take account of the complexities of interactive forces shaping children’s developmental outcomes, including the multidimensional nature of the school environment, of which teachers form an integral part through the mentoring relationship that develops from their position as “in loco parentis” role models. Teachers themselves are influenced in many subtle, and not-so-subtle, ways by the contextual variables inherent within the school environment, both the immediate school environment and the larger educational system. Unfortunately, little research has examined schools from the perspective of “organisational models”. According to Griffiths (2003):

“Absent in educational research has been a framework to organize attributes of effective schools, in particular, a framework that would
School effectiveness research, which has evolved during the past twenty years, seeks to identify those characteristics of “successful” schools. Griffith's (2003) identified core organisational characteristics most strongly associated with school effectiveness, including supervisor’s concern for employees, teamwork and co-operation, staff inclusion in planning, innovative approaches to improving work and learning environments, and staff beliefs that they can influence children’s learning outcomes (efficacy). Griffith argues that such schools create more satisfied teachers who teach more effectively within a positive learning environment. Yet the developmental outcomes typically examined in such research relate only to educational variables, and rarely is children’s psychosocial development seen as an equally critical outcome of the educational process or school environment.

In addition, it is rare to find systems thinking models, such as those developed by Peter Senge (1990) applied to identify variables such as shared visioning or mental models of the social environment, or to examine the complexities of interactions that shape educational outputs. The research reported in this thesis attempts to set the scene for such explorations of the school as an influential social system, and identify dimensions of its effectiveness, by drawing together several conceptual frameworks and linking these to an existing model of educational “best practice”, namely the Health Promoting School.
Factors within the school setting that promote teachers’ sense of belonging and commitment to the organisation, and encourages wellbeing through adoption of healthy lifestyles, inevitably determine the climate both within the classroom, and the larger school environment, that impacts on the children. The emerging theory of school organisational health, which takes an ecological approach to identifying those features of school settings that promote health, provides us now with a framework for such research. It was within this framework that the current research study was conducted.

Psychological theory has long contended that effective learning emerges from exposure to positive role models and supportive environments. Classical organisational theory contends that bureaucratic administrations, and issues of power, control and communication, are central to productivity. More modern theory contends that strengthening interpersonal relationships, decreasing hierarchical structures and adopting democratic management styles, underpin excellence in an increasingly complex world of work (Vecchio, 1991). At the same time, organisational development theory has advocated for many years the benefits of “investing in the workforce”, with resounding evidence in support of frameworks such as the “learning organisation” which provide models that promote employee wellbeing and are reflected in increased productivity and reduced organisational costs, such as those associated with high staff turnover.

Again, however, schools are rarely the focus for such research, although recent research suggests that the “learning organisation” construct has validity within the school setting (Silins, Zarins and Mulford, 2002). The four
factors they identified – trusting and collaborative climate; taking initiatives and risks; shared and monitored mission; and professional development - fit the HPS model, whilst also being consistent dimensions of the construct of resilience.

According to the salutogenic model of health, the “human capital” vested in teachers contributes to “organisational capital”, which provides the learning context in which children are developing. This line of reasoning has been developed by Hargreaves (2001), who presented a conceptual framework linking school effectiveness to theories of capital.

“An effective school mobilises its intellectual capital (especially its capacity to create and transfer knowledge) and its social capital (especially its capacity to generate trust and sustained networks) to achieve the desired educational outcomes of intellectual and moral excellences, through the successful use of high leverage strategies grounded in evidence-informed and innovative professional practice” (p. 1).

Hargreaves argues that high levels of social capital within the school, that is, strong collaboration between all members of the school community, strengthens intellectual capital (one dimension of human capital) through the exchange of information (knowledge) and experience (skill), via “open” communication channels, a process reflective of the level of social capital within the system. This creates a climate in which value is given to learning at all levels rather than only at the level of the students. As such, the intellectual
resources available to all members of the social system are enriched and create a setting conducive to achieving desired educational outcomes of intellectual and moral excellence.

Putnam (2000) has also hinted at the same notion by paralleling the decline in national social capital with increasing concern about school effectiveness. However, whilst his empirical data supports the argument, he provides no conceptual framework explaining how the process of declining social capital could be turned around, nor does he address the issues of organisational capital within social systems such as schools. Furthermore, he fails to provide any guidelines, theoretical or empirical, for halting the decline of social capital within western cultures.

Seth-Purdie (2000) has argued that human capital, the sum of attributes which an individual brings to interactions with others and to the critical task of regulating him/herself, comprises physical characteristics, health status, mental health and mood control, self-image and sense of self-efficacy, resilience to stress (which can be expressed physiologically and psychologically), labour market skills, knowledge, cultural awareness, and capacity for responsive personal relationships that foster networks of personal support. Identifying strategies, including organisational management approaches that enhance the wellbeing of teachers, as one dimension of human capital within the school setting, may have both direct, and indirect, impact on children. For example, it has been suggested that the human capital of parents, in the form of knowledge and skills, is transmitted to and used by children (Teachman, Paasch and Carver, 1997; Gradstein and
Justman, 2000), and that human capital within families and other settings influencing children is a significant determinant of children’s psychological development, particularly positive developmental outcomes such as resilience (Ganong and Coleman, 2002). Yet consideration of the human capital vested in teachers, in conjunction with the social capital derived from the broader school environment, is commonly overlooked.

Whilst the research presented in this thesis did not investigate resilience per se, the results suggest that elements of the HPS approach foster the development of attributes fundamental to human capital in teachers, as well as enhancing social capital within the school setting, thus providing the fundamental ingredients for creating a social context conducive to fostering children’s resilience, and hence provides a possible model for explaining school effectiveness from a psycho-social perspective, on that complements the traditional educational outcomes literature.

In recent times, the notion of “resilience” has begun to gain recognition as a dimension of human capital that is considered critical for mental health in times of uncertainty. Derived from the social ecological literature, resilience – the capacity to adapt to perturbations or changes within systems (Olsson, 2003) - is fundamental for sustainable social systems. Gilgun (1996) has argued that psychological resilience accrues from both internal and external protective factors across a variety of settings that may themselves be "resilience-promoting" to various degrees. That is, combinations of human and social capital may well combine to build “organisational resilience”, or a
contextual framework that nurtures the capacity for resilience at the level of the individual.

According to this hypothesis, adaptive processes are determined by, and acquired from, the range of psychological, social, material and symbolic resources available from the social systems to which individuals are exposed throughout the lifespan, including the school. Long-term sustainability of social systems – their adaptive capacity (Walker et al., 2002) – depends on “resilience analysis”, that is, establishment of systems for checking and balancing the situational capacity for learning, flexibility to adapt and adopt novel solutions to new conditions, and the establishment of processes for reflection on performance (Walker et al., 2002; Olsson, 2003).

The evidence emerging from this research is that the HPS model provides schools with a structured framework that innately encompasses these processes., exposing children to a "resilience-promoting" environment through the enhanced human and social capital vested in the teaching workforce. Health Promoting Schools are distinguished by perceptions of greater support from the school administration and leadership, and greater support from colleagues, both organisational characteristics that could be akin to availability of mentoring relationships, as one dimension contributing towards resilience. In addition, Health Promoting Schools are distinguished by higher staff morale, greater appreciation, and greater clarity of roles and consistency of goals, dimensions which appear to provide a contextual setting consistent with resilience-enhancing characteristics such as supportive environment, clarity of boundaries, and achievement motivation (Search Institute, 2004).
Furthermore, by virtue of the evidence emerging from this research suggesting that teachers in HPS are less affected by job strain and more committed to the organisation, a more stable and cohesive environment is created for the children, both social variables linked to development of resilience. Future research will determine whether, in fact, such a setting enhances the development of resilience in children, and the extent to which teachers' resilience is reflected in the development of this human asset in children.

The research reported in this thesis makes a significant contribution to this literature by virtue of its focus on the teachers as a critical element often overlooked in school effectiveness research. Although resource limitations meant the present study was not able to explore the pathways of influence between aspects of the school environment and children's developmental outcomes, structural equation modelling could be conducted at a later date to determine the relationships between teacher variables such as job commitment or psychosomatic strain, and school environment variables such as leadership style, collegiality, tolerance for diversity, and trust, on children's outcomes.
5.3 CONTRIBUTION TO HEALTH PROMOTING SCHOOLS EVALUATIONS.

Health Promoting Schools research, in particular evaluations of the approach, tend to cluster into various “themes”, one being research exploring what it means to be a HPS, that is, attempts to further define and refine the concept including identification of HPS indicators; another theme addressing the extent to which this model is being adopted worldwide, referred to as “diffusion” of the model (Orlandi, Landers, Weston, and Haley, 1991); and the third (and notably least extensive) being the impact on defined health outcomes. The research reported in this thesis, whilst primarily aimed at exploring the impact of this approach on health and organisational outcomes, has also made a contribution towards the “diffusion” theme, at least within the Australian context, through the preliminary process used to select the sample for the main study.

5.3.1 “Diffusion” of the HPS Model

Organisational Change Theory, which concerns processes and strategies for increasing the chances that healthy policies and programmes will be adopted and maintained in formal organisations, and Diffusion of Innovations Theory, which addresses how new ideas, products and social practices spread within a community or from one community to another, have not been extensively applied to evaluation research on the Health Promoting Schools model, or even within educational research as a whole (Hill, 2001). Rarely are these models applied in either the planning, or evaluation, of innovative models of
health promotion within schools, and hence there is, as yet, no universally accepted framework for identifying diffusion strategies that are effective or monitoring factors determining adoption of the HPS approach.

There is clear evidence that the HPS approach is being widely adopted throughout the world and having an influence on many thousands of schools, and to some extent, diffusion of the approach is being monitored at an international level. The school health component of the Mega Country Health Promotion Network, set up by WHO in 1996, has engaged 11 countries with a population of 100 million or more, constituting over 60% of the world’s population (Bangladesh, Brazil, China, India, Indonesia, Japan, Mexico, Nigeria, Pakistan, Russian Federation, United States of America) to improve national strategies for enabling schools to implement school health programs. The European Network for Health Promoting Schools (ENHPS), auspiced by the WHO, reports a membership of more than 40 European countries, although adoption of the HPS approach has been varied across different countries and numerous issues regarding implementation are yet to be resolved.¹ A recent regional survey indicated that all Latin American countries are in the process of developing HPS’s, with 82% reporting to have specific school health promotion policies and plans that are applied predominantly in primary schools, and 57% having implemented actions related to the three components of the initiative². What is lacking, however, is an internationally

¹ Tracking Down ENHPS Successes For Sustainable Development: the EVA2 Project at http://homepages.ulb.ac.be/~ndacosta/promes/Final_EVA2_exe_summary.rtf
accepted set of indicators defining a HPS or set of evidence-based guidelines to steer countries towards systematic adoption of the model, that is, to guide the diffusion process.

In Australia, there is no centralised national or state-based data indicating the extent to which the HPS model is being adopted, or profiles indicating which components of the HPS model are most readily acceptable to the Australian education sector. As a consequence, any research designed to evaluate the HPS model within Australia must necessarily use ad hoc methods for sample selection. The consequence is that there is an inherent risk in distinguishing a HPS from other models of school management, and lack of consensus on what defines a HPS.

To our knowledge, this is the first time that a comprehensive profile of the extent of school health promotion activity consistent with the HPS approach has been compiled in Queensland, or that a systematic process for identifying health promoting schools, has been developed. Results of the statewide audit conducted in the preliminary phase of this research revealed some unexpected and interesting trends, providing valuable data for future social marketing of the HPS model.

Although the response rate to the statewide survey using the HPS Audit Checklist was lower than anticipated, a response rate of just above 30%, particularly during the final school term for the year, is regarded by educationalists as acceptable. The fact that every one of the Queensland school districts had representation in the audit suggests that the results are
reasonably representative, albeit we must accept this with some caution when considering those districts with low response rates. We can conclude, however, that the approach is widely diffused across Queensland although a more comprehensive survey would be needed to provide a true profile of adoption.

The study has identified some valuable information about the nature of school-based health promotion activities in this state. Urban and rural differences were substantially smaller than expected, but results confirmed that the greatest activity consistent with the HPS approach appears to be taking place in urban schools rather than rural schools. It would appear that most HPS activity is occurring in urban schools of low socio-economic standing, and least HPS activity is occurring in rural schools with high socio-economic status. However, the influence of school socio-economic status (IRSED) was also less significant than expected. School size was found to be associated with the extent to which health promotion activities are implemented, with larger schools tending to be more actively health promoting than smaller schools, particularly larger schools with lower socio-economic rankings (that is, low IRSED).

It was not surprising that schools continue to place the greatest emphasis on their school health policies, but disappointing to find that skill-building for health (including integrated curriculum development and resourcing staff), and promotion of school-community relations (including involvement of parents, students and community members in school planning and decision-making)
are given less emphasis than more “traditional” school health strategies such as addressing the physical and social environments.

The audit did not include any investigation into possible reasons for the disparity of health promoting activity across the state, but future profiling using qualitative data collection techniques may be able to come up with explanations. Lack of knowledge about the HPS approach, particularly amongst rural schools, suggests that information dissemination is critical if Queensland primary schools are to be encouraged to adopt strategies in line with the HPS approach. Furthermore, the limited access to training in the implementation of the HPS approach would appear to be another significant barrier to widespread adoption of school-based health promotion in Queensland. Both the state and national Health Promoting Schools Associations may need to consider systematic and strategic approaches to promoting awareness of the HPS model, along with providing greater access to appropriate training opportunities for school personnel. This research study suggests that greater consideration needs to be given to identification of factors influencing adoption of the HPS model and national profiling of the diffusion of the HPS approach, particularly in light of the implications for teachers’ health arising from this research.

5.3.2 Impact of HPS Approach

Despite establishment by the World Health Organisation (WHO) of the Health Promoting Schools (HPS) approach a decade ago, with its purpose being to promote the full physical, social and emotional potential of school students,
staff, families and community members, most evaluations of this approach to
school-based health promotion have typically focused only on students' health
outcomes, teachers' attitudes towards the approach, and developments to
school curricula. The literature review undertaken for this research indicated
that most evaluations still tend to be program-based, focusing on outcomes of
specified interventions typically directed at changing health behaviours of
students, and commonly using somewhat unsophisticated evaluation
techniques (Stewart-Brown, in Rootman et al., 2001). In their review of HPS
evaluations, Lister-Sharp and his colleagues concluded in 1999 that:

“There are indications that this [HPS] approach is promising. The
development of programmes to promote mental and social well-
being would be likely to improve overall [school] effectiveness and
the impact on staff health and well-being needs more
consideration. Continued investment, and ongoing evaluation are
necessary to provide evidence about the effectiveness of this
approach”.

Surprisingly few studies have regarded the school from the perspective of its
employees, that is, recognised the school as a workplace with inevitable
impacts on employees, utilising evaluation models or methods developed
from the extensive literature on workplace health promotion. Evaluations of
the HPS approach have not addressed its impact on teacher health and
lifestyle changes, the school social environment (often referred to as the
school climate), or organisational outcomes such as the quality of the school
environment, which have significant implications for teacher retention. Nor
have they investigated the effects of this approach on other teacher-related variables that may impact upon the organisational culture, such as teachers’ job commitment. In addition, few evaluations of the HPS have investigated the impact of the approach on mental health outcomes of either students or staff, despite increasing international concern with rising rates of mental health problems, particularly depression.

By focusing on the active implementation of HPS strategies, rather than simply the school’s formal membership of an association, this research has demonstrated the extent to which various dimensions making up the HPS approach promote better health in teachers and positive organisational outcomes for schools. It has attempted to draw together the evidence from a number of disciplines to evaluate the HPS model from a systemic perspective, one that is consistently advocated by the population health literature yet continues to be poorly utilised in evaluation research.

In a climate of rising rates of work-related stress and associated compensation costs, particularly within certain industries including teaching, the failure to integrate public health approaches with organisational management and development strategies to identify structural approaches that demonstrate potential for improving employee wellbeing, particularly within an important setting such as the school, is cause for concern. This is particularly pertinent given the link between teachers as agents of change with regards to children and young people. Questions about the health and wellbeing of teachers and their impact on children’s health and psychosocial development have received scant attention. Although resource limitations did
not allow an investigation of this within this research study, the results confirm that teachers’ health and wellbeing is affected by the school environment, that is, it impacts on their levels of commitment and by extrapolation their performance. This finding supports the importance of further investigations of the potential interactive effects between teachers’ and students’ health, including psychosocial outcomes.

Other lines of research evaluating the effectiveness of the HPS approach are also surprisingly scant. St. Leger and Nutbeam (2000), in their contribution to the International Union for Health Promotion and Education (IUHPE) review of the evidence of health promotion effectiveness, state that “It is self-evident that preventing health problems will produce social and economic benefits” (p.118), yet fail to refer to a single study in which the impact of this approach has investigated the social environment within a HPS framework, and only one study in which the cost-benefit balance of the approach was assessed. Given a decade of implementation and research into the HPS, in the context of well-established principles guiding health promotion evaluation in general, such oversight within the education sector is alarming. Given that the results of this research study indicate that teachers’ job commitment is enhanced by adoption of management strategies consistent with the HPS approach, further research investigating the link between this and economic cost-benefit analyses of the HPS approach are warranted.

Moreover, emerging lines of research within other disciplines, most notably psychology and social ecology, do not seem to have yet permeated the population health / health promotion literature to any significant extent. Most
notable of these is the growing interest in “positive psychology”, triggered by the recent re-discovery of Antonovsky’s “salutogenic model of health” (Bengel, Strittmatter and Willmann, 1999). This appears to be triggering emerging criticism of the implicit assumptions inherent in “pathogenic” research models, such as the job stress literature, including the assumption that stressors are risk factors, and that reductions in the prevalence of stressors (internal or external) automatically implies an increase in coping capacity or strengths.

