‘PLAYING IT SAFE’

QUALITY TEACHING IN EXPERT TEACHER CLASSROOMS

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BA Dip Ed

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I hereby certify that the work embodied in this thesis is the result of original research and has not been submitted for a higher degree to any other University or Institution.

Signed: _________________________
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# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>TABLE OF CONTENTS</strong></td>
<td>V</td>
</tr>
<tr>
<td><strong>LIST OF FIGURES</strong></td>
<td>XI</td>
</tr>
<tr>
<td><strong>LIST OF TABLES</strong></td>
<td>XII</td>
</tr>
<tr>
<td><strong>ABBREVIATIONS/ACRONYMS</strong></td>
<td>XIII</td>
</tr>
<tr>
<td><strong>ABSTRACT</strong></td>
<td>XIV</td>
</tr>
<tr>
<td><strong>CHAPTER 1  INTRODUCTION</strong></td>
<td>1</td>
</tr>
<tr>
<td>1.1 Background to the Research</td>
<td>1</td>
</tr>
<tr>
<td>1.2 Significance of the Study</td>
<td>4</td>
</tr>
<tr>
<td>1.3 Overview of the Thesis Structure</td>
<td>5</td>
</tr>
<tr>
<td><strong>CHAPTER 2  LITERATURE REVIEW</strong></td>
<td>7</td>
</tr>
<tr>
<td>2.1 Introduction</td>
<td>7</td>
</tr>
<tr>
<td>2.2 What is Quality Teaching?</td>
<td>10</td>
</tr>
<tr>
<td>2.3 Models of Pedagogy</td>
<td>12</td>
</tr>
<tr>
<td>2.3.1 Authentic Pedagogy - Determining the Quality of Classroom</td>
<td>13</td>
</tr>
<tr>
<td>Instruction</td>
<td></td>
</tr>
<tr>
<td>2.3.2 Productive Pedagogy Model - A Multi-dimensional Construct</td>
<td>15</td>
</tr>
<tr>
<td>2.3.3 The NSWDET Quality Teaching Model</td>
<td>17</td>
</tr>
<tr>
<td>2.3.4 Effective Teaching Strategies</td>
<td>22</td>
</tr>
<tr>
<td>2.3.5 A Synthesis of Research Findings - Establishing Facets of</td>
<td>24</td>
</tr>
<tr>
<td>Quality Teaching</td>
<td></td>
</tr>
<tr>
<td>2.4 Teacher Perceptions and Beliefs about Teaching</td>
<td>26</td>
</tr>
<tr>
<td>2.4.1 Teacher Beliefs - Varying Approaches, Definitions and General</td>
<td>26</td>
</tr>
<tr>
<td>Agreements</td>
<td></td>
</tr>
<tr>
<td>2.4.2 Alignment between Teacher Beliefs and Practice</td>
<td>29</td>
</tr>
<tr>
<td>2.4.3 The Notion of Epistemology and Links to Conceptions of</td>
<td>31</td>
</tr>
<tr>
<td>Teaching</td>
<td></td>
</tr>
<tr>
<td>2.4.4 A Synthesis of Research Findings</td>
<td>34</td>
</tr>
<tr>
<td>2.5 Teacher Professional Development</td>
<td>35</td>
</tr>
<tr>
<td>2.5.1 The Empirical-rational Approach - Traditional Strategies</td>
<td>37</td>
</tr>
<tr>
<td>Promoting Teacher Professional Learning and Change</td>
<td></td>
</tr>
<tr>
<td>2.5.2 Normative Re-educative Approach - Collaborative, Socio-cultural</td>
<td>41</td>
</tr>
<tr>
<td>Strategies Promoting Teacher Professional Learning and Change</td>
<td></td>
</tr>
<tr>
<td>2.5.3 Teacher Professional Development - Policy and Practice in</td>
<td>50</td>
</tr>
<tr>
<td>Australia</td>
<td></td>
</tr>
<tr>
<td>2.5.4 A Synthesis of Research Findings</td>
<td>52</td>
</tr>
<tr>
<td>2.6 ‘Curriculum Alignment’ and ‘Constructive Alignment’</td>
<td>53</td>
</tr>
<tr>
<td>2.6.1 A Synthesis of Research Findings</td>
<td>56</td>
</tr>
<tr>
<td>2.7 Educational Leadership</td>
<td>56</td>
</tr>
<tr>
<td>2.7.1 A Synthesis of Research Findings</td>
<td>60</td>
</tr>
<tr>
<td>2.8 Concluding Comment</td>
<td>61</td>
</tr>
</tbody>
</table>
CHAPTER 3  RESEARCH DESIGN AND METHODOLOGY ..................... 62
3.1 THE RESEARCH QUESTIONS .................................................. 62
3.2 THE MIXED METHODS DESIGN ............................................ 64
3.3 QUANTITATIVE METHODOLOGY AND DESIGN ......................... 65
   3.3.1 INTRODUCTION ................................................................. 65
   3.3.2 SAMPLING - THE SELECTION OF PARTICIPANTS ..................... 66
   3.3.3 DATA COLLECTION – CODING CLASSROOM INSTRUCTION ............. 67
   3.3.4 DATA COLLECTION – ESTABLISHING RELIABILITY AND VALIDITY ........ 69
   3.3.5 DATA ANALYSIS ................................................................. 72
3.4 QUALITATIVE DESIGN AND METHODS ....................................... 74
   3.4.1 INTRODUCTION ................................................................. 74
   3.4.2 SELECTION OF PARTICIPANTS ........................................... 75
   3.4.3 DATA COLLECTION - THE RESEARCH INTERVIEW ...................... 75
   3.4.4 DATA COLLECTION - QUESTIONING STRATEGIES AND INTERVIEW QUESTIONS .......... 77
   3.4.5 DATA COLLECTION - CONDUCTING THE INTERVIEWS .................. 78
   3.4.6 DATA COLLECTION - RECORDING THE INTERVIEWS .................. 80
   3.4.7 TRANSCRIBING THE INTERVIEWS ........................................ 81
   3.4.8 DATA ANALYSIS ................................................................. 82
3.5 INTERPRETATION PHASE – COMBINING THE TWO DATA SETS ............ 83
3.6 CONCLUDING COMMENTS ...................................................... 84