Whether such an assumption is borne out by evidence is yet to be demonstrated. In fact, the salutogenic model would argue that exposure to stressors provides opportunities to build personal coping ability or resilience, a personal characteristic that may be increasingly relevant in a complex and unpredictable world. The potential for models of schools management such as the HPS approach for fostering specific developmental outcomes such as resiliency, which we know is strongly determined by children’s attachment to adult role models within the context of consciously structured environments such as the HPS, has not previously been examined.

The HPS approach is implicitly a salutogenic model applied within the educational context, which by definition assumes positive developmental outcomes. The research reported in this thesis provides evidence, albeit not outstanding but positive nonetheless, that certain management practices create a positive school climate that reduces negative mental health outcomes for teachers. Whether these outcomes, such as subjective job strain or psychological distress such as feelings of worthlessness and depression, translate into having an impact on the quality of relationships
between teachers and students, and the extent to which this is a determinant of children’s health or educational outcomes, has yet to be investigated.

A recent study by Natvig, Albrektsen and Qvarnstrom (2003), in which students who experienced a supportive classroom setting reported higher subjective wellbeing and self-efficacy, which has been associated with development of an optimistic outlook on life, would tend to support the potential for this line of research. However, further research is needed to explore the relationship between these same organisational variables, including teachers’ wellbeing, and children’s developmental and educational outcomes. In addition, considerably more understanding is needed of the impact of the HPS model on teachers' wellbeing, not only from a self-report or subjective perspective but also from an objective, or quantifiable, perspective. If, as the results reported in this thesis suggest, teachers in HPS subjectively experience less work-related stress, there are some serious implications of this for human resource management within the education sector, especially if quantifiable data is consistent with the data reported here.
5.4 RELEVANCE TO HUMAN RESOURCE MANAGEMENT WITHIN THE EDUCATION SECTOR.

Job stress is associated with a variety of objective and subjective health outcomes, such as raised cortico-steroid levels and cardiovascular risk factors, and hence is increasingly recognised as a major human resource management issue. Extensive international research continues to confirm that psychosocial factors in the workplace contribute to organisational outcomes such as absenteeism, costly compensation claims, and employee attrition (turnover). However, school management structures and models that specifically minimise these outcomes have not been identified, and this is the first research we are aware of that has linked the HPS approach to human resource factors such as intention to quit the workforce.

Other more general subjective health experiences such as quality of life (Lerner, et al., 1994), fatigue and psychological distress (Bültmann, Kant, Schröer, and Kasl, 2002) have also consistently been associated with psychosocial factors in the workplace. In a prospective study of 21,290 female registered nurses, Cheng et al. (2000) found that women in jobs with high work demands, low levels of job control and little workplace social support (referred to as “iso-strain” jobs) are more likely to suffer poorer health and lower quality of life than are women in more flexible jobs with reasonable demands and social support. Tuetteman’s (1991) study using the General Health Questionnaire with a large sample of Western Australian secondary teachers revealed that 23% of male teachers and 20% of female teachers...
scored in the “high stress” category on this instrument, confirming the widespread belief that teaching is an inherently stressful occupation.

Self-reported poor health is typically associated with workplace characteristics where there is an imbalance between effort and reward (Niedhammer, Tek, Starke, and Siegrist, 2004). A prospective cohort study of employees in the metal industry in Finland found that, after adjustment for age and sex, both men and women with high job strain, a combination of high demands at work and low job control, had a 2.2-fold increase for cardiovascular mortality risk compared with their colleagues with low job strain. The corresponding risk ratio for employees with effort-reward imbalance (low salary, lack of social approval, and few career opportunities relative to efforts required at work) was 2.4 (Kivimaki et al., 2002).

Levels of decision latitude and personal social support below the median predicted 17% to 24% increases in sickness absence rates in a cohort of 20,000 employees of France's national gas and electricity company (the GAZEL study) (Melchior, Niedhammer, Berkman, and Goldberg, 2003). Psychosocial factors, in particular low social support, have also been associated with onset of generalised physical pain (Harkness et al, 2004) as well as higher workplace injury rates (Yassi et al., 2004). It is clear, then, that recognising the stressors associated with an occupation or type of workplace, and taking steps to minimise these, has important implications for human resource management, yet the application of population health models to human resource management has been limited, and particularly within the school setting.
In a selected literature review of evidence supporting population health promotion initiatives, Saskatchewan Health (2003) concluded that:

“…health promotion programs should be considered a viable and effective method for helping employers reduce employee-related expenses…the underlying determinants of health and productivity can only be altered through changes to job design, organizational systems, human resource management practices, and the overall culture of the workplace” (p.15).

Although it is acknowledged that teaching is a high-stress occupation, surprisingly little research has been put into identifying those features of human resource management specifically pertinent to the school setting, with regards to teachers’ health (particularly mental health), or the association between HRM practices and organisational outcomes such as job commitment or turnover in schools. The research reported in this thesis fills a gap in our understanding of work environment factors in schools that affect human resource management. Job demands influencing physical and mental health, job satisfaction and organisational commitment, have been studied extensively in relation to teachers, but poorly so in relation to the work environment. Whether specific models of educational practice which implicitly focus on the wellbeing of members of the school community, such as those offered by the HPS model, actually promote the wellbeing of their employees, and whether this translates into better organisational outcomes such as job commitment, has not previously been demonstrated.
This research lays the foundation for further investigations of the complex relationships between work environment variables and health outcomes within the school setting, particularly in the context of management models such as the HPS approach. The results of the research reported in this thesis demonstrate that the HPS framework offers a set of HRM strategies that effectively improves both the school climate, as well as organisational factors related to workforce retention and workers' compensation risks.

This research examined fifteen dimensions of social and organisational capital within the school setting, whilst also identifying associations between these and teachers' job stress, as well as commitment to the school. Particularly pertinent to HRM is the finding that the HPS approach appears to promote stronger commitment to the school (organisational commitment) and the teaching profession (occupational commitment), as well as decreased intention by teachers to quit (turnover intention).

Not directly tested within this study was the notion of teachers' “connectedness” to the workplace, although this was indirectly measured through inclusion of the variable “goal congruity” as one of the Organisational Health variables. This study found a moderately strong positive correlation between Goal Congruity and Organisational Commitment, with the correlation slightly stronger in schools actively adopting the HPS model. These results are consistent with findings of the National Longitudinal Study of Adolescent Health, a US survey of 72,000 adolescents in grades 7-12, which revealed that a sense of "connectedness" to school is critical to a teenager's wellbeing (Bowman, 2002).
Several conceptual issues arise from this research. Most significantly, the literature review has revealed a consistent lack of clarity about the variables being researched under the label of organisational health psychology, such as “job commitment” and “connectedness”. Organisational connectedness arises from the extent to which employees’ personal values are congruent with those of the prevailing management style. Meyer and Allen (1997) defined organisational commitment according to the employee’s “connection” to the organisation, but never expressly investigated the two variables to determine whether they are, in fact, measuring the same phenomenon, or whether there are subtle distinctions between them. Only two studies (Valentine, Godkin and Lucero, 2002; Cullen, Parboteeah and Victor, 2003) could be found in which the overlap between psychological connectedness and job commitment was considered in relation to organisational climate.

According to Valentine, increased commitment “increase[s] employees’ feeling of connectedness to an [organisation], as well as their support for [organisational] values”, and this is associated with person-organisation fit, that is, a sense of “belonging” to the workplace. Valentine’s study indicates that the two phenomena – commitment and connectedness – whilst seemingly indistinguishable, are in fact different. Valentine then suggests that value congruence (equivalent to goal congruity as measured in this research study) between the organisation and the employee will ameliorate organisational performance, through the intervening variable of commitment, although this is not tested.
The results of the research reported in this thesis support this argument by testing job commitment as well as connectedness variables associated with social capital, the notion being that the school is a mini-community subject to similar influences related to human networks. In an environment richer in social capital, namely the HPS, teachers’ job sense of values congruence as well as commitment was also higher, suggesting strong associations between commitment and connectedness but that these are influenced by other factors within the setting.

In a more extensive quantitative study, Cullen, Parboteeah, and Victor (2003) identified that “benevolent” organisational climates, that is, those that promote “a sincere interest for the wellbeing of others” (p.130), are positively related to organisational commitment. Climate features of such organisations include co-operation, mutual personal attraction, positive feelings about tasks, and concern amongst the employees for each other both within and outside the organisation. In a nutshell, these features align with the accepted indicators of social capital, the conclusion being that organisations adopting such values would promote social capital and hence employee connectedness and commitment. The results of the research reported in this thesis support this premise.

Whilst this remains a conceptual issue yet to be resolved, the results from the research reported in this thesis extend it by suggesting that the HPS approach provides schools with a set of guidelines or principles to steer them in the direction of creating such an organisational climate. The HPS approach appears to be a school management style that, to some extent at least,
promotes greater connectedness between teachers and their school, though further research specifically measuring both connectedness and job commitment are needed to determine the overall relationship between the variables.

Apart from promoting teachers’ connectedness, the mediating role in promoting students’ connectedness played by higher teachers’ connectedness has been overlooked in the literature. McNeely, Nonnemaker, and Blum (2002) have suggested that “The challenge for public health professionals and school leaders is to identify and promote school attributes and policies that correspond to adolescents’ developmental needs…[which] should promote school connectedness” (p.138).

The research reported in this thesis now documents those school environment features, that is, the adoption of organisational practices combined with ethical principles supporting such practices, namely the HPS approach, as an effective organisational structure for promoting teachers’ connectedness as reflected in job commitment. Whether this subsequently reduces teacher attrition, and whether it also improves teacher performance as reflected in students’ outcome measures, are yet to be tested, but given the theoretical framework explored herein, such an outcome would be reasonable to assume.

Apart from the human resource management issue of employee retention and performance, prevailing occupational health and safety laws in Australia require that employers consider their “duty of care” to employees, that is, to
anticipate possible causes of injury and illness and to do everything reasonably practicable to remove or minimise these possible causes of harm, that is, to ensure “safe systems of work”\(^3\). The National Occupational Health and Safety Commission encourages a proactive approach, arguing that workplace practices that actively promote health and safety improve productivity and public image, organisational efficiency, and will “save \textit{you} the costs associated with work related injury/illness”.

Given that health is now widely accepted to be an outcome from various interacting forces – genetic make-up, life experiences, and exposure to health-promoting environments – it is imperative that public health research begin to investigate which components of the settings to which individuals are exposed support, or diminish, the capacity for health and wellbeing.

Stress in the workplace is contributing to unprecedented costs to industry, yet little research is being directed towards identifying or encouraging adoption of those work-related factors that build employee “hardiness” or the capacity to cope with strain inherent to one’s occupation, along with adversity such as changes in political direction or pervasive stress-inducing conditions within the workplace. Most work-related stress reduction strategies continue to focus on identifying individuals “at risk” and providing brief, often unsupported, intervention strategies, such as stress management programs (Lambert, Lambert and Yamase, 2003).

Along the same theme, recent strategies to reduce workplace bullying or violence, such as the WorkSafe Victoria document “Prevention of Bullying and Violence at Work”\(^4\), continue to place the onus of responsibility onto employees rather than identifying those work systems that promote and support positive interpersonal relations between employees at all levels within the organisation in order to prevent or minimise stressors. Similarly, the current approach ignores the wealth of information available from those individuals who successfully manage their work lives without succumbing to negative health outcomes, or organisational models that build resilience at a structural level.

The evidence emerging from this research has significant implications in terms of workforce policy development with regards to duty of care specifically within the education sector. It provides the first evidence in Australia, if not internationally, confirming that the HPS framework provides more than just a setting fostering positive health and educational outcomes for children, but it also provides a work environment that may reduce risk factors associated with stress-related compensation claims or costly employee turnover amongst teachers.

This research suggests that the HPS model of school management may improve school organisational health by fostering human and social capital within the teaching workforce. The association between the HPS model and reduced problems with job stress, along with increased self-reported mental

wellbeing, is the first time, as far as we know, that teachers’ mental health has been examined within a HPS framework. The evidence indicates that the HPS is a model that successfully reduces mental health risks associated with the teaching profession.

Resource limitations restricted the collection of “hard data”, such as rates of absenteeism or stress-related injury reports in this study, but such data should be collected in the future to investigate the potential of the HPS to affect such organisational health indicators. To our knowledge, no such research has yet been conducted to evaluate the HPS model against such criteria, although the Friendly Schools Project\(^5\) conducted in Western Australia with a cohort of over 2,000 Year 4 students and their parents and teachers found a three- to five-fold reduction in bullying behaviour amongst students at schools adopting a range of whole-school, classroom, parent and individual strategies. Replication of such studies with the focus being employees rather than students is necessary.

This research has attempted to “unpack” some of the elements within the school, as a workplace setting, that have a bearing on employee health, and hence sets the agenda for further research looking at associations between dimensions such as social and organisational capital, and health outcomes within the teaching workforce.

5.5 CONTRIBUTION TO RESEARCH ON CAPITAL THEORIES OF HEALTH.

The results of the research reported in this thesis are consistent with numerous studies demonstrating that the quality of social environments (defined according to access to services, perceptions of tangible and intangible resources, feelings of belonging and safety, social support, and degree of social integration) significantly influences a range of physical and mental health outcomes at all levels across the lifespan (Yen and Syme, 1999; Seeman, 1996; Stahl et al., 2000). Research over the past decade has consistently indicated that mortality from all causes has been strongly linked to group membership (that is, association with a wide variety of social groups), and individuals living in settings low in social capital have consistently rated themselves more poorly on “self-reported health” and found to have a higher prevalence of health-related risk factors (Berkman and Kawachi, 2000).

The newly emerging concept of “organisational health” recognises the subtle interplay between the quantifiable assets accrued in an organisation as human capital, but also acknowledges the mediating effects of personal characteristics such as coping styles or appraisal of the situation (beliefs about the environment). In addition, it recognises the importance of interpersonal networks and relationships between people within the organisation, or the organisational community, that dimensions known as social capital. Social capital is a resource available within the social contexts
in which we live, work and play. It can be enhanced or diminished according
to the internal dynamics of the setting, whether this be the family, the school,
the workplace, or the community.

A “healthy” organisation, then, is one that recognises these qualities and
systematically nurtures them through all levels of management and
productivity, that is, it builds a culture or climate founded on acknowledgement
of the influence of these variables. Moderating factors, those characteristics
that influence the strength of responses to situational demands, include
hardiness (a trait associated with stress resistance), personality
characteristics such as positive affectivity, health habits, and commitment
(Kim, 2003). The extent to which an organisation is effective in attaining its
targets or carrying out its core business will depend upon the interactions of
these mediating and moderating variables aggregated within and across the
workforce, that is, that builds its human, social and organisational capital.

Teachers, both individually and collectively, are an integral part of children’s
social environments within the school setting but are often overlooked as a
source of social capital and as the “providers” of protective factors that can
contribute to developmental outcomes such as children’s capacity to cope
with adversity. Teachers with high resources of hardiness or resilience
provide children and young people with access to role models who can
effectively demonstrate mature communication and problem solving styles,
create a positive atmosphere or ethos, and give children access to positive
relationships beyond the immediate family, all essential ingredients for “social
capital-rich” environments known to be essential for children’s mental health development.

In recent times, the slogan “A nation’s health is a nation’s wealth”, masthead of “The Sanitarian”, a Victorian journal published by Sir Benjamin Ward-Richardson, a leading public health reformer of the Victorian era, has gained recognition as a fundamental principle necessary for sustainable social development. Four sources of “capital” supporting civic society have been identified – natural capital (environmental quality and resources available in the natural ecosystem); economic capital (the capacity for exchange of goods and other resources between members of a social group); human capital (the pool of skills, education, ideas, and health vested in any social group); and social capital (the “glue” that holds communities together, related to quality and quantity of social networks). According to one World Bank estimate, some 20% of the world’s total wealth is found in natural capital, another 20% in economic capital, and the remaining 60% in a combination of human and social capital (Hancock, 1999).

Social cohesion and social attachments, both indicators of social capital, impact on childhood and adult development (Svanberg, 1998). Evidence indicates that children exposed to conditions with high social capital do better on a range of educational and social outcomes, and are at reduced risk of several physical and mental health disorders, such as depression and associated health risk behaviours (for example, drug and alcohol consumption). Strong associations have consistently been found between diminished social capital at the level of the family and the school and
children’s academic attainment, high school completion, and behaviour problems (Marmot, 1998; Yen and Syme, 1999; Berkman et al., 2000; Putnam, 2000; Berkman and Kawachi, 2000; Stanton-Salazar, 1997; Runyan et al., 1998; Cooper and Thornton, 1999).

Hargreaves (2001) has suggested that a great deal of school effectiveness research fails to adequately measure the school ethos, or reserves of social capital within the school, despite vociferous claims of the influence of school ethos on children’s developmental outcomes, as well as the extensive literature attesting to the critical role of social capital on health, both physical and psychological. Systemic capacity of the whole school is, according to Hargreaves, fundamental to school effectiveness, and this “capacity” can be measured using indicators of social and organisational capital.

Within the school context, evidence indicates that the development of socially, emotionally and academically competent children will be compromised if the social capital of the school environment is neglected. The implication of this is that social capital-rich environments build a particular form of human capital – hardiness or resilience. Environments rich in social support, sensitivity to the emotional needs of openness and caring, effectively develop these qualities in the children exposed to them (Affolter, 2000).