CHAPTER 4  FIRST PHASE RESULTS - OBSERVED PRACTICE IN STAGE 4/5 HSIE CLASSROOMS ....................... 86
4.1 INTRODUCTION ........................................................................ 86
4.2 INTER-RATER RELIABILITY ...................................................... 87
4.3 PROMOTING INTELLECTUAL QUALITY IN STAGE 4/5 HSIE CLASSROOMS ...... 88
   4.3.1 INTELLECTUAL QUALITY DIMENSION ..................................... 88
   4.3.2 DEEP KNOWLEDGE ............................................................ 90
   4.3.3 DEEP UNDERSTANDING ..................................................... 91
   4.3.4 PROBLEMATIC KNOWLEDGE ............................................. 92
   4.3.5 HIGHER-ORDER THINKING ................................................. 93
   4.3.6 METALANGUAGE ................................................................ 94
   4.3.7 SUBSTANTIVE COMMUNICATION ....................................... 95
4.4 DEVELOPING A QUALITY LEARNING ENVIRONMENT IN STAGE 4/5 HSIE CLASSROOMS ........................................... 96
   4.4.1 QUALITY LEARNING ENVIRONMENT DIMENSION ..................... 96
   4.4.2 EXPLICIT QUALITY CRITERIA ........................................... 98
   4.4.3 ENGAGEMENT ................................................................. 99
   4.4.4 HIGH EXPECTATIONS ....................................................... 100
   4.4.5 SOCIAL SUPPORT ............................................................ 101
   4.4.6 STUDENTS’ SELF-REGULATION ........................................ 102
   4.4.7 STUDENT DIRECTION ..................................................... 103
4.5 Creating Significance in Stage 4/5 HSIE Classrooms .......................... 104
  4.5.1 Significance Dimension........................................................................ 104
  4.5.2 Background Knowledge ..................................................................... 106
  4.5.3 Cultural Knowledge .......................................................................... 107
  4.5.4 Knowledge Integration ...................................................................... 108
  4.5.5 Inclusivity ......................................................................................... 109
  4.5.6 Connectedness .................................................................................. 110
  4.5.7 Narrative .......................................................................................... 111