One product of high social capital that is receiving considerable international attention at the present time is psychological hardiness, known as resilience. Until recently, the literature on resilience focused primarily on individual characteristics that contributed towards survival against unfortunate
circumstances or extreme adversity. Over thirty years of evidence supports the notion that resilience is nurtured within environments high in social capital – trust, opportunities for meaningful participation, availability of healthy role models, and reciprocity (giving back). These factors are widely accepted as providing a foundation for the development of resilience.

This research provides the first systematic evidence that group characteristics within a school setting, such as those associated with social and organisational capital, influence the health of one sector of the school community, namely teachers. Given the dynamic interplay between individuals and social groups, it may well be that investments in human capital (such as creating school curricula and learning opportunities that foster individual resilience) bring about enriched social capital, which in turn provides a more nurturing environment for development of individual resilience. The HPS approach is a model that shows promise for providing one context in which this could happen, but further research is needed to examine this premise.

Recent evidence also indicates that there may be biological foundations for adaptive development, with suggestions of hippocampal involvement in learning and memory (Gluck & Myers, 1997). There is emerging evidence that the organisation and development of specific brain areas are sensitive to external experiences, such as exposure to violence, during critical developmental periods (Perry et al., 1995 in Margolin & Gordis, 2000). Individual plasticity, or the potential for a range of possible developmental outcomes, has been strongly associated with increased synaptic strength in
this part of the brain (Martinez and Derrick, 1996; Baltes, Staudinger, and Lindenberger, 1999). The PeaceBuilders Program, a whole-school approach to violence prevention, is founded on this emergent information.

A fundamental principle underpinning the PeaceBuilders Program is evidence of the roles of the neurotransmitters serotonin, dopamine, norepinephrine, and the hormone testosterone impacting behaviour and the degree of resiliency an individual possesses. Abnormally low or high amounts of these chemicals in the body can result in anxiety, depression, hostility, and aggression, that is, these neurotransmitters and hormones regulate human behaviour and thought processes. The research evidence guiding development of this program supports the notion that social experiences can in turn alter the level of neurotransmitters and hormones in either positive or negative ways. Positive human interactions can promote a healthy, balanced neurobiology associated with resiliency over time (Embry et al., 1996). This evidence adds further weight to the argument that creating "healthy environments" is imperative for adaptive childhood development.

Recent additions to the resiliency literature suggest that, in the same way that individuals can develop resilience, so too can social networks (groups or organisations) develop the capacity to withstand adverse circumstances, indeed to thrive in uncertain times. Michael Bell (2002) describes five principles underpinning a resilient organisation – enterprising leadership; culture based on empowerment, purpose, trust and accountability; motivated and competent workforce; responsive and effective management systems; and a physically healthy workplace setting. These features bear a remarkable
similarity to the organisational health literature, as well as the literature referring to organisational capital, clearly indicating considerable overlap in the conceptual principles emerging from a number of social, psychological and organisational disciplines. In addition, they describe core characteristics defining the HPS.

Zubrick and his colleagues (2000) suggested that dimensions of human capital, psychological capital (which he defined as levels of mental health, group cohesion, and perceived levels of support and conflict within the group including sense of personal control, self-direction and autonomy), and social capital must be included in population health research since “physical and mental health, coping skills and competence in human populations arise in large part as a function of the overall quality of the social environment”. Yet there has been scant research to identify those facets of our social environments that add value to the overall capital intrinsic to them, whether this is the family or the school. The research reported in this thesis provides a platform for exploring those inner workings of the school environment that might impact on children’s developmental outcomes, through the influence of teachers as critical mentors fostering their development.
5.6 CONTRIBUTION TO INTERNATIONAL RESEARCH ON JOB STRESS.

The job stress literature has been dominated for the past decade by two key theoretical models, the Effort-Reward Model and the Demand Control Model, both of which were reviewed in a previous chapter. Both models independently predict self-rated health status as well as a range of health outcomes such as cardiovascular disease and poor mental health (Ostry, 2003). The predictive ability of a combined effort-reward imbalance model with the demand-control model was superior to that of either model independently.

The results of this present research study replicate Ostry’s findings within the context of the school environment, but extend their findings by linking the outcomes to specific dimensions of the school’s organisational processes. In schools offering higher skill discretion (opportunities to keep learning new things, developing skills, skilled tasks, task variety, and job creativity), teachers’ morale was higher, co-worker support was stronger, teachers felt more appreciated, and their personal and professional goals were more congruent with the workplace ethos. Teachers in schools where there was greater co-worker support, appreciation, and value placed on them as individuals, reported lower psychosomatic strain. Commitment to the workplace, as distinct from the occupation of teaching, was higher in such schools.
These relationships appeared to be independent of the demands of the job, a finding consistent with recent research published by Demerouti, Bakker, Nachreiner and Schaufeli (2000). Their study, conducted with nurses, demonstrated that job demands are positively correlated with exhaustion, but that “job resources” (defined as intangible assets of the work situation such as access to task variety, supervisor support, participation in decision-making, and sense of control) offset this. Similar results have been reported by Dollard and Winefield (2002), who found higher levels of “active coping” and sense of efficacy (personal accomplishment), along with lower levels of psychological distress and ill-health, in jobs combining high demands and high control. They suggest that this may be due to “emotional and physiological toughening that occurs when workers have the opportunity for both challenge and recovery” (p. 18). Hardiness, supervisor support, and group cohesion consistently enhance job satisfaction and diminish job stress (Steinhardt et al., 2003).

In the present study, despite finding no significant differences between school samples in terms of job demands, did find significant differences between High and Low HPS in terms of the “resources” available to teachers in the High HPS – leadership style was more supportive, decision-making more inclusive, co-worker support was higher, value and appreciation greater, and opportunities for professional growth higher. In addition, teachers in HPS’s reported significantly higher Decision Authority (control). These results suggest that schools committed to the HPS approach provide a work environment with greater “organisational capital” – intangible resources that
support employees – which mitigates work-related stress despite teaching being a high-demand occupation.

Whether teachers in the HPS display greater emotional toughness – resilience – could not be included in the present study, but this theory provides an interesting line of research for future investigation into teacher burnout prevention. In practical terms, this suggests that organisations rich in social and organisational capital (resources), such as schools adopting the HPS approach, may reduce costs associated with poor worker health (such as teacher burnout) and lower job commitment (teacher attrition).

This is one of the few investigations of the job strain model applied to the school setting. Results from other similar studies have not fully supported the demand-control model (Pomaki and Anagnostopoulou, 2003), suggesting that in school setting at least, more complex factors contribute to teachers’ job strain, whilst numerous variables (such as individual coping style or “stress resilience”) also protect against or ameliorate work-related determinants of job stress in schools. This would appear to be the case as indicated by the results of this research, which suggested that in schools adopting a whole-school model of management, the HPS approach, those factors determining teachers’ health and job commitment are more complex than in schools not committed to this approach, and that a variety of factors interact to determine these outcomes. The widely accepted Demand-Control model explaining job strain, for example, may be too simplistic to apply within a complex work setting such as a school.
In theoretical terms, this research study extends the expanded Demand-Control- (Support) Model developed by Johnson (1988). The Demand-Control-Support (D-C-S) model assumes that job strain is a result of the interaction of three job dimensions: job demands and control as well as social support, which was defined by Karasek and Theorell (1990) as ‘overall levels of helpful social interaction available on the job from both co-workers and supervisors’. According to the D-C-S model the highest job stress arises in a work environment where demands are high, control low, and social support (as a resource available to workers) low.

In the research reported in this thesis, other “organisational assets” apart from social support within the work environment of the school setting are examined. The results indicate that a new model of job strain incorporating capital theory may provide a more comprehensive model particularly within human service organisations such as schools and hospitals where productivity, or organisational output, is measured in terms of intangible variables such as children’s developmental outcomes.

Most notably, this research has shown that other variables related to organisational capital such as opportunities for professional development, goal congruity, curriculum co-ordination, trust, social proactivity, value and appreciation, and workplace morale, all contribute to building a “high-capital” work environment that appears to buffer job strain (Figure 5.1). In addition, job commitment, which is determined by the same organisational capital factors, also moderates job strain.
This thesis is proposing a modification of the D-C-S model, to be termed the “Demand- Control- Capital” model. It is the contention of this research that the feedback loops provided by a management style built on a model that actively promotes human, social and organisational capital, which is implicit within the HPS framework, acts to curtail job strain, and may in turn strengthen the organisation against externally imposed threats, that is, build “organisational resilience”. This proposal extends the established D-C-S model by suggesting that support within the work setting is only one of a number of “assets” that mediates job strain, and in fact other organisational assets may in fact play a more significant role in mediating job strain than interpersonal support.

In this proposed model, the relationship between workplace demand and job strain is mediated by the extent to which employees can control the demand, using their personal resources that are in the form of human capital. At the same time, a healthy organisation will also moderate the demand-strain equation through resources defined as organisational and social capital. These environmental factors impact on job commitment, which also moderates job strain (Figure 5.1). Such a cycle defines an organisation which is internally resilient. It is further hypothesised that “resilient organisations”, such as HPS, build resilient people. The next logical step is to explore the relationship between these setting variables and children’s health, particularly the enhancement of positive psychosocial assets such as resilience.
Figure 5.1: Proposed Demand-Control- (Capital)- Commitment Model of Job Strain.
5.7 CONCLUSIONS

Global commitment to the HPS model is steadily increasing. For example, every school in Scotland has been set the target of becoming a health promoting school by 2007. This target involves the development of a whole school approach to promoting the physical, social, spiritual, mental and emotional well-being of all pupils and staff. The Scottish Health Promoting Schools Unit has been established to work in conjunction with national and local partners, including the Scottish Executive Education and Health Departments, the Convention of Scottish Local Authorities, Learning and Teaching Scotland, NHS Health Scotland, Her Majesty’s Inspectorate of Education and the National Health Promoting Schools Network, to help schools become and develop as health promoting schools.

Such complete political commitment remains rare, but demonstrates growing awareness of the links between the health and well-being of pupils and their capacity to benefit from educational opportunities to attain high standards of achievement within positive school settings arising from diffusion of the HPS approach.

However, despite pockets of evidence of the significant positive effects of the HPS approach on children’s personal, social and educational achievement, considerably more research is needed to demonstrate effectiveness of this approach on outcomes for other HPS stakeholders such as teachers, and families. The radical approach adopted by Scotland, which gives recognition to the role of teachers in determining school effectiveness, will be watched
closely as an “experiment” that, at least in theory, should have far-reaching impacts on children’s development as well as the education system as a whole. In particular, the Scottish government’s commitment to reducing teaching stress, with introduction of a mandatory 35 hour week, teacher sabbaticals, employment of substantially more support teachers in classes, introduction of new policies addressing work / life balance issues, and reduction of class sizes, all initiatives under the HPS framework, are designed to promote a positive work environment and conditions that reflect the important role played by this workforce. Whether this translates in better health and educational outcomes for children is yet to be seen.

The ethical issues of school effectiveness and teacher stress as opposing forces operating within the education setting have barely been considered within educational or public health research, despite an enormous literature on job stress and burnout in the teaching profession. School policies and teacher self-care within a work context that does not acknowledge the interactive forces of employee wellbeing, political goals, and environment, which Kelly and Colquhoun (2003) call “government of the stressed self”, creates an ethical issue for teachers, their unions, and school managers, with implications for school effectiveness research and policy. Although not directly examined in this thesis, ethical issues arising in terms of human resource management practices within workplaces are gaining attention particularly in relation to job stress.

Given that the essence of successful health promotion is not just change as measured by health risk behaviours, but also structural changes within the
setting such that health is promoted and supported, measuring changes at this level as well as at the personal level is essential for a comprehensive evaluation of a health promotion initiative such as the HPS approach. In addition, increasing understanding of the importance of social capital, including the importance of quality of social networks, levels of trust, and tolerance for diversity, is essential to determine the potential health outcomes that may be expected in the long term from the HPS.

The present study has demonstrated that schools adopting a HPS model provide a more positive work environment for teachers. Results from the survey of 39 state primary schools in Queensland reported in this thesis indicate that all dimensions of the school’s “organisational health” were higher in schools that were more actively implementing strategies consistent with the HPS approach. On all 4 scales measuring social capital, HPS rated higher than those that were not adopting this approach. These data suggest that Queensland state schools adopting the HPS approach are perceived by teachers as a more positive work environment, and that despite being a “higher demand” work setting, teachers in these schools report significantly lower job-related stress, and significantly better self-rated mental health.

However, this is not being translated into healthier lifestyles, with no difference in the prevalence of health risk behaviours between the two samples of schools. There were no differences in rates of preventive health check-ups or regularly using natural health supplements, and only slightly more than half the teachers are regularly exercising. In general, teachers appear to be practicing healthy dietary habits, although almost one in five
teachers (slightly more in low HPS) is drinking alcohol every day. Whether this was excessive intake was not explored in this research, but could be the focus of more detailed exploratory research in the future. Given the ongoing risks for cardiovascular disease and other “population health epidemics” such as obesity and diabetes, identifying school organisational factors that successfully reduce risk factors is still an area for further research.

It would appear from this study that the HPS model does not have any effect on these factors. However, a number of factors may explain such an outcome, most notably the assumption that environmental factors alone, without the added force of direct targeted interventions such as employee-focused health promotion strategies, will bring about change in teachers’ health risk and lifestyle behaviours. This is supported by a review of the workplace health promotion literature undertaken by the UK Health Development Agency in 1998, which concluded that “Organisations should employ both population-based policy initiatives and intensive individually and group-oriented health promotion interventions to create an integrated programme for change”.

The results reported in this thesis indicate that the HPS approach provides all the social and organisational ingredients necessary for promoting teachers’ wellbeing and health, in the context of a positive health-promoting social and organisational environment, and as such is associated with reduced job stress. Due to resource limitations, this research was only able to collect cross-sectional data from one information source within the school setting, the

---

teachers. However, by so doing and by clearly demonstrating that the HPS approach offers a management model that effectively fosters a healthier workforce, the potential now exists to extend this research by integrating various other data collection approaches, such as examination of teacher health, absenteeism and injury rates, to provide an holistic measure of the school environment. The instruments developed for this research go some way towards extending the theoretical framework underpinning our understanding of the HPS, whilst also providing the tools to further investigate the model emerging from the research. Additional statistical analyses including structural equation modelling, and qualitative data collection using, for example, grounded theory research, offer potential to provide deeper understanding of the complex processes operating within the school setting.

The next chapter discusses the strengths, limitations and future directions of this research.
CHAPTER 6

Limitations of the Research and Future Directions
The purpose of this chapter is to identify and discuss the strengths and weaknesses of this research whilst setting the agenda for future directions, including questions and issues arising from the results of these studies.

6.1 LIMITATIONS OF THE RESEARCH.

6.1.1 Data Collection Instruments

A notable outcome from this research has been the development of data collection instruments with potential to contribute further to research into the HPS model. The HPS Audit Checklist, developed specifically to identify suitable schools for the main research study, has shown considerable promise as a tool either for use by schools to monitor their progress towards becoming a HPS, whilst also offering an instrument with promise for further research similar to that reported in this thesis.

Although the psychometric properties of the instrument appear good, several shortcomings in this study should be noted. Firstly, despite what is regarded as a good response to a mail-out survey to school principals, it is debatable whether the small sample size (less than one third of all state schools) responding to the school audit can be accepted as representative of the state of Queensland as a whole. Other methods of data collection, such as stratified random sampling, may be more appropriate for surveys of this kind, particularly where statewide profiling of school health promotion activity is the purpose. It should be borne in mind that the purpose of the survey was pragmatic, to identify a sample for the main phase of the research, and the
data gained from the profiling were in fact secondary to the main purpose of the study.

Secondly, given that the audit checklist was completed only by the school principal (or designated senior staff member), the validity of the school’s HPS profiles may also be questioned. By collecting data only from one member of the school, it is possible that a biased view of the extent of school health promotion activity was gained. Further research is needed to investigate the extent of agreement between varying members of the school community regarding their beliefs about the school’s health promotion activities. This could be accomplished by use of the same instrument, but wider circulation throughout the school community, an approach that would also reveal the degree of consistency between perceptions of the school environment across various sectors, such as students, staff and parents.

A number of recommendations can be made for further developments to the instrument. Most notably, test-retest reliability should be conducted to determine the long-term stability of results using the instrument. Further validation studies including comparing the instrument with other similar instruments are also necessary, along with validation using other means of data collection such as qualitative approaches or objective data collection such as observations of sample schools or audits of school documentation (such as policy documents and school strategic plans). Finally, a more extensive survey of the state’s schools, with a more substantial response rate to ensure greater generalisability, is necessary, as well as determining the usefulness of the instrument at secondary school level.
6.1.2 Research Design & Methods

A cross-sectional study design has implicit limitations, not least of which is its capacity only to show associations between variables rather than to indicate direction of causal pathways. It should be borne in mind, however, that prospective longitudinal studies, which are regarded as the “gold standard” of health research, are costly and well outside the bounds of resources available for doctoral research. By taking the additional time to carefully select the schools that took part in the research, and by building in a comparison sample of schools based on a rationale and method that was rigorous, the weakness of the research design was overcome to some extent. However, future research should replicate the study using a prospective data collection method, or alternatively, conduct longitudinal studies tracking teachers’ health and wellbeing over time within various school settings.