4.6 Individual Teacher Differences and Differences Between Schools..... 112

4.7 Teaching Strategies Supporting Classroom Instruction – Analysis of the Researcher’s Field Notes .............................................................. 117

4.8 Summary of Results ............................................................................. 117

CHAPTER 5 FIRST PHASE RESULTS – DISCUSSION .................................. 120
  5.1 Introduction ........................................................................................... 120
  5.2 Developing Intellectual Quality in the Stage 4/5 HSIE Classrooms ... 121
    5.2.1 Mid-Range Elements ...................................................................... 123
    5.2.2 Low Mid-Range Elements .............................................................. 124
    5.2.3 Low Range Elements ..................................................................... 129
  5.3 Promoting a Quality Learning Environment in the Stage 4/5 HSIE Classrooms .............................................................. 133
    5.3.1 Mid-Range Elements ...................................................................... 134
    5.3.2 Low Mid-Range Elements .............................................................. 137
    5.3.3 Low Range Elements ..................................................................... 139

4.4 Creating Significance in the Stage 4/5 HSIE Classrooms .......... 142
  5.4.1 High-Range Elements ...................................................................... 143
  5.4.2 Mid-Range Elements ...................................................................... 143
  5.4.3 Low Mid-Range Elements .............................................................. 145
  5.4.4 Low Range Elements ..................................................................... 147

5.5 The ‘Typical HSIE Pedagogy’ ............................................................... 150

5.6 Classroom Pedagogy Over Time – A Graphical Perspective .... 153

5.7 Understanding Teacher Differences – Links to the Element Scores .................................................................................................................. 156

5.8 Summary of Findings ........................................................................... 158

CHAPTER 6 SECOND PHASE RESULTS - THE HSIE TEACHERS’ PERCEPTIONS OF INFLUENCES ON THEIR CLASSROOM INSTRUCTIONAL PRACTICES ............................................. 159
  6.1 Introduction ........................................................................................... 159

6.2 Teacher Perceptions of Good Teaching - ‘Good Teaching Principles’ .............................................................. 160
    6.2.1 ‘Good Teaching Principles’ – Links to the NSWQTM. ..................... 165
    6.2.2 Summary – Teachers Holding Multiple Views of Good Teaching .................................................................................................................. 166

vii
6.3 **Research Question 3 – Teacher Perceptions of Professional Learning and Change Experiences Associated with the Introduction of the NSWQTM** ................................................................. 166

6.3.1 **The Complexity of the NSWQTM** ......................................................... 167

6.3.2 **Traditional Approaches to Teacher Professional Development and Learning** ................................................................. 168

6.3.3 **Effective Teacher Professional Development and Learning and the NSWQTM** ................................................................. 174

6.3.3.1 Reflective Practice .............................................................................. 175

6.3.3.2 Networking ....................................................................................... 178

6.3.3.3 Teaming Approaches ....................................................................... 179

6.3.4 **Summary – Teachers Professional Learning Influencing Response to the NSWQTM** .................................................................................. 182

6.4 **Research Question 4 – Teacher Perceptions about the Organisational Design of Schools and Classroom Practice** ............... 183

6.4.1 **The Quality of Educational Leadership** .............................................. 183

6.4.1.1 The Effectiveness Across-school Leadership in Supporting Teacher Learning about the NSWQTM ....................................................... 184

6.4.1.2 Effectiveness of State and District/regional Leadership in Supporting Teacher Learning about the NSWQTM ....................................................... 185