Another limitation of the research was its dependence on self-report data. Resource limitations prohibited the collection of “hard” data such as staff absenteeism, rates of stress leave, or compensation claims related to mental health. Current policies within the state education department restrict access to such data at a state level, and gaining permission to collect such information at local level, at least within state system, depends on sympathetic policies. However, such research may be possible within independent schools and could be included in an expanded study. On the other hand, a number of studies have confirmed that self-reported health data has good reliability (Pitiphat et al., 2002).
Previous research that has used audits of school health policies provides one approach that might facilitate “objective” data collection in the future. Again, this study was restricted in terms of its collection of audit data, with one weakness of the study being its dependence on the audit data being provided only by the school principal. Future research could use expanded methods of data collection, such as CATI interviews, which may prove more cost-effective both time-wise as well as financially.

Further research is also needed to investigate the psychometric properties of the research instruments. This was of necessity relatively limited for this research, simply for the sake of the requirements of a doctoral thesis, but test-retest data and further validity investigations should be undertaken to extend our understanding of the validity and reliability of the instruments, along with their practical applicability within schools.

6.1.3 Conclusions Emerging from the Results

Despite the statistically significant differences between HPS and the comparison sample of “Low HPS” on organisational health, social capital, and teacher health outcomes variables, it should be noted that in most cases the differences between means were only small, and being a cross-sectional study, conclusions about the causative pathways between variables cannot be made. Outcomes such as this are not unusual when statistical power is high. Whilst this is an encouraging result from a research perspective, the practical significance needs more cautious interpretation. Health Promoting Schools, it would appear, do offer teachers a more positive work environment to some extent, but the modest differences suggest that replication studies
are needed before it can definitely be confirmed that this approach is associated with significant changes to state education policies. It is worth noting here that some countries have already moved to make the HPS compulsory in all schools, on the basis of WHO reports of a commitment to this model. However, more definitive evidence confirming the practical efficacy of the approach in terms of a number of variables, such as children’s psycho-educational development, teachers’ health and wellbeing, and organisational outcomes such as reduced compensation claims, is still needed.

The research reported here provides both empirical evidence in support of the benefits of the HPS approach, as well as expanding contemporary models and lines of future research that could add to current workplace health theories. These explanations should be given consideration within the international arena along with further testing against existing models and explanatory frameworks.
6.2 FUTURE DIRECTIONS

Several potential pathways for future research arise from this study.

Firstly, more comprehensive auditing of school-level health promotion activities, including collecting perceptions of the school environment from a more diverse range of members of the school community, namely students, their carers, and the surrounding community, could substantially extend our understanding of the ways in which health promotion research in schools could be improved. Currently in Australia there is no “gold standard” approach to comprehensive school reform or guidelines for the implementation of school-level health promotion initiatives, and a great deal more information is needed, particularly extending beyond the focus of executive decision-makers, to implement such changes, rather than on implementing individual programs. The results of this research clearly demonstrate that school organisational processes impact on teachers, with potentially profound results for the profession of teaching as a whole, a profession that fluctuates significantly in terms of popularity largely due to perceptions of the organisational climate and job demands. By implementing standards for organisational monitoring and improvement, not only might there be significant improvements at school level, and hence increased potential for improved developmental outcomes for children, but also a significant raising of the status of teaching as a profession. It is recommended that future research building on these studies take this into consideration, particularly with regard to more expanded research designs that would allow identification
of the pathways of influence by which the school environment shapes teachers’ occupational health outcomes.

The conceptual framework guiding this research would appear to be confirmed by the empirical findings. Teachers’ perceptions of the school environment, such as the extent to which they feel supported by the school leadership, contribute to school decision-making, receive support and appreciation from colleagues, and are provided with opportunities to extend their competencies, clearly influence their connectedness to the school, levels of trust, and social proactivity. That is, this research has identified a set of organisational strategies that build human and social capital within the school setting, which in turn appears to buffer outcomes commonly associated with a high-demand job, such as job stress and turnover intentions. It appears that a school adopting such a management approach encompassing HPS principles establishes an “organisational learning” feedback loop, such that the gains produced in staff morale and commitment are re-invested into the social systems of the school, thus enriching them further and enhancing reserves of social capital available to members of the school community. In turn, enhanced social capital appears to create a school climate that affords greater opportunities for reciprocity between members of the school community, thus enhancing reserves of human capital, that is, exchanges of skills, support and motivation to participate fully. Further analytical research investigating social capital within schools, as a second-order organisational dimension, is needed to investigate the proposed Demand-Control-Capital Model presented here.
Secondly, this research needs to be extended to include collection of “hard” data in order to compare objective organisational outcomes, such as teacher drop-outs from the workforce and workers’ compensation claims, with “soft” data such as employee perceptions and self-reported motivation, particularly between HPS and others. With attrition rates in Australian schools currently between 3 – 8%, and notably higher during the first few years of teaching, comparisons of both “hard” and “soft” data, as well as in-depth qualitative information about contributing and confounding factors, may add validity to the self-report data collected in this study. Resource constraints limited this research to quantitative data collection only, but the results warrant an extension of the study using qualitative data collection methods to shed light on the processes revealed from this research.

Thirdly, numerous confounding variables contribute to job stress, not all of them work-related. In this study, self-reported mental health data were collected, but data pertaining to more specific aspects of mental health and the sources of these, such as recent stressful life events or daily life hassles, both within and outside the job, may extend our understanding of the issue of job stress in teachers. Along with identifying such variables, it is also necessary that those personal and organisational factors that provide employees with the strength or capacity to withstand such conditions need to be explored in future research. Data related to teachers’ resilience were not included in this research, but given that it is developing into a worldwide focus of attention in terms of children’s developmental outcomes, considerably more attention is needed within key settings such as schools to examine the
impacts of children’s exposure to adults who themselves are imbued with varying levels of resilience.

Future directions of HPS evaluations should be taking into account this emerging popularity of research into resilience or psychological hardiness. The salutogenic model of health recognises that “stressors [are] an omnipresent component of life that are detrimental to health only under certain circumstances” (p. 57), and suggests that research should be focusing directly on factors that maintain and protect psychological and physical health in the bulk of the population, that is, identifying what it is about those who cope effectively with adverse conditions, or who “bounce back” after unfortunate circumstances or prolonged stress. Such research has rarely addressed resilience as an organisational characteristic, particularly within key socialising settings such as the school. The research reported in this thesis demonstrates that schools adopting the HPS model are qualitatively different from those not adopting this approach, and that this is associated with teachers both subjectively as well as an organisational unit within the school system. That is, reserves of capital accrue within schools adopting the HPS model.

The role of schools as agents of socialisation, and hence a vehicle for building civil society, has not been widely explored within the education or health literatures. Where this has occurred, it has typically been addressed from the perspective of the school as one setting of influence within the broader community or society, whereas the internal social capital capacity of the school is commonly overlooked. This study demonstrated that schools where
systematic strategies are put into place to foster supportive leadership, staff morale, recognition for professional achievement, and commitment to employee growth and development, provide a work environment with notable organisational benefits. On all four scales measuring social capital, HPS rated higher than those that were not adopting this approach, with the greatest difference being for the Social Proactivity scale. Schools “richer” in social capital appear to also be “richer” in other forms of intangible assets that build the potential effectiveness of the organization, such as human and organisational capital. Hence a unique component of this thesis has been the identification of associations between various forms of capital (intangible resources within the school setting), the HPS approach, and organisational outcomes such as employee (teacher) job stress and commitment.

Extending this line of reasoning and combining it with the results of this research that support the notion of the HPS as a more “organisationally healthy” work setting, it could be argued that adoption of the HPS approach creates what may be termed “organisational resilience”. That is, due to the characteristics inherent in this style of school management, such as providing supportive leadership, actively promoting staff participation in decision-making, fostering stronger interpersonal support between staff, and providing greater opportunities for professional development, such a school is adopting proven organisational practices that support its sustainability in times of change or adversity by virtue of fostering a workforce that is more “resilient”, reflected in greater commitment to the organisation and better overall health.
Apart from the family, the school plays the most significant role in shaping children’s development, yet little is known about how the adults in the school impact on such developmental outcomes. The HPS framework provides a well-established structure that we know fosters health and positive educational outcomes in children, and that it does so by providing micro-level socio-ecological variables that promote teachers’ physical and mental health, and “sense of coherence”, fundamental to the emergence of resilience.

The research reported in this thesis suggests that the HPS approach nurtures more positive mental health, and greater connectedness to the school in its staff, as well as an environment rich in social capital. That is, as a work setting, the HPS builds greater human capital amongst the staff, particularly teachers, who play a critical role in the formation of children’s wellbeing and development, both psychosocial and educational. Such an approach fosters a more resilient organisational setting that encompasses more resilient teachers. It is logical to conclude that the interactive effect of resilient role models within a resilient organisational setting nurtures the development of resilient, and hence more successful and adaptive, children and young people, a line of research with considerable future potential.

Little is known about school organisational factors that influence children’s psychosocial developmental outcomes. Whilst not tested in the research reported in this thesis, this line of reasoning provides considerable potential for further research (Figure 6.1).
Figure 6.1: Proposed pathway linking the HPS model to children’s resilience.
6.3 CONCLUSIONS

The purpose of this research was to investigate whether the HPS approach, which has demonstrated significant positive impact on student-related health and educational outcomes, also results in demonstrable changes to organisational processes within primary schools, and to teachers’ health and wellbeing. Given that the essence of successful health promotion is not just change as measured by health risk behaviours, but also structural changes within the setting such that health is promoted and supported, measuring changes at this level as well as at the personal level is essential for a comprehensive evaluation of a health promotion initiative such as the HPS approach. In addition, with increasing understanding of the importance of social capital, including quality of social networks, levels of trust, and tolerance for diversity, the measurement of these variables within the context of a setting that espouses its support of such factors is fundamental to determine the potential health outcomes that may be expected in the long term from the HPS.

This research has demonstrated that the HPS approach holds considerable potential in terms of its impact on school social and organisational capital, and thereby teachers’ health. It has added a new dimension to HPS evaluative research by demonstrating the efficacy of this approach at organisational level, as well as identifying a new pathway through which children’s psychosocial development is enhanced, namely by providing children with access to healthy role models.
Whilst further analyses are planned to identify potential confounding variables and explore associations between variables in order to identify pathways of influence, these data suggest that Queensland state schools adopting the HPS approach are perceived by teachers as a more positive work environment, and that despite being a “higher demand” work setting, teachers in these schools report significantly lower job-related stress, and significantly better self-rated mental health. As a model for building a work environment that not only fosters and supports its teachers, but also thereby creates an environment that optimises this resource for the benefit of the students, the Health Promoting Schools approach has been confirmed as a model of “best practice” by this research.


ACTU (1997). Stress at Work, Not What We Bargained For. National OHS Survey on Stress at Work, ACTU.


Affolter (2000). Towards emotionally-intelligent human development policies, exploring the validity of an idea. (Unpublished manuscript). First comprehensive exam paper submitted in partial fulfilment of the requirements for a Doctoral Degree in Educational Policy, Research and Administration, School of Education, University of Massachusetts at Amherst. At [http://www.umass.edu/cie/Themes/socio_emotional_well_being.htm](http://www.umass.edu/cie/Themes/socio_emotional_well_being.htm) (Accessed 16/07/04).


Breuker, G. (2004). Towards Healthy Organisations in Europe - From Utopia to Real Practice. ENWHP.


CDC (2002). SHI, School Health Index for Physical Activity, Healthy Eating and a Tobacco-Free Lifestyle, A Self-Assessment and Planning Tool. National Center for Chronic Disease Prevention and Health Promotion, Atlanta.


Appendix 1

Letter to Expert Panel to Contribute to Development of HPS Audit Checklist
Dear <Name>,

I am currently undertaking a PhD research project with the Centre for Public Health Research in the School of Public Health at Queensland University of Technology, Brisbane, Australia. The aim of the research is to evaluate the effect of the school social environment on teachers' health, lifestyles and job commitment. Specifically, I will be investigating whether schools adopting strategies consistent with the Health Promoting Schools approach differ from those not implementing such strategies. My research will be focusing on state primary schools in South East Queensland.

The first component of my research entails developing a checklist that can be used to conduct an audit to determine the extent of activities that meet the criteria for Health Promoting Schools. The audit will be conducted with all state urban primary schools in Queensland.

In order to establish face validity of the checklist, I will be circulating it to a panel of experts – people with recognized experience with the Health Promoting Schools approach. Your feedback on this checklist, which is attached, would be a valuable contribution to my research. I have also attached a feedback sheet to guide your suggestions. On the basis of initial feedback, I will undertake appropriate modifications to the instrument, and then circulate it again amongst the panel for final comment. After this, the checklist will be piloted with a small sample of schools.

As I expect to complete this part of my project by early May, your prompt feedback would be most appreciated.

Yours sincerely,

Kate Lemerle
PhD Research Student
Appendix 2

Expert Panel Feedback Sheet
for HPS Audit Checklist
Audit Checklist to Evaluate the Extent of Health Promoting Schools Activities in Queensland State Primary Schools

EXPERT PANEL FEEDBACK COMMENTS

Please rate each of the following components of the checklist according to the following scale, and write additional comments and suggestions in the Comments column:

1  Seriously deficient, needs major revision
2  Deficient but could do with some revision
3  Acceptable, does not need revision
4  Good
5  Excellent

<table>
<thead>
<tr>
<th>RATING</th>
<th>COMMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Visual appeal (includes font, size, spacing etc) | 1  2  3  4  5 |
Quality of instructions to respondent (clear, comprehensive, etc.) | 1  2  3  4  5 |
Scoring format | 1  2  3  4  5 |
Page layout | 1  2  3  4  5 |
Number of sections | 1  2  3  4  5 |
Number of items | 1  2  3  4  5 |
Wording of items (ambiguity, words used etc.) | 1  2  3  4  5 |
Relevance of items to Australian school settings | 1  2  3  4  5 |
Length of time needed to complete checklist | 1  2  3  4  5 |
Consistency of items with international definitions of “Health Promoting School” | 1  2  3  4  5 |

Please record those specific items (by item number) that, in your opinion, could be deleted from this checklist:

Reasons for Possible Deletion:

Additional comments to help with this project (Continue on back of sheet if necessary):

NAME: ____________________________  POSITION: ____________________________

Thank you for your valuable contribution to this project.
Appendix 3

Notification of research proposal to Education
Queensland District Directors
Dear <District Director>,

Re: Audit of School Health Promotion Activities in Queensland State Schools.

The Centre for Public Health Research at QUT is beginning a research study to investigate whether schools adopting strategies consistent with the Health Promoting Schools (HPS) initiative differ from those not implementing such strategies. This research is being undertaken as part of a QUT PhD project by Kate Lemerle (Centre for Public Health Research, QUT) under the supervision of Dr Jan Nicholson (Centre for Public Health Research, QUT), Associate Professor Donald Stewart (School of Public Health, QUT), and Dr John Fanshawe (School of Learning and Development, QUT).

This is a courtesy letter to inform you about this project and to ensure that we satisfy any special requirements you have before approaching schools within your district to invite their participation.

As the preliminary phase of this research project, an audit of school-based health promotion strategies being implemented in state schools will be conducted. Currently Education Queensland does not collect this information. The audit will help us identify the extent and types of school-based health promotion activities being carried out statewide. This information will be used to facilitate the selection of two samples of schools (those actively implementing strategies consistent with the HPS approach and those not currently committed to this approach) for subsequent stages of the project. It is important to have as many schools as possible take part in this exercise, regardless of how many or how few health promotion activities each school is implementing. An audit checklist has been developed using the World Health Organisation’s criteria for defining a Health Promoting School followed by consultation with Education Queensland and a panel of international experts familiar with the HPS approach. It should take about 15 minutes and we will request that school principals complete the audit checklist. Schools that meet the criteria for further involvement in the research will be notified and invited to participate later this year. Such participation will be entirely voluntary.

Please note that all responses to the audit will be kept confidential and individual schools will not be identified in any way to any person or organisation other than the immediate research team. Any reports arising from this study will use aggregated data only and will ensure complete protection of the information provided as well as identities of participating schools.

For your information, copies of the audit checklist, consent form and cover letters, which will be mailed to school principals, are attached.

If you require more information or have any questions about the audit checklist or the proposed research, please phone Kate Lemerle (Project Co-ordinator) on (07) 3889 3244, or email k.lemerle@qut.edu.au. Any concerns about the ethical conduct of this research can be directed to the QUT Human Research Ethics Committee on (07) 3864 2902.

Yours sincerely,

Kate Lemerle
Project Co-ordinator
Appendix 4

Letter to School Principals re Audit
Dear <Principal Name>,

Re: Audit of School Health Promotion Activities in Queensland State Schools

The Centre for Public Health Research at Queensland University of Technology, Brisbane is beginning a research study to evaluate outcomes from school-based health promotion interventions. Specific variables to be investigated include the school social climate, teachers' health, and job commitment. Members of the team include Associate Professor Donald Stewart (School of Public Health, QUT), Dr Jan Nicholson (Centre for Public Health Research, QUT), Dr John Fanshawe (School of Learning and Development, QUT), and Kate Lemerle (PhD Student, Centre for Public Health Research, QUT).

The first phase of the project involves an audit to determine the extent of health promotion activities in primary schools across Queensland. It is necessary to collect these data in this way as Education Queensland does not collect this information. The audit will enable us to select suitable schools for the main study, to be conducted later this year and early next year.

The second phase will involve working with about 40 schools to collect data about the school social environment (also known as ‘school climate’) using a self-report questionnaire to be completed by teachers. The questionnaire will also ask about teachers' usual health behaviours, psychological wellbeing, and job commitment. Participating schools will receive a profile report of collated data from their teachers' responses compared with the overall results. This should prove to be a valuable tool for organisational developments or teacher-focused health promotion activities.