6.4.2 **Curriculum and External Accountability for Student Performance in Public Examinations** ...................................................... 188

6.5 **Summary – Teacher Perceptions of Influences on Classroom Instruction** .................................................................................. 191

**CHAPTER 7  ‘DOMAINS OF INFLUENCE’ AND PEDAGOGICAL IMPACT** .............................................................................. 192

7.1 **Introduction** .......................................................................................... 192

7.2 **Understanding Instructional Decisions – Linking Teacher Perceptions of ‘Good Teaching’ to Models of Epistemology** ............ 192

7.2.1 Establishing Individual Epistemological Positions – Links to Models of Epistemology ............................................................. 193

7.2.2 Determining an Overall Epistemological Position – Consistency between What the Teachers Said and Their Observed Classroom Practice .............................................................................. 195

7.2.3 Overall Epistemological Position - Pedagogy Impact ........................................................................................................... 198

7.3 **Teacher Professional Learning and the NSWQTM** .................................................. 199

7.3.1 Perceived Complexity of the NSWQTM and Teacher Concerns ................................................................................................. 199

7.3.2 Pervasiveness of Empirical-rational Strategies ........................................ 200

7.3.3 Normative Re-educative Strategies .......................................................... 201

7.3.4 Teacher Professional Learning - Pedagogical Impact ........................................ 206

7.4 **The Quality of Educational Leadership and Professional Learning about the NSWQTM** .......................................................... 208

7.4.1 The Effectiveness of Across-school Leadership in Supporting Teacher Learning about the NSWQTM ............................................. 209

7.4.2 The Effectiveness of State and District/regional Leadership in Supporting Teacher Learning about the NSWQTM ............................................. 210

7.4.3 Educational Leadership - Pedagogical Impact ........................................ 212
7.5 ‘CLASSROOM PEDAGOGICAL ALIGNMENT’ (CPA) ............................................. 213
7.5.1 ‘CLASSROOM PEDAGOGICAL ALIGNMENT’ – PEDAGOGICAL IMPACT ........ 215
7.6 SOURCES OF TEACHER DIFFERENCES – CPA AND ‘GOOD TEACHING PRINCIPLES’ .................................................................................................................. 217
7.7 SUMMARY AND CONCLUSIONS – TEACHER PERCEPTIONS EXPLAINING INSTRUCTIONAL PATTERNS OBSERVED IN THE STAGE 4/5 HSIE CLASSROOMS .................................................................................................................. 218

CHAPTER 8 CONCLUSIONS AND IMPLICATIONS .............................................. 222
8.1 INTRODUCTION .................................................................................................. 222
8.2 RESEARCH FINDINGS ..................................................................................... 222
8.3 IMPLICATIONS OF THE STUDY ...................................................................... 226
8.4 GENERALISABILITY OF THE FINDINGS ......................................................... 228
8.5 AREAS FOR FURTHER RESEARCH ............................................................... 230
8.6 FINAL SUMMARY AND CONCLUDING COMMENTS ..................................... 231

REFERENCES ........................................................................................................ 233

APPENDICES ........................................................................................................ 269

APPENDIX 1 – AUTHENTIC PEDAGOGY ............................................................ 270
A1.1 AUTHENTIC PEDAGOGY - DETERMINING THE QUALITY OF CLASSROOM INSTRUCTION ............................................................................................................... 270
A1.2 AUTHENTIC PEDAGOGY – SUMMARY OF RESEARCH FINDINGS .............. 272

APPENDIX 2 – PRODUCTIVE PEDAGOGY MODEL .......................................... 276
A2.1 OVERVIEW OF DIMENSIONAL CONSTRUCTS ............................................ 276
A2.2 PRODUCTIVE PEDAGOGY – SUMMARY OF RESEARCH FINDINGS .......... 278
A2.3 SCHOOL REFORM LONGITUDINAL STUDY - OVERALL MEAN RATINGS OF CLASSROOM OBSERVATIONS AND MEAN RATINGS FOR THE SOCIAL SCIENCE CURRICULUM AREA .................................................................................... 281