An audit checklist has been developed using the World Health Organisation’s criteria for defining a Health Promoting School (HPS). The checklist has been refined through consultation with Education Queensland as well as a panel of experts familiar with the HPS approach. Please complete the attached audit of health promoting activities being conducted in your school and return to us by <INSERT DATE>.

If you require more information or have any questions about the audit checklist or the proposed research, please phone Kate Lemerle (Project Co-ordinator) on (07) 3889 3244, or email k.lemerle@qut.edu.au.

Yours sincerely,

Kate Lemerle
Project Co-ordinator
Appendix 5

Audit Information Sheet for School Principals
Information for School Principals

The Centre for Public Health Research at QUT is beginning a study to explore the impact of school-wide health promotion strategies on the school social climate, and how this affects teachers' health, feelings of wellbeing, and job commitment. The study will be conducted in two stages over the next twelve months:

**Phase 1: Audit of school-based health promotion activities**

Currently Education Queensland does not collect information about the extent or types of health promotion activities being conducted in Queensland primary schools. The audit will be used to produce a statewide profile of school health promotion, and also identify schools that may be suitable for subsequent phases of the research.

**Phase 2: Study of the impact of HPS activities on school climate, teachers' health and job commitment**

After a pilot study with 3 schools, teachers from 40 selected Queensland primary schools will be invited to complete a 112-item questionnaire about school social climate, their health and lifestyle behaviours, psychological wellbeing and job commitment. Selection of schools for this phase will be based on the extent to which they are developing health promotion strategies. These schools will be contacted later in the year and provided with more information.

**Why is there a need to conduct the audit?**

Currently little is known about the extent of school-based health promotion activities in Queensland state schools. The first phase of the research project is necessary to provide a statewide profile of the types of school health promotion activities being undertaken and the outcomes being addressed. It will result in the establishment of a database of school health promotion activities, which may then be used for exchanges of resources between schools, information about the best ways to go about setting up new health promotion projects, as well as valuable information about outcomes from these activities. It will also ensure that appropriate schools are selected for invitation to take part in later phases of the research. A report will be prepared, based on statewide aggregated data, which may be useful to help schools plan future health promotion activities.

**How much time will it take?**

The audit checklist contains 40 items rated on a 5-point scale, as well as an optional section where you can provide more information about specific health promotion activities at your school. It should take about 20 minutes to complete. Data about schools is also being collected in order to identify trends in relationships between demographic variables and school health promotion.

We invite your school to participate in this first phase of the research project by signing the attached consent form, completing the Audit Checklist, and returning them both to us within 10 working days of your receipt of this package.
What do we hope to find in the main study?

Substantial research shows that school climate can influence the wellbeing, health and performance of teachers. Health promotion strategies typically focus on student outcomes, but rarely address other factors such as changes in the school climate or teachers’ health behaviours.

This phase of the research will examine the extent to which one strategy, the Health Promoting Schools approach, influences the work environment for teachers, and how this affects various teacher outcomes including health risk behaviours, psychological wellbeing, and job commitment. This will be done by collecting data from two sets of schools - one that is very active with school health promotion strategies consistent with the HPS approach, and one set that is not focusing on these strategies.

Why is this research important?

The results of the research will provide valuable information about work environment influences on teacher health and job commitment, and has been endorsed by the Queensland Teachers’ Union. It may provide useful data to assist with enterprise bargaining for improved work conditions, but could also be useful for schools planning programs to address teachers’ health or organisational developments. Most importantly, it will provide a systematic evaluation of the Health Promoting Schools approach.

Voluntary participation and confidentiality

The participation of your school in this project is entirely voluntary. All data collected for this study, both at school as well as teacher level, will be coded to protect the identity of participating schools and their teachers. No information that could identify individual teachers, or schools, will be released to anyone outside the QUT research team. Statistical analyses will be carried out on aggregated de-identified data only.

Further Information:

Any questions you have about this audit, or further phases of the proposed research, should be directed to Kate Lemerle, Project Co-ordinator, on 3889 3244, or email k.lemerle@qut.edu.au. Any concerns or complaints about the ethical conduct of the research can be directed to the Secretary of the University Human Research Ethics Committee on (07) 3864 2902.

Return Address:

Kate Lemerle
School of Public Health
Queensland University of Technology
Victoria Park Rd.,
Kelvin Grove, QLD 4059.
Appendix 6

Principals Consent to Participate in Audit
Please sign and return this form with the completed audit checklist.

I have read the attached Information Sheet about this proposed QUT Research Study, and hereby give consent for my school to participate in Phase 1 of this research project by completing the Audit Checklist of Health Promotion Activities in Queensland Primary Schools.

I acknowledge that:

1. I have read and understood the information that has been provided to me explaining the project, and any questions have been answered to my satisfaction.

2. The participation of my school in this research project is completely voluntary.

3. Any information I give to the researchers will be completely confidential, and access to this information will be restricted only to the members of the team undertaking this research study. I understand that no information that identifies this school or any of its staff will be made available to any person outside the QUT research team, including members of Education Queensland.

4. I understand that any reports, publications or presentations about this research will be based on aggregated data only and will not identify any individual participants, whether these be schools or staff within them.

5. I understand that I can contact the research team if I have any additional questions about the research, and that I can contact the Secretary of the QUT Human Research Ethics Committee if I have any concerns about the ethical conduct of the research. Contact details are provided below:

Project Co-ordinator: Kate Lemerle Ph: (07) 3889 3244

Project Supervisor: Dr Jan Nicholson Ph: (07) 38645941

QUT Human Research Ethics Committee: Ph: (07) 3864 2902

Principal's name: _____________________________ School code: ______________

Principal’s signature: _____________________________ Date: ___ / ___ / ____
Appendix 7

Health Promoting Schools Audit Checklist
The Health Promoting Schools (HPS) approach was initiated a decade ago by the World Health Organisation. It is a set of strategic activities which aim to enhance the health and wellbeing of students, staff, families and local communities associated with schools. Australia is recognised as a significant player in this international project, and has developed a national strategic plan to promote this approach to school-based planning, policy and practices. This audit has been designed to assist schools with conducting a “stocktake” of activities they are undertaking that address school-based health promotion.

There are no “right” or “wrong” answers. This audit is designed only to find out which health promotion strategies are being developed, and how far they have progressed. No schools will be penalised or rewarded in any way as a result of responding to this survey. Your answers are completely confidential and no schools will be identified to any person or organisation not immediately associated with this research without their consent. Only aggregated de-identified data will be used for statistical analysis. All participating schools will receive a copy of the final report.

The school principal or deputy should complete the audit checklist. Allow about 20 minutes to answer all sections.

SCHOOL BACKGROUND INFORMATION

Audit completed by: __________________________ Position: __________________________

School Name: __________________________________________

Address: __________________________________________ Postcode: ____________

No. Teaching Staff: ________ (F/T) ________ (P/T & Relief) Current Enrolments: __________

Do you know anything about the Health Promoting Schools initiative?  Yes □ No □ Don’t know □

Was this school previously a member of the Health Promoting Schools Network?  Yes □ No □ Don’t know □

If this school is NOT currently a member of HPSA-Q, does this school plan to join the Health Promoting Schools Association of Queensland in the next year?  Yes □ No □ Don’t know □

Have representatives from your school attended local HPS cluster or network meetings, training workshops, etc.  Yes □ No □ Don’t know □
Does your school have a designated staff role (lead teacher) for school-based health promotion?  
Yes □  No □  Don’t know □

Does your school currently have a committee addressing school-based health promotion issues?  
Yes □  No □  Don’t know □

If YES, is it comprised of (please tick)  
Staff □  Students □  Parents □  Local community □

How is it related to your school’s OH&S Committee?  
Part of OH&S Committee □  Separate from OH&S committee □  We do not have an OH&S committee □

INSTRUCTIONS
There are 7 sections to the survey, with 40 questions altogether. Please complete ALL questions by circling the number on the rating scale that is most true for your school at present.

- Sections 1-6 are about the extent of various health-promoting activities in your school.
- Section 7 (optional) asks you to list examples of activities or strategies, relevant to school-based health promotion, that have been actively initiated in your school during the past 12 months or are well established and ongoing.

INDICATOR 1: Health Policies
To what extent has your school developed its own school-based action plans (or school policy) with regard to each of the following health issues:

<table>
<thead>
<tr>
<th>Health Issues</th>
<th>Not at all</th>
<th>A little</th>
<th>Moderately</th>
<th>Strongly</th>
<th>Very strongly</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Promotion of healthy food.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>2. Reduction of the use of alcohol, tobacco and illicit drugs.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>3. Sun protection.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>4. Management of student medications.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>5. First aid, emergency or critical incident response management (including regular rehearsals).</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>6. Control and safe management of HIV/AIDS, Hep C and other blood-borne diseases.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>7. Accident and injury risk reduction.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>8. Behaviour management (including truancy and bullying).</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>9. To what extent has the school-based strategic planning and/or policy development involved the whole school community (staff, students, parents, and local community)?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>
### INDICATOR 2: Physical Environment

To what extent is your school actively implementing strategies to maintain and improve the school’s physical environment:

<table>
<thead>
<tr>
<th></th>
<th>Not at all</th>
<th>A little</th>
<th>Moderately</th>
<th>Strongly</th>
<th>Very strongly</th>
</tr>
</thead>
<tbody>
<tr>
<td>10.</td>
<td>Promotion of road safety in school grounds and immediate environs e.g. by supporting police in local traffic speed-reducing measures.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11.</td>
<td>Minimisation of injury hazards to students and staff in playground, classrooms and offices e.g. ergonomic seating, safe play equipment, training for use of sports resources.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13.</td>
<td>Caring for and improving the school facilities and grounds e.g. painting murals, planting and caring for gardens.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15.</td>
<td>To what extent does the whole school community (staff, students, parents, and local community) contribute to decision-making for these strategies?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### INDICATOR 3: Social Environment

To what extent is your school actively implementing the following Strategies to promote a positive and supportive school social environment:

<table>
<thead>
<tr>
<th></th>
<th>Not at all</th>
<th>A little</th>
<th>Moderately</th>
<th>Strongly</th>
<th>Very strongly</th>
</tr>
</thead>
<tbody>
<tr>
<td>16.</td>
<td>Discipline practices that promote moral and ethical consciousness.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17.</td>
<td>Programs and activities to develop and support positive interpersonal communication skills.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18.</td>
<td>Student involvement in school decision-making.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19.</td>
<td>Support, resources or programs for students with special needs (e.g. economic disadvantage, behavioural problems, or special talents).</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20.</td>
<td>Recognition of cultural, religious and ethnic diversity (e.g. availability of appropriate food; exhibitions; cultural festivals).</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>21.</td>
<td>Provision of programs for parents and caregivers to promote their skills and other needs (e.g. literacy, parenting skills, drug education).</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>22.</td>
<td>To what extent does the whole school community (staff, students, parents, and local community) contribute to decision-making for these strategies?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### INDICATOR 4: School-Community relations

To what extent is your school actively implementing the following Strategies to promote and enhance relationships between the school and the local community:

<p>| | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>23.</td>
<td>Involvement of local community organisations, including health and non-health services, in delivery of programs or services to the school.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>24.</td>
<td>Development of curriculum activities that encourage children’s active involvement in the local community.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>25.</td>
<td>Participation by students’ parents, caregivers or extended families in all school activities (e.g. policy development, program planning, school cultural activities).</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>26.</td>
<td>Raising local community awareness about school-based health promotion initiatives (e.g. through the local media, school open days, newsletters).</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>27.</td>
<td>To what extent does the whole school community (staff, students, parents, and local community) contribute to decision-making for these strategies?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

### INDICATOR 5: Personal skill building

To what extent is your school implementing the following strategies to promote and support personal skills for better health and wellbeing of students and staff:

<p>| | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>28.</td>
<td>Development of a comprehensive health curriculum that emphasises developmentally appropriate practical skills in preventative personal health behaviours (e.g. oral hygiene, sexual health).</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>29.</td>
<td>Integration of developmentally relevant health theory into all learning activities across all school years.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>30.</td>
<td>Provision of sufficient time each week to developmentally relevant health enhancing activities for all students (e.g. physical activity, social skills).</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>31.</td>
<td>Teachers have access to adequate and timely professional development specifically relevant to their roles in health education and promotion (e.g. in-service courses).</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>32.</td>
<td>Provision of appropriate and adequate teaching resources for teachers to support their roles in health education and promotion.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>
33. Provision of information, resources and services to support the personal health, welfare and lifestyle needs of staff (e.g. access to quit smoking programs; staff sporting competitions).

34. To what extent does the whole school community (staff, students, parents, and local community) contribute to decision-making for these strategies?

---

**INDICATOR 6: Access to health services**

To what extent is your school implementing strategies to promote access to health and support services:

<table>
<thead>
<tr>
<th>Not at all</th>
<th>A little</th>
<th>Moderately</th>
<th>Strongly</th>
<th>Very strongly</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

35. Regular access by students to school-based preventative health services (e.g. immunisation programs, health screenings, and oral health care).

36. Access to counselling and support services for children with acute social, emotional or behavioural problems.

37. Access to counselling and support services for children with chronic medical conditions (e.g. asthma, diabetes, epilepsy).

38. Access to basic health promotion and counselling services for staff (e.g. Employee Assistance Programs, health benefits schemes).

39. Regular provision of information about school-based and/or community-based health and support services to all members of the school community (students, staff, and families).

40. To what extent does the whole school community (staff, students, parents, and local community) contribute to decision-making for these strategies?
SECTION 7
This section is optional.

Please list examples of strategies or activities that your school has undertaken during the past 12 months (either new initiatives or ongoing developments) to promote better health and wellbeing across the whole school.

*Examples of development and implementation of health promoting policies:*

*Examples of strategies and activities to improve the physical environment:*

*Examples of strategies and activities to improve the social environment:*

*Examples of strategies and activities to enhance relationships between the school and local community:*

*Examples of strategies and activities to improve students’ and teachers’ personal health skills:*

*Examples of strategies and activities to improve access to health services by all members of the school community:*

Thank you for your help with this survey.
Appendix 8

HPS Audit Reminder #1
Dear Principal,

Re: Statewide Audit of School Health Promotion Activities.

Several weeks ago we sent you a package of material relating to an audit of school-based health promotion activities currently being conducted by the Centre for Public Health Research at QUT. This audit is the first phase of a larger project looking at the school social environment and its influence on teachers’ health, wellbeing and job commitment.

In order to have a reliable profile of the extent, and types of, activities consistent with the Health Promoting Schools approach in primary schools across Queensland, it is important that we receive back as many completed audit checklists as possible.

At the time of posting, we have not yet received back a completed audit checklist from your school. If you have recently returned your completed checklist, and it has crossed our letter in the mail, please disregard this letter. We realise this is a very busy time of year for you, but if you have not yet completed the checklist we would still very much appreciate it if you could fill it in and send it back to us at your earliest convenience. If you have misplaced the package, please give us a call on 3889 3244 or e-mail k.lemerle@qut.edu.au and we will send a replacement checklist and consent form.

Thank you in anticipation for your valued contribution to this project.

Yours sincerely,

Kate Lemerle
Project Co-ordinator.
Appendix 9

HPS Audit Reminder #2: Telephone Protocols
Good morning/afternoon, I am _________________ from QUT School of Public Health. I’d like to speak to (PRINCIPAL NAME) about the survey we sent out recently regarding health promotion activities in schools.

IF PRINCIPAL NOT AVAILABLE: It is important that we have as many of the surveys returned as possible. Could you suggest another time that might be suitable to speak to (PRINCIPAL NAME). (ARRANGE APPOINTMENT AND RECORD ON FOLLOW-UP SHEET).

IF PRINCIPAL AVAILABLE: Good morning/afternoon, (PRINCIPAL NAME). I am _________________ from QUT School of Public Health. You might recall that a couple of weeks ago (FU1) / about a month ago (FU2) we sent out a survey regarding health promotion activities in schools. As we have not yet received the completed checklist from your school, I wanted to

FU1: be sure that you had received it, and clear up any problems you may have had with completing it.

FU2: remind you about the checklist and check up on whether you can return it very soon.

(RECORD REASON(S) FOR DELAY IN RETURNING SURVEY OR RELEVANT COMMENTS)

<table>
<thead>
<tr>
<th>Reasons For Non-Return</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Too busy to complete it.</td>
</tr>
<tr>
<td>2. Forgot.</td>
</tr>
<tr>
<td>3. Does not want school involved in the study.</td>
</tr>
<tr>
<td>4. Gave it to someone else to handle.</td>
</tr>
<tr>
<td>5. Have sent it back already.</td>
</tr>
<tr>
<td>6. Other (record)</td>
</tr>
</tbody>
</table>

(WELL I DO APPRECIATE YOUR COMMENTS. IT IS IMPORTANT FOR THIS RESEARCH TO GET AS MANY CHECKLISTS BACK AS POSSIBLE, SO IF YOU COULD COMPLETE IT AND SEND IT BACK WITHIN THE NEXT WEEK THAT WOULD BE VERY MUCH APPRECIATED. THE CHECKLIST COULD BE FAXED BACK IF THAT IS EASIER, ON 07- 3864 3369. 

(CHECK TO CLARIFY WHETHER A REPLACEMENT CHECKLIST SHOULD BE FAXED OR MAILED).

Thank you for your time and your contribution to this research, (PRINCIPAL'S NAME).
Appendix 10

HPS Audit Reminder #3
Dear School Principal,

**Last Call to Contribute to State-wide Audit of School Health Promotion Activities.**

Thank you to all those schools around the state who took part in the state-wide audit of school-wide health promotion activities. The response has been very positive, with almost one third of all state schools sending back their completed checklists. Most of all, we sincerely appreciate the effort that so many schools have made by including extensive details about their health promotion efforts, which was optional. This has provided us with a wealth of information about just what is being done around Queensland state schools to promote better learning opportunities for our kids through focusing on building healthier school environments.

For those schools that may still have the audit checklist waiting in the “in tray”, or despite the end-of-year chaos may still want to submit their completed checklist, we are extending the final date for completion until the end of school term.

If you would like your school to be represented in this audit, please either complete the audit checklist mailed out in mid-October, or call me on (07) 3889 3244 and I can arrange for a replacement to be sent out, or an email version sent to your school.

May I remind you that this audit is voluntary, but the larger the sample we have, the more representative are the results across the whole state. So, if you would like the chance to contribute, this is the last call for submissions.

Results of the audit will be available early next year, and made available to schools through the usual Education Queensland channels. Phase II of this project, which will be looking at the influences of school climate on teachers’ health and job commitment, will begin during Term 1 next year. Schools that will be invited to participate will be notified early in the new term.

Thank you again to those schools that have contributed, and seasons greetings to you, your staff, and all your students.

Kate Lemerle  
*Project Co-ordinator*
Appendix 11

TSEQ Pilot School Feedback Sheet
EVALUATION SHEET

Teachers’ School Environment Questionnaire

SCHOOL: ____________________________

TEACHER’S NAME (Optional): _____________________________________________________

How long did it take you to complete the questionnaire? _____ Hr ______ Mins

In order to ensure that the main research study runs as efficiently as possible and collects data that will be valuable to determine the effects of school environments on teachers’ health, lifestyles and job commitment, we are inviting you to complete this short feedback sheet. Please answer honestly and provide suggestions for ways that, in your opinion, this study could be improved. Include this sheet with your completed questionnaire and return to us in the reply-paid envelope provided.

1. In what ways could the initial information sheet about the research study, be improved?

2. How did this school go about bringing the study to the attention of teachers, and what was your initial response when you heard about it?

3. How might the teachers’ consent form and/or the information provided on it be improved?

4. How could the presentation to the teachers, either the way it was organised or the actual presentation, be improved?

5. Were there any specific items in the questionnaire that in your opinion are inappropriate, and if so, in what way?

6. Do you have any other suggestions or comments about the Teachers School Environment Questionnaire that could be helpful for improving this research study?

Thank you very much for the valuable feedback you have provided.
Appendix 12

Invitation to School Principals to Participate in Research Project:
Survey of School Environment & Teachers’ Health
8th March, 2002.

Dear «Dear_Principal»,

Invitation to Participate in QUT Research Project on School Climate and Teacher Health

Late last year your school took part in a statewide audit of school health promotion activities conducted by the Centre for Public Health Research at QUT. As a result of your responses to the audit, your school is one of only 40 state primary schools from across Queensland to have been selected to take part in the next phase of this research project. The purpose of this letter is to congratulate you on your school’s selection, and invite you to take part in the next phase of the project.

The research study aims to investigate pathways of influence between the schools’ “ethos” or culture, and various teacher outcomes including stress and job commitment. This could be of great significance in identifying relationships between working conditions and teachers’ health.

Included with this letter is an information sheet about the project, which may be circulated amongst your staff. If they would like to take part in this study, we would be asking them to complete a “once-off” 20-30 minute questionnaire called the Teachers’ School Environment Questionnaire. It asks about teachers’ views of the school climate or “social environment”, their own health and lifestyle habits, experiences of job stress, and commitment to their present school as well as the teaching profession. Data from teachers in each participating school will be aggregated to give a profile of each school’s social environment and overall health status of the teaching workforce. Each participating school will receive an individualised report, with some of the dimensions being compared with state benchmarks. Demographic information will also be collected so we can look for any trends that might be influenced by these factors.

It is important that you understand that responses from individual teachers will not be made available to you or to Education Queensland. Likewise, identifying data about participating schools will not be provided to Education Queensland.

If you agree to participate in this research, please sign the enclosed consent form and fax it back to us on (07) 3864 3369 marked “Attention: Kate Lemerle”, including a list of names of your current teaching staff (full-time, part-time and relief). We can then prepare the pre-coded questionnaire packages to your teachers, and send these out to you within the next 3 weeks.

We hope you will accept our invitation to contribution to this exciting project, and should you have any questions please do not hesitate to call me on (07) 3889 3244 or email klemerle@tpg.com.au.

Sincerely,

Kate Lemerle
Project Co-ordinator
Appendix 13

Principal’s Agreement to Participate in Teachers’ Survey of School Environment & Teachers’ Health
AGREEMENT TO PARTICIPATE IN QUT RESEARCH PROJECT

I have read the enclosed materials about the QUT Centre for Public Health Research Project titled: “Evaluating the Impact of the School Social Environment on Teachers’ Health, Wellbeing, and Job Commitment: Is the Health Promoting School a Healthier Workplace?”

I acknowledge that:

1. I have read and understood the information that has been provided to me explaining the project, and
   - agree to all the requirements for full participation in this research project, including providing the QUT research team with a list of names of all teaching staff (full-time, part-time & relief) for the purpose of preparing pre-coded materials, **OR**
   - decline your invitation for this school’s participation in this research because…………………………………………………………………………………………
   - …………………………………………………………………………………………………..

2. Any information provided to the researchers by myself and staff within my school will be **completely confidential**, and access to this information will be restricted only to the members of the QUT School of Public Health team undertaking this research study.

3. No information which may identify my school, personal details about any of my staff, or individual responses on any data collection instruments will be made available to any other person outside the QUT research team, including members of Education Queensland.

4. My school’s participation in this research project is voluntary. I am able to withdraw this consent at any time, without incurring any costs or penalties. I accept it is my responsibility to notify the research team if I choose to withdraw my school from this research project.

5. I understand that failure of staff to return completed questionnaires will result in reminder notices being sent at 3 weeks and 6 weeks after the questionnaires were distributed.

6. I understand that I can contact the research team if I have any additional questions about the research, and that I can contact the Secretary of the QUT Human Research Ethics Committee if I have any concerns about the ethical conduct of the research. Contact details have been provided to me on the information sheet, and are also recorded below:

   **Project Co-ordinator:** Kate Lemerle, Ph: (07) 3889 3244
   **Project Supervisor:** Associate Professor Donald Stewart, Ph: (07) 3864 5874
   **QUT Human Research Ethics Committee:** Ph: (07) 3864 2902

Principal’s Name .......................................................... **School ID Code:**

Signature .......................................................... Date . . . ./........./.......
Appendix 14

Letter of Invitation to Teachers
Dear «Dear_Teacher»,

This letter is a personal invitation for you to take part in an exciting research study being conducted by the Centre for Public Health Research at Queensland University of Technology, Brisbane. The aim of the research is to broaden our understanding of those organisational factors in schools that affect teachers' health, particularly job stress and job commitment. This is important research that has been approved by Education Queensland as well as the Queensland Teachers' Union, and has significant potential for identifying approaches for improving teachers' working conditions.

Your school has been invited to participate in this research, along with selected primary schools in other regions across Queensland. We are inviting teachers to complete a questionnaire about various aspects of their school's social climate, its organisational practices, social relations within the school setting, teachers' usual health behaviours, and feelings of commitment to both the school and the teaching profession.

Please read the attached information sheet that provides full details about the research aims and methods, and if you would like to contribute to this study, sign the consent form, then complete the Teachers' School Environment Questionnaire (TSEQ) and the demographic data sheet. All up, this should take you no more than 30 minutes. We have included a pre-paid envelope in which you can return these to us, even if you choose not to complete the questionnaire. We would very much appreciate it if you could get these back to us within the next two weeks.

You will see that your personal package has been pre-coded. This is to ensure that your personal details and responses to the questionnaire remain strictly confidential. Each sheet will be stored separately, and the original codes are accessible only to immediate members of the QUT research team.

Should you wish to discuss any aspect of this project, ask questions, or clarify any part of the project about which you are uncertain, you are welcome to call me on (07) 3889 3244 during the day, or after hours if you prefer, or email me at k.lemerle@qut.edu.au.

We hope that you will accept this invitation to help with this project, and thank you for your valuable assistance with this research.

Yours sincerely,

Kate Lemerle
Project Co-ordinator
Appendix 15

Information Sheet about Teachers Health & School Environment Survey
The Centre for Public Health Research at QUT is conducting a research study to investigate how school health promotion strategies affect the school climate, and what impact this has on teachers' lifestyles, feelings of wellbeing, and job commitment. This research will provide valuable information about how the school environment affects teachers' health.

Your school is one of 40 state primary schools in Queensland that has been selected to take part in this project. This sheet will provide you with information about how teachers in your school can contribute to the research study.

What will we be asking you to do?

During the next few weeks, all teaching staff in your school will receive a package containing a 126-item self-report questionnaire, consent form, and reply paid envelope. You are being invited to complete the questionnaire, which should take about 30 minutes of your time. The questionnaire is designed to collect your opinions about the school's social climate, as well as general information about your own health and lifestyle habits, feelings of wellbeing in relation to your job, and commitment to the teaching workforce. Demographic information (age, gender, family status, teaching position, years of experience, qualifications etc.) will also be collected. Education Queensland, the Queensland Teachers' Union, and the QUT Ethics Committee have approved the questionnaire.

Although it appears similar to the annual School Staff Survey, this questionnaire is significantly more comprehensive, and most importantly your individual responses will not be available to Education Queensland,

Do I have to participate?

Participation is entirely voluntary, although we do ask that teachers who choose not to complete the questionnaire record this choice on the consent form, fill in the basic demographic details, and return all the materials to QUT. You may withdraw from the project at any time without incurring any costs or penalties.
However, we do request that if you decide to withdraw after signing the consent form, please contact the Project Co-ordinator to discuss your reasons. There is no financial cost to schools or teachers taking part in this research.

**What’s in it for my school?**

It is widely known that the “climate” or social environment of an organisation can have a major influence on employee wellbeing and performance. In schools, the social environment affects students in many ways, but less is known about how it affects teachers. This research will help to identify some of the organisational variables that affect teachers’ wellbeing, their health behaviours, and their feelings about staying in or leaving the teaching profession.

Each participating school will receive a profile report about its school social environment, and aggregated teachers’ health status. This can be used to identify the influence of specific organisational factors on the school climate, both positive as well as those that could be improved. The teachers’ health profile may be used to develop staff-focused health promotion activities. A copy of the final research report, showing only aggregated data to ensure that no schools or their teachers can be identified, will also be available.

**Confidentiality**

All questionnaires and consent forms will be pre-coded to maintain complete confidentiality of individual respondents as well as protecting the identity of participating schools. No information contained in individual teachers’ completed questionnaires, or data that could identify individual schools, will be released to anyone outside the research team. All signed consent forms, and completed teachers’ questionnaires will be stored in locked filing cabinets at QUT and electronically in password-protected files. Statistical analyses will be carried out on aggregated de-identified data to protect the identity of all schools and teachers. Any publications and reports from this project will ensure complete protection of the identity of participating schools and teachers.

**Concerns or Complaints**

Any concerns or complaints about the ethical conduct of the research should be directed to the Secretary of the QUT Human Research Ethics Committee, phone: 07 3864 2902.

We invite you to contribute to this important research by accepting the package of research materials soon to be distributed to your school, completing the questionnaire and returning it to us as promptly as possible. If you have not received a package, but would still like to take part in the study, please call us and a package will be prepared for you to collect from your school office.

For further information or questions about this research, please contact:

Kate Lemerle  
Project Co-ordinator  
Ph: (07) 3889 3244  
Email: k.lemerle@qut.edu.au
Appendix 16

Teachers’ Survey Consent Form
TEACHER’S CONSENT TO PARTICIPATE IN QUT RESEARCH PROJECT

“Evaluating the Impact of the School Social Environment on Teachers’ Health, Wellbeing and Job Commitment.”

I, ................................................................. (Print name and tick the appropriate box below)

☐ give my consent to participate in this research project by completing the Teachers’ School Environment Questionnaire and the demographic information sheet attached.

☐ have decided not to complete the Teachers’ Schools Environment Questionnaire at the present time but agree to complete the attached demographic information sheet.

☐ have decided not to participate in any way in this project.

I acknowledge that:

1. I have read and understood the information that has been provided to me explaining the project, and any questions have been answered to my satisfaction.

2. My participation in this research project is completely voluntary. I am able to withdraw this consent at any time, without incurring any costs or penalties. I accept it is my responsibility to notify the research team if I choose to withdraw from this research project after signing this consent form.

3. Any information I give to the researchers will be completely confidential, and access to this information will be restricted only to the members of the team undertaking this research study.

4. No identifying information, personal details, or individual responses to the questionnaires will be made public in any reports or publications, or made available to any other person outside the research team, including members of Education Queensland, my principal, or other staff.

5. I understand that my failure to return the completed questionnaire by the due date will result in reminder notices being sent to me at 3 weeks and 6 weeks after the date on which I received the survey.

6. I understand that I can contact the research team if I have any additional questions about the research, and that I can contact the Secretary of the QUT Human Research Ethics Committee if I have any concerns about the ethical conduct of the research. Contact details are noted below:

Project Co-ordinator: Kate Lemerle Ph: (07) 3889 3244
Project Supervisor: Associate Professor Donald Stewart Ph: (07) 38645874
QUT Human Research Ethics Committee: Ph: (07) 3864 2902

Signature: .......................................................... Date: ....../......./ ……………

Teacher ID Code:
Appendix 17

Demographic Data Sheet
DEMOGRAPHIC INFORMATION SHEET

The demographic information collected here will be used ONLY by the QUT research team to ensure that there are no differences between our respondents and non-respondents. The data collected from respondents (i.e. those teachers who complete the TSEQ) will allow us to look for trends in other variables that may affect your perceptions of the school climate, health and lifestyle behaviours, and job commitment.

Completing this form is optional but we would be grateful if you could answer these questions.

The information you provide here is completely confidential.

Your Name (optional): ______________________________________________

Gender: (Circle) 1 Male OR 2 Female Year of birth: 19 ______

What is your relationship status? (Circle)

1 Single (Never married) 2 Married/De facto 3 Separated/Divorced
5 Widowed 6 Other (please explain):

What is your current position description? (Circle)

1 Generalist teacher 2 Specialist teacher 3 Senior teacher
4 Relief teacher 5 Principal 6 Deputy principal
7 Acting Principal/Deputy

What is your current tenure status? (Circle)

1 Permanent full-time 2 Permanent part-time 3 Relief full-time 4 Relief part-time
5 Other (please describe) ____________________________

What is the highest educational qualification you have completed? (Circle)

1 Teaching certificate 2 Teaching / education diploma 3 Undergraduate degree
4 Postgraduate diploma 5 Postgraduate degree (Bachelor, Masters or PhD) 6 Other (please describe)___________

How many years of teaching experience do you have overall? (Circle)

1 Less than 1 year 2 1- 3 years 3 4- 6 years 4 7 - 10 years
5 11- 13 years 6 4- 16 years 7 17-20 years 8 > 20 years

For how many years have you been teaching at this school? (Circle)

1 Less than 1 year 2 1- 3 years 3 4 - 6 years
4 7- 10 years 5 11- 13 years 6 14 or more years
Appendix 18

Teachers’ School Environment Questionnaire
This questionnaire has been specifically designed for a QUT research study on the impact of school social climate on teachers' health, lifestyles and job commitment. You will be asked specific questions about your experiences and opinions of the social environment at your school, as well as your own lifestyle and health behaviours, feelings of wellbeing, and thoughts about your future in the teaching workforce. The information you provide in the questionnaire will be handled ONLY by the QUT research team and your personal responses will not be made available to any other person or organisation, including Education Queensland. To ensure this, each questionnaire has been coded to protect your identity. When you have completed the questionnaire, return it to the QUT research team in the reply paid envelope provided. No questionnaires are to be collected by any staff member at your school. All reports and publications arising from this research will be presented in such a way that participating schools, and their teachers, cannot be identified in any way.

Your responses are completely confidential.

There are 5 sections to this questionnaire:

SECTION 1 is about the school climate, or the ‘feel’ of your school.
SECTION 2 is about your perceptions of the school social environment.
SECTION 3 is about your own sense of belonging to the school and the teaching profession.
SECTION 4 is about your general level of life satisfaction.
SECTION 5 is about your own health and lifestyle habits.

DIRECTIONS

1. Please answer ALL questions in each section by circling the number on the rating scale that best describes your response to that question. Remember that we are interested in you and your opinions. There are no right or wrong answers.

2. Check to be sure you have answered all questions with only one response.

3. Your participation in this project is completely voluntary. If you do not wish to complete the survey, please leave it blank and return it to the Project team.

4. When you have completed your questionnaire, place it into the envelope provided and return it to the research team. Please do NOT give your completed questionnaire to any other member of your school staff.

TODAY’S DATE: (Please complete): ............. / ............. / .............

How long did it take you to complete this questionnaire? _______ (Mins)

Administration Only – Do not mark.

TEACHER ID CODE: 

Acknowledgements

This questionnaire has been adapted from the following published instruments, with permission from the authors to make appropriate modifications to suit the contextual conditions of this research study:

School Organizational Health Questionnaire
(Hart, P. M.; Wearing, A.J.; Conn, M.; Carter, N.L. and Dingle, R.K., 2000)
Social Research Consultants, Melbourne.

Stress Profile
(Nowack, K.M., 1999)
Western Psychological Services, Los Angeles.

Organisational and Occupational Commitment Scales
(Meyer, J.P.; Allen, N.J. and Smith, C.A., 1993)

Social Capital Questionnaire
(Onyx, J. and Bullen, P., 1997)
Centre for Australian Community Organisations, UTS, Sydney, 1997.