APPENDIX 3 – NSWQTM – EXAMPLES OF ITEM-RATING SCALES .............. 283
A3.1 DEEP KNOWLEDGE ..................................................................................... 283
A3.2 PROBLEMATIC KNOWLEDGE ................................................................. 284
A3.3 EXPLICIT QUALITY CRITERIA ..................................................................... 285
A3.4 STUDENT DIRECTION ................................................................................ 286
A3.5 KNOWLEDGE INTEGRATION ..................................................................... 287

APPENDIX 4 – FIRST PHASE - SELECTION OF PARTICIPANTS .......... 288
A4.1 EXPRESSION OF INTEREST ....................................................................... 288
A4.2 PARTICIPANT CONSENT FORM .................................................................. 291
A4.3 INFORMATION FOR STUDENTS AND PARENTS ...................................... 293
A4.4 LETTER OF SUPPORT-SCHOOL EDUCATION DIRECTORS ..................... 294
A4.5 LETTER CONFIRMING OBSERVATIONS .................................................. 295
LIST OF FIGURES

FIGURE 4.1 INTELLECTUAL QUALITY – FREQUENCY DISTRIBUTION ...................... 88
FIGURE 4.2 DEEP KNOWLEDGE – FREQUENCY DISTRIBUTION ........................... 90
FIGURE 4.3 DEEP UNDERSTANDING – FREQUENCY DISTRIBUTION ...................... 91
FIGURE 4.4 PROBLEMATIC KNOWLEDGE – FREQUENCY DISTRIBUTION ............... 92
FIGURE 4.5 HIGHER ORDER THINKING – FREQUENCY DISTRIBUTION ..................... 93
FIGURE 4.6 METALANGUAGE – FREQUENCY DISTRIBUTION .............................. 94
FIGURE 4.7 SUBSTANTIVE COMMUNICATION – FREQUENCY DISTRIBUTION .......... 95
FIGURE 4.8 ENGAGEMENT – FREQUENCY DISTRIBUTION .................................. 99
FIGURE 4.9 SOCIAL SUPPORT – FREQUENCY DISTRIBUTION ............................ 102
FIGURE 4.10 STUDENTS’ SELF REGULATION – FREQUENCY DISTRIBUTION .............. 103
FIGURE 4.11 STUDENT DIRECTION – FREQUENCY DISTRIBUTION ................. 104
FIGURE 4.12 BACKGROUND KNOWLEDGE – FREQUENCY DISTRIBUTION .......... 106
FIGURE 4.13 CULTURAL KNOWLEDGE – FREQUENCY DISTRIBUTION ............... 107
FIGURE 4.14 KNOWLEDGE INTEGRATION – FREQUENCY DISTRIBUTION ............... 108
FIGURE 4.15 INCLUSIVITY – FREQUENCY DISTRIBUTION .............................. 109
FIGURE 4.16 CONNECTEDNESS – FREQUENCY DISTRIBUTION ............................. 110
FIGURE 4.17 NARRATIVE – FREQUENCY DISTRIBUTION .................................. 111
FIGURE 5.1 INTELLECTUAL QUALITY - INDIVIDUAL TEACHERS SCORES OVER TIME .......................................................... 153
FIGURE 5.2 QUALITY LEARNING ENVIRONMENT - INDIVIDUAL TEACHERS SCORES OVER TIME .......................................................... 154
FIGURE 5.3 SIGNIFICANCE - INDIVIDUAL TEACHERS SCORES OVER TIME ............. 155
FIGURE 7.1 ‘DOMAINS OF INFLUENCE’ – INTERCONNECTIONS AND PEDAGOGICAL IMPLICATIONS .......................................................... 221
LIST OF TABLES

TABLE 2.1 INTELLECTUAL QUALITY DIMENSION ELEMENTS ................................................. 19
TABLE 2.2 QUALITY LEARNING