Developed by:

Kate Lemerle
Centre for Public Health Research
QUT, Brisbane.

© 2001
SECTION 1

Listed below are a number of statements that may describe some aspects of your school. Please read each statement carefully and indicate the extent to which you AGREE or DISAGREE that the statement applies to the school at which you are now teaching by circling the appropriate number on the following scale.

1. I am encouraged to pursue further professional development.  
   [Strongly disagree] [Disagree] [Unsure] [Agree] [Strongly agree]

2. I am able to approach the school’s managers to discuss concerns and grievances.  
   [Strongly disagree] [Disagree] [Unsure] [Agree] [Strongly agree]

3. I am always clear about what others at school expect of me.  
   [Strongly disagree] [Disagree] [Unsure] [Agree] [Strongly agree]

4. I feel accepted by other staff in this school.  
   [Strongly disagree] [Disagree] [Unsure] [Agree] [Strongly agree]

5. There is too much expected of staff in this school.  
   [Strongly disagree] [Disagree] [Unsure] [Agree] [Strongly agree]

6. I am encouraged in my work by praise, thanks or other recognition.  
   [Strongly disagree] [Disagree] [Unsure] [Agree] [Strongly agree]

7. There is a good team spirit in this school.  
   [Strongly disagree] [Disagree] [Unsure] [Agree] [Strongly agree]

8. There are forums in this school where I can express my views and opinions.  
   [Strongly disagree] [Disagree] [Unsure] [Agree] [Strongly agree]

9. The staff are committed to the school’s goals and values.  
   [Strongly disagree] [Disagree] [Unsure] [Agree] [Strongly agree]

10. I have the opportunity to be involved in cooperative work with other members of staff.  
    [Strongly disagree] [Disagree] [Unsure] [Agree] [Strongly agree]

11. I have the opportunity to discuss and receive feedback on my work performance.  
    [Strongly disagree] [Disagree] [Unsure] [Agree] [Strongly agree]

12. Others in the school take an active interest in my career development and professional growth.  
    [Strongly disagree] [Disagree] [Unsure] [Agree] [Strongly agree]

13. The school’s managers don’t really know the problems faced by staff.  
    [Strongly disagree] [Disagree] [Unsure] [Agree] [Strongly agree]

14. My work objectives are always well defined.  
    [Strongly disagree] [Disagree] [Unsure] [Agree] [Strongly agree]

15. There is good communication between groups in this school.  
    [Strongly disagree] [Disagree] [Unsure] [Agree] [Strongly agree]

16. Staff are overloaded with work in this school.  
    [Strongly disagree] [Disagree] [Unsure] [Agree] [Strongly agree]

17. I am regularly given feedback on how I am performing my role.  
    [Strongly disagree] [Disagree] [Unsure] [Agree] [Strongly agree]

18. There is a lot of energy in this school.  
    [Strongly disagree] [Disagree] [Unsure] [Agree] [Strongly agree]

19. I am happy with the decision-making processes used in this school.  
    [Strongly disagree] [Disagree] [Unsure] [Agree] [Strongly agree]

20. The goals of this school are not easily understood.  
    [Strongly disagree] [Disagree] [Unsure] [Agree] [Strongly agree]

21. The professional development planning in the school takes into account my individual needs and interests.  
    [Strongly disagree] [Disagree] [Unsure] [Agree] [Strongly agree]

22. There is support from the managers in this school.  
    [Strongly disagree] [Disagree] [Unsure] [Agree] [Strongly agree]

23. I always know how much authority I have in this school.  
    [Strongly disagree] [Disagree] [Unsure] [Agree] [Strongly agree]

24. Staff in this school can rely on their colleagues for support and assistance when needed.  
    [Strongly disagree] [Disagree] [Unsure] [Agree] [Strongly agree]

25. There is no time for staff to relax in this school.  
    [Strongly disagree] [Disagree] [Unsure] [Agree] [Strongly agree]

26. There is a structure and process that provides feedback on my work performance.  
    [Strongly disagree] [Disagree] [Unsure] [Agree] [Strongly agree]

27. The morale in this school is high.  
    [Strongly disagree] [Disagree] [Unsure] [Agree] [Strongly agree]

28. Staff are frequently asked to participate in the decisions concerning administrative policies and procedures in this school.  
    [Strongly disagree] [Disagree] [Unsure] [Agree] [Strongly agree]
1. The school has a clearly stated set of objectives and goals.  
2. Staff frequently discuss and share teaching methods and strategies with each other.  
3. There are opportunities in this school for developing new skills.  
4. There is good communication between staff and the managers in this school.  
5. Staff go about their work with enthusiasm.  
6. My personal goals are in agreement with the goals of this school.  
7. It is not difficult to gain access to in-service courses.  
8. The managers in this school can be relied upon when things get tough.  
9. I am clear about my professional responsibilities.  
10. There is good communication between staff in this school.  
11. There is constant pressure for staff to keep working.  
12. I am happy with the quality of feedback I receive on my work performance.  
13. Staff take pride in this school.  
14. There is opportunity for staff to participate in school policy and decision-making.  
15. There is agreement about the teaching philosophy of this school.  
16. I receive support from my colleagues.  
17. School staff are given recognition for good work.

**SECTION 2**

The questions in this section relate to your own feelings about the school in which you presently work. Please indicate the degree to which each question applies to you for the last 3 months by circling a number from 1 to 5.

<table>
<thead>
<tr>
<th>Question</th>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Unsure</th>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Do you feel valued by your school?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>2. Do you feel satisfied with your contribution to this school?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>3. Do you voluntarily help with cleaning up common areas in this school</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>(eg playground, tuckshop, corridors)?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Do you feel safe walking around your school after dark?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>5. Do you agree that most people in your school can be trusted?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>6. If a stranger’s car breaks down outside your school, do you invite them into your school to offer assistance?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>7. Does your school have a reputation for being a safe place?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>8. Does your school community feel like home?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>9. Do you go outside your school to visit colleagues in other schools?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>10. If you needed information to make a major decision about your responsibilities in this school, would you know where to find the information?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>
11. If you disagreed with everyone else in your school about an important issue, would you feel free to speak out?
   Never | Rarely | Sometimes | Often | Always
   1     | 2      | 3        | 4     | 5
12. If you have a dispute with another staff member, are you willing to seek mediation?
   Never | Rarely | Sometimes | Often | Always
   1     | 2      | 3        | 4     | 5
13. Do you think that life in your school is enhanced because of the variety of cultures represented within the school community?
   Never | Rarely | Sometimes | Often | Always
   1     | 2      | 3        | 4     | 5
14. Do you enjoy working among people of different lifestyles?
   Never | Rarely | Sometimes | Often | Always
   1     | 2      | 3        | 4     | 5
15. At this school, do you take the initiative to do what needs to be done even if no-one asks you to do it?
   Never | Rarely | Sometimes | Often | Always
   1     | 2      | 3        | 4     | 5
16. In the past week, have you helped a work colleague even though it was not in your job description?
   Never | Rarely | Sometimes | Often | Always
   1     | 2      | 3        | 4     | 5

SECTION 3

With respect to your own feelings about the particular school for which you are now working, and your present occupation as a teacher, please indicate the degree to which you AGREE or DISAGREE with each statement for the last 3 months by circling a number from 1 to 5.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Unsure</th>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I would be very happy to spend the rest of my career with this school.</td>
<td>I</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>2. My occupation as a teacher is important to my self-image.</td>
<td>I</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>3. I feel like &quot;part of the family&quot; at this school.</td>
<td>I</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>4. I am enthusiastic about my occupation as a teacher.</td>
<td>I</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>5. I really feel as if this school's problems are my own.</td>
<td>I</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>6. I am proud to be part of the teaching workforce.</td>
<td>I</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>7. I feel a strong sense of &quot;belonging&quot; this school.</td>
<td>I</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>8. I have no regrets about becoming a teacher.</td>
<td>I</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>9. This school gives me a great deal of personal meaning.</td>
<td>I</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>10. I identify with my occupation as a teacher.</td>
<td>I</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>11. I feel &quot;emotionally attached&quot; to this particular school.</td>
<td>I</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>12. I like being part of the teaching profession.</td>
<td>I</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>13. How often do you think about leaving this school?</td>
<td>Never</td>
<td>Rarely</td>
<td>Sometimes</td>
<td>Often</td>
<td>Very often</td>
</tr>
<tr>
<td>14. How likely is it that you would ever seek employment outside teaching?</td>
<td>Very unlikely</td>
<td>Unlikely</td>
<td>Not certain</td>
<td>Likely</td>
<td>Very likely</td>
</tr>
<tr>
<td>15. If it were your personal choice, how likely is it that you will leave this school in the next year (i.e. resign or request transfer)?</td>
<td>Very unlikely</td>
<td>Unlikely</td>
<td>Not certain</td>
<td>Likely</td>
<td>Very likely</td>
</tr>
</tbody>
</table>
**SECTION 4**

Below is a list of common feelings and attitudes that people experience in relation to general life satisfaction. Indicate how often you have experienced each of these during the last 3 months by circling a number from 1 to 5.

<p>| | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Feeling happy and satisfied with your social life.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>2.</td>
<td>Feeling stimulated and challenged by your work life.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>3.</td>
<td>Able to relax and enjoy yourself without difficulty.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>4.</td>
<td>Feeling mentally and physically calm, relaxed, and free of tension.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>5.</td>
<td>Waking up and anticipating an exciting and interesting day ahead.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>6.</td>
<td>Feeling sincerely valued, wanted, and supported by significant others.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>7.</td>
<td>Genuinely enjoying the things you are involved in.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>8.</td>
<td>Feeling that your future looks hopeful and promising.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>9.</td>
<td>Feeling positive, confident, and secure with yourself.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>10.</td>
<td>Pleased with your life overall.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>11.</td>
<td>Feeling committed to your present day-to-day activities and relationships.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>12.</td>
<td>Feeling satisfied with your accomplishments.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

**SECTION 5**

This section is about your usual lifestyle habits, health and wellbeing. During the last 3 months, how often have the following statements been true for you?

<p>| | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Spent some of your leisure time participating in physical activities such as gardening, home renovations, dancing, tennis, golf or bushwalking.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>2.</td>
<td>Exercised to improve muscle tone, strength, or flexibility (e.g. stretching, yoga, weight lifting, etc.) for at least 20-30 minutes, three times a week.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>3.</td>
<td>Exercised vigorously to improve aerobic capacity (e.g. aerobics, jogging, swimming) for at least 20-30 minutes, at least three times a week.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>4.</td>
<td>Pushed yourself to keep working even though you were exhausted, stressed, or feeling unwell.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>5.</td>
<td>Missed an entire night or large proportion of an entire night of sleep due to work responsibilities.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>6.</td>
<td>Received less sleep than you require because you stayed up too late participating in non-work-related activities (e.g. partying, playing computer games, going to clubs).</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>7.</td>
<td>Received less sleep than required because you had difficulty either falling asleep or staying asleep for as long as usual.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>8.</td>
<td>Missed activities you usually find particularly calming and relaxing due to work pressures (e.g. hobbies, reading, watching television, listening to music).</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>9.</td>
<td>Maintained close physical proximity for an extended period of time (e.g. a full day) with someone who was sick or had an infection.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>10.</td>
<td>Continued on with work even when you felt a symptom of an illness developing (e.g. fever, runny nose, sneezing, chills).</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>11.</td>
<td>Failed to have time for regular toileting needs due to work pressures.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>12.</td>
<td>Forgot to take medications prescribed by your doctor due to work pressures.</td>
<td>I</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>13.</td>
<td>Missed regular preventive health practices due to work commitments (e.g. medical appointments, oral hygiene, monthly breast or testicular self-examinations).</td>
<td>I</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>14.</td>
<td>Took medication for pain relief (prescription or over-the-counter) more than 3 times in a week.</td>
<td>I</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>15.</td>
<td>Failed to eat an adequate or nutritious breakfast at the start of the day.</td>
<td>I</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>16.</td>
<td>Ate a well-balanced and nutritious variety of foods from the major food groups daily (e.g. fruits; vegetables; fish; meats; poultry; grains; and dairy products).</td>
<td>I</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>17.</td>
<td>Monitored or restricted your daily intake of dietary saturated fats, cholesterol, salt, sugar, and total calories.</td>
<td>I</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>18.</td>
<td>Ate fast food or junk food (e.g. pies, pizza, chips) instead of a regular meal.</td>
<td>I</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>19.</td>
<td>Skipped an important meal that you normally would eat during the day due to work pressures.</td>
<td>I</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>20.</td>
<td>Had an upset stomach or other uncomfortable physical consequences (e.g. dizziness, nausea, headaches) from stress related to work.</td>
<td>I</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>21.</td>
<td>Drank more than 2 cups of coffee, tea, cocoa or cola drinks in a day.</td>
<td>I</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>22.</td>
<td>Drank more than two standard alcoholic beverages in a day (e.g. glasses of wine, whiskies, cocktails, beers)</td>
<td>I</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

1. Used non-prescription or herbal medications, including energy drinks, to maintain energy levels or stay awake due to work pressures.

2. How many cigarettes do you usually smoke each day (during the past 3 months)?

**Thank you for your valuable assistance with this research study.**
Appendix 19

TSEQ Reminder #1
26 May, 2002.

Dear «Dear_Teacher»,

RE: TEACHERS HEALTH AND SCHOOL ENVIRONMENT PROJECT

This is just a gentle reminder about the Teachers’ School Environment Questionnaire (TSEQ) that you received about 3 weeks ago. We are concerned that we have still not received your completed survey or the consent form telling us whether or not you have chosen to participate in this research project. If you have sent back the survey within the last week, and our correspondence has crossed in the mail, please accept our thanks and disregard this letter.

If you haven’t yet completed the survey and would like to do so, we would be very pleased if you could return the TSEQ, consent form and demographic data sheet to us within the next two weeks. If you choose not to complete the survey, it is still useful for us if you could complete the demographic data sheet, and return it with the signed consent form, and if you do not wish to participate at this time, please send back the completed consent form informing us of your decision. We can then amend our records to ensure that you receive no further reminders.

If you have any questions, concerns or issues with regards to this study, please call me on 07-3889 3244 or email k.lemerle@qut.edu.au.

We look forward to receiving your completed questionnaire in the near future and thank you for your contribution to this research study.

Yours sincerely,

Kate Lemerle
Project Co-ordinator.
Appendix 20

TSEQ Reminder #2
Are you concerned about the health and wellbeing of teachers in state primary schools?

NOW IS YOUR CHANCE TO HAVE YOUR SAY!

Remember the Teachers’ School Environment Questionnaire given out 6 weeks ago at your school? Well, this is part of a statewide research project being conducted by the School of Public Health, Queensland University of Technology, to identify those aspects of the school environment that are affecting teachers’ health, including job stress and work commitment. Your personal responses to the survey are strictly confidential (Education Queensland does not have access to individual teacher or school questionnaires).

We still haven’t received your completed questionnaire, and would really like to give you this final opportunity to be part of this research.

In case you have misplaced the original package, we’ve included another copy of the TSEQ with this reminder.

If you’d like to be part of this research study, please fill in the consent form, demographic sheet, and the questionnaire, and mail them back to us in the stamped addressed envelope before the end of term. If you’d rather not participate at this time, we’d still like to get back your completed demographic sheet and consent form as this still helps us with the research.

And finally, if you’ve already sent the TSEQ back within the last week, please disregard this notice and accept our appreciation for your contribution.

THANKS!

If you have any questions or want to discuss anything to do with the project, give Kate a call on (07) 3889 3244 or email k.lemerle@qut.edu.au.
Appendix 21

TSEQ Follow-up Record Sheet
# STUDY 2
## FOLLOW-UP RECORD SHEET

<table>
<thead>
<tr>
<th>SCHOOL</th>
<th>PRINCIPAL</th>
<th>Date of FU1 (2 weeks)</th>
<th>Date of FU2 (4 weeks)</th>
<th>REASON FOR NON-RETURN</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Appendix 22

Cover Letter to Principals with School Profile
19 May 2003.

Dear «Dear»,

Enclosed is the School Profile Report for your school, arising from the research project titled “School Environment, Teachers' Health and Wellbeing Project” to which your staff contributed last year.

This research, which involved 39 state primary schools throughout Queensland, resulted in a phenomenal response from teachers, and I would personally like to thank your staff for their valuable contribution. In total, 1,273 questionnaires were mailed to teachers, and we received back 919 responses, of which 801 were completed questionnaires – a response rate of almost 63%!

As you can see from the profile report, the results of this study provide valuable information about the demographic profile for your teaching staff compared with that of the full sample. The report also provides an overview of teachers' perceptions of the school organisational climate and social capital, levels of job commitment, and a profile of teachers' health risk factors. A glossary of terms has been included to assist you with interpretation of the report. It is hoped that this material can be of use in planning ways you may enhance the school climate, and implement appropriate health promotion activities for the benefit of staff.

Further analysis of the data is continuing, with a view to identifying those specific aspects of the school environment that are most associated with various teacher health outcomes. A final report of the research findings will be mailed to you later this year.

Once again, please pass on my sincere gratitude to your staff for the time they invested in this study. I can be contacted by email (k.lemerle@qut.edu.au) should you wish to follow up any aspect of this report.

Regards,

_____________________________________________
Kate Lemerle
Centre for Health Research,
Queensland University of Technology,
Victoria Park Rd.
Kelvin Grove 4059.
PH: 07-3889 3244.
MOB: 0414-760193.
SCHOOL ENVIRONMENT, TEACHERS’ HEALTH AND WELLBEING RESEARCH PROJECT

SCHOOL REPORT: «School_ID»

DEMOGRAPHICS:

<table>
<thead>
<tr>
<th>Response rate:</th>
<th>Full Sample (All Schools)</th>
<th>Your School</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall response rate (n=919) (%)</td>
<td>72.2</td>
<td>«Overall_Response_Rate»</td>
</tr>
<tr>
<td>Useable TSEQ’s (n=801) (%)</td>
<td>62.9</td>
<td>«TSEQ_Rate»</td>
</tr>
<tr>
<td>Refusals (n=60) (%)</td>
<td>4.7</td>
<td>«Refusal_Rate»</td>
</tr>
<tr>
<td>Demographic data only (n=58) (%)</td>
<td>4.6</td>
<td>«Demogs_Only»</td>
</tr>
</tbody>
</table>

Gender:

<table>
<thead>
<tr>
<th>Response Rate (%)</th>
<th>66.3</th>
<th>«SEX__Resp_Rate_»</th>
</tr>
</thead>
<tbody>
<tr>
<td>Males (%)</td>
<td>20.9</td>
<td>«Male_»</td>
</tr>
<tr>
<td>Females (%)</td>
<td>79.2</td>
<td>«Female_»</td>
</tr>
</tbody>
</table>

Age:

| Average (yrs)     | 42.7 | «AVG_Age»         |

Relationship status:

<table>
<thead>
<tr>
<th>Response Rate (%)</th>
<th>65.8</th>
<th>«RSHIP Resp_Rate»</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single (%)</td>
<td>14.7</td>
<td>«RSHIP_Single»</td>
</tr>
<tr>
<td>Couple (%)</td>
<td>74.8</td>
<td>«RSHIP_Couple»</td>
</tr>
<tr>
<td>Separated/Divorced (%)</td>
<td>9.0</td>
<td>«RSHIP_SepDiv»</td>
</tr>
<tr>
<td>Widowed (%)</td>
<td>1.6</td>
<td>«RSHIP_Widow»</td>
</tr>
</tbody>
</table>

Current position:

<table>
<thead>
<tr>
<th>Response Rate (%)</th>
<th>65.4</th>
<th>«POSITION Resp_Rate»</th>
</tr>
</thead>
<tbody>
<tr>
<td>Generalist teacher (%)</td>
<td>39.2</td>
<td>«POSITION_General»</td>
</tr>
<tr>
<td>Specialist teacher (%)</td>
<td>26.6</td>
<td>«POSITION_Specialist»</td>
</tr>
<tr>
<td>Senior teacher (%)</td>
<td>23.1</td>
<td>«POSITION_Senior»</td>
</tr>
<tr>
<td>Relief teacher (%)</td>
<td>3.1</td>
<td>«POSITION_Relief»</td>
</tr>
<tr>
<td>Principal (%)</td>
<td>4.1</td>
<td>«POSITION_Principal»</td>
</tr>
<tr>
<td>Deputy principal (%)</td>
<td>2.8</td>
<td>«POSITION_Deputy»</td>
</tr>
<tr>
<td>Acting principal/deputy (%)</td>
<td>1.2</td>
<td>«POSITION_Acting_PD»</td>
</tr>
</tbody>
</table>

Current tenure status:

<table>
<thead>
<tr>
<th>Response Rate (%)</th>
<th>65.4</th>
<th>«TENURE Resp_Rate»</th>
</tr>
</thead>
<tbody>
<tr>
<td>Permanent FT (%)</td>
<td>72.7</td>
<td>«TENURE_Perm_PT»</td>
</tr>
<tr>
<td>Permanent PT (%)</td>
<td>19.4</td>
<td>«TENURE_Perm_PT»</td>
</tr>
<tr>
<td>Relief FT (%)</td>
<td>4.3</td>
<td>«TENURE_Relief_FT»</td>
</tr>
<tr>
<td>Relief PT (%)</td>
<td>3.3</td>
<td>«TENURE_Relief_PT»</td>
</tr>
</tbody>
</table>
### Highest educational qualifications:

<table>
<thead>
<tr>
<th>Qualification</th>
<th>Full Sample (All Schools)</th>
<th>Your School</th>
</tr>
</thead>
<tbody>
<tr>
<td>Response Rate (%)</td>
<td>65.1</td>
<td>«EDQUALS_Resp_Rate»</td>
</tr>
<tr>
<td>Teaching certificate (%)</td>
<td>6.4</td>
<td>«EDQUALS_TchCert»</td>
</tr>
<tr>
<td>Teaching diploma (%)</td>
<td>24.8</td>
<td>«EDQUALS_TchDip»</td>
</tr>
<tr>
<td>Undergraduate degree (%)</td>
<td>39.2</td>
<td>«EDQUALS_Undergrd»</td>
</tr>
<tr>
<td>Postgraduate diploma (%)</td>
<td>17.7</td>
<td>«EDQUALS_PG_Dip»</td>
</tr>
<tr>
<td>Postgraduate degree (%)</td>
<td>11.6</td>
<td>«EDQUALS_PD_Degree»</td>
</tr>
</tbody>
</table>

### Teaching experience:

<table>
<thead>
<tr>
<th>Experience</th>
<th>Full Sample (All Schools)</th>
<th>Your School</th>
</tr>
</thead>
<tbody>
<tr>
<td>Response Rate (%)</td>
<td>65.9</td>
<td>«TCH_EXP_Resp_Rate»</td>
</tr>
<tr>
<td>&lt; 1 year (%)</td>
<td>2.3</td>
<td>«TCH_EXP_____1_yr»</td>
</tr>
<tr>
<td>1-3 years (%)</td>
<td>6.8</td>
<td>«TCH_EXP_____13_yrs»</td>
</tr>
<tr>
<td>4-6 years (%)</td>
<td>7.2</td>
<td>«TCH_EXP_____46_yrs»</td>
</tr>
<tr>
<td>7-10 years (%)</td>
<td>11.7</td>
<td>«TCH_EXP_____710_yrs»</td>
</tr>
<tr>
<td>11-13 years (%)</td>
<td>8.3</td>
<td>«TCH_EXP_____1113_yrs»</td>
</tr>
<tr>
<td>14-16 years (%)</td>
<td>13.1</td>
<td>«TCH_EXP_____1416_yrs»</td>
</tr>
<tr>
<td>17-20 years (%)</td>
<td>12.3</td>
<td>«TCH_EXP_____1720_yrs»</td>
</tr>
<tr>
<td>20+ years (%)</td>
<td>38.4</td>
<td>«TCH_EXP_____20_yrs»</td>
</tr>
</tbody>
</table>

### Time at this school:

<table>
<thead>
<tr>
<th>Experience</th>
<th>Full Sample (All Schools)</th>
<th>Your School</th>
</tr>
</thead>
<tbody>
<tr>
<td>Response Rate (%)</td>
<td>65.9</td>
<td>«THIS_SCHL_Resp_Rate»</td>
</tr>
<tr>
<td>&lt; 1 year</td>
<td>16.0</td>
<td>«THIS_SCHL_____1_yr»</td>
</tr>
<tr>
<td>1-3 years</td>
<td>26.5</td>
<td>«THIS_SCHL_____13_yrs»</td>
</tr>
<tr>
<td>4-6 years</td>
<td>25.7</td>
<td>«THIS_SCHL_____46_yrs»</td>
</tr>
<tr>
<td>7-10 years</td>
<td>14.9</td>
<td>«THIS_SCHL_____710_yrs»</td>
</tr>
<tr>
<td>11-13 years</td>
<td>8.1</td>
<td>«THIS_SCHL_____1113_yrs»</td>
</tr>
<tr>
<td>14+ years</td>
<td>8.8</td>
<td>«THIS_SCHL_____14_yrs»</td>
</tr>
</tbody>
</table>
### SCHOOL ORGANISATIONAL CLIMATE:

<table>
<thead>
<tr>
<th></th>
<th>Full Sample (All Schools)</th>
<th>Your School</th>
</tr>
</thead>
<tbody>
<tr>
<td>School Morale</td>
<td>31.16 «School_Morale»</td>
<td></td>
</tr>
<tr>
<td>Supportive Leadership</td>
<td>31.92 «Supportive_Leadership»</td>
<td></td>
</tr>
<tr>
<td>Decision Authority</td>
<td>6.84 «Decision_Authority»</td>
<td></td>
</tr>
<tr>
<td>Macro-level Decision Authority</td>
<td>12.28 «Macro_Decision_Authority»</td>
<td></td>
</tr>
<tr>
<td>Role Clarity</td>
<td>32.67 «Role_Clarity»</td>
<td></td>
</tr>
<tr>
<td>Co-worker Support</td>
<td>14.11 «Coworker_Support»</td>
<td></td>
</tr>
<tr>
<td>Appraisal &amp; Recognition</td>
<td>22.70 «Appraisal__Recogn»</td>
<td></td>
</tr>
<tr>
<td>Professional Growth</td>
<td>29.00 «Professn_growth»</td>
<td></td>
</tr>
<tr>
<td>Goal Congruence</td>
<td>31.59 «Goal_Congruence»</td>
<td></td>
</tr>
<tr>
<td>Curriculum Co-ordination</td>
<td>29.26 «Curriculum_coordn»</td>
<td></td>
</tr>
<tr>
<td>Student Orientation</td>
<td>39.07 «Student_Orientatn»</td>
<td></td>
</tr>
<tr>
<td>Job Demand</td>
<td>13.6 «Job_Demand»</td>
<td></td>
</tr>
<tr>
<td>Skill Discretion</td>
<td>12.1 «Skill_Discretn»</td>
<td></td>
</tr>
</tbody>
</table>

### School Social Capital:

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Value of Life</td>
<td>4.6 «Value_of_Life»</td>
<td></td>
</tr>
<tr>
<td>Social Proactivity</td>
<td>15.4 «Social_Proactive»</td>
<td></td>
</tr>
<tr>
<td>Trust &amp; Safety</td>
<td>10.3 «Trust__Safety»</td>
<td></td>
</tr>
<tr>
<td>Tolerance of Diversity</td>
<td>4.6 «Tolerance_of_Diversity»</td>
<td></td>
</tr>
</tbody>
</table>

### JOB COMMITMENT:

<table>
<thead>
<tr>
<th></th>
<th>Full Sample (All Schools)</th>
<th>Your School</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organisational Commitment</td>
<td>20.9 «Orgn_Commit»</td>
<td></td>
</tr>
<tr>
<td>Occupational Commitment</td>
<td>24.5 «Occupn_Commit»</td>
<td></td>
</tr>
<tr>
<td>Turnover Intentions</td>
<td>6.8 «Turnover(Intent)»</td>
<td></td>
</tr>
</tbody>
</table>

¹ Mean based on Standard Scores.
## Teachers’ Wellbeing & Health Risk Profile:

<table>
<thead>
<tr>
<th>Condition</th>
<th>Full Sample (All Schools)</th>
<th>Your School</th>
</tr>
</thead>
<tbody>
<tr>
<td>Psychosomatic Strain (Average score)</td>
<td>12.3</td>
<td>«PsychSoma_Strain»</td>
</tr>
<tr>
<td>Fatigue (% Often+Always)</td>
<td>40.3</td>
<td>«Serious_Fatigue_»</td>
</tr>
<tr>
<td>Low Back Pain (% Often+Always)</td>
<td>22.8</td>
<td>«Serious_Back_pain_»</td>
</tr>
<tr>
<td>Neck Pain (% Often+Always)</td>
<td>34.4</td>
<td>«Serious_Neck_Pain_»</td>
</tr>
<tr>
<td>Poor Breathing (% Often+Always)</td>
<td>3.5</td>
<td>«Serious_Breathing_»</td>
</tr>
<tr>
<td>Asthmatic (%)</td>
<td>10.1</td>
<td>«Asthmatic_»</td>
</tr>
<tr>
<td>Chest Pain (% Often+Always)</td>
<td>5.0</td>
<td>«Serious_Chest_Pain_»</td>
</tr>
<tr>
<td>Sweaty Hands (% Often+Always)</td>
<td>1.5</td>
<td>«Serious_Sweaty_»</td>
</tr>
<tr>
<td>Restless (% Often+Always)</td>
<td>10.6</td>
<td>«Serious_Restless_»</td>
</tr>
<tr>
<td>Nervous (% Often+Always)</td>
<td>11.9</td>
<td>«Serious_Nervous_»</td>
</tr>
<tr>
<td>Depressed (% Often+Always)</td>
<td>12.8</td>
<td>«Serious_Depressed_»</td>
</tr>
<tr>
<td>Great Effort (% Often+Always)</td>
<td>16.3</td>
<td>«Serious_Effort_»</td>
</tr>
<tr>
<td>Worthlessness (% Often+Always)</td>
<td>6.9</td>
<td>«Serious_Worthless_»</td>
</tr>
<tr>
<td>Poor Appetite (% Often+Always)</td>
<td>3.1</td>
<td>«Serious_Appetite_»</td>
</tr>
<tr>
<td>Sleep Problems (% Often+Always)</td>
<td>27.6</td>
<td>«Serious_Sleep_»</td>
</tr>
<tr>
<td>Sedatives (% Often+Always)</td>
<td>3.4</td>
<td>«Serious_Sedatives_»</td>
</tr>
<tr>
<td>General Health (Very good+ %)</td>
<td>46.8</td>
<td>«General_Health_VGood»</td>
</tr>
<tr>
<td>Physical Health (Very good+ %)</td>
<td>82.9</td>
<td>«Physical_Health_VGood»</td>
</tr>
<tr>
<td>Mental Health (Very good+ %)</td>
<td>66.8</td>
<td>«Mental_Health_VGood»</td>
</tr>
<tr>
<td>Private Health Insurance (% Yes)</td>
<td>80.3</td>
<td>«Private_Health_Insurance__Yes»</td>
</tr>
<tr>
<td>Personal GP (% Yes)</td>
<td>76.9</td>
<td>«Personal_GP________________Yes»</td>
</tr>
<tr>
<td>Exercise (% At least several times weekly)</td>
<td>55.1</td>
<td>«Exercise_Several_PW»</td>
</tr>
<tr>
<td>High BP (%)</td>
<td>16.2</td>
<td>«High_BP_»</td>
</tr>
<tr>
<td>BP Medication (%)</td>
<td>5.1</td>
<td>«BP_Medicn_»</td>
</tr>
<tr>
<td>Annual Cholesterol Check (%)</td>
<td>27.0</td>
<td>«Annual_Cholesterol_Check»</td>
</tr>
<tr>
<td>High Cholesterol (%)</td>
<td>7.9</td>
<td>«High_Cholesterol»</td>
</tr>
<tr>
<td>Non-smokers (%)</td>
<td>93.3</td>
<td>«Nonsmokers_»</td>
</tr>
<tr>
<td>Moderate Alcohol (1 drink up to 5 days pw) %</td>
<td>51.2</td>
<td>«Moderate_Drinkers__»</td>
</tr>
<tr>
<td>Regular health screenings (%)</td>
<td>75.0</td>
<td>«Regular_Health_Check»</td>
</tr>
<tr>
<td>Annual dental check-up (%)</td>
<td>59.3</td>
<td>«Annual_Dental_Check_»</td>
</tr>
<tr>
<td>Low fat diet (&lt;1 pw) (%)</td>
<td>14.7</td>
<td>«Low_fat_diet__»</td>
</tr>
<tr>
<td>Daily 1+ cups fruit/vegetables (%)</td>
<td>65.2</td>
<td>«Daily_FruitVeg_»</td>
</tr>
<tr>
<td>Daily protein (%)</td>
<td>64.0</td>
<td>«Daily___Protein__»</td>
</tr>
<tr>
<td>Daily low-fat dairy (or substitute) (%)</td>
<td>46.3</td>
<td>«Daily____Lowfat_Dairy_»</td>
</tr>
<tr>
<td>Daily high-fibre grains (%)</td>
<td>62.6</td>
<td>«Daily____High_Fibre_______»</td>
</tr>
<tr>
<td>Healthy weight range (%)</td>
<td>45.0</td>
<td>«Healthy_____Weight»</td>
</tr>
<tr>
<td>Regular Herbal and/or Vitamin Supplements (% At least several times weekly)</td>
<td>39.3</td>
<td>«Regular_Herbal_Supps_»</td>
</tr>
</tbody>
</table>
Appendix 24

Expert Panel Members
<table>
<thead>
<tr>
<th>EXPERT PANEL MEMBERS:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hannele Turunen (ENHPS, Finland)</td>
</tr>
<tr>
<td>Derek Colquhoun (Tasmania)</td>
</tr>
<tr>
<td>Dr John Fanshawe (QUT Faculty of Education)*</td>
</tr>
<tr>
<td>Julie Dunbabin (AHPSA)</td>
</tr>
<tr>
<td>Lisa English (AHPSA)</td>
</tr>
<tr>
<td>Antoinette Ackerman</td>
</tr>
<tr>
<td>Graeme Cooksey (Education Department, TAS)*</td>
</tr>
<tr>
<td>Kim Chute, WA Department of Education</td>
</tr>
<tr>
<td>Louise Rowling</td>
</tr>
<tr>
<td>Assoc Prof Bernard Marshall (AHPSA, Deakin University)</td>
</tr>
<tr>
<td>Jan Pratt (Queensland Health)</td>
</tr>
<tr>
<td>Jeff Wood</td>
</tr>
<tr>
<td>Dr Jan Nicholson (CPHR, QUT)*</td>
</tr>
<tr>
<td>Donna Ahern</td>
</tr>
<tr>
<td>Fiona Rowe, QUT Brisbane*</td>
</tr>
<tr>
<td>Dr Alysoun Moon (Canterbury University, UK)*</td>
</tr>
</tbody>
</table>

* Provided response to request for comments and suggestions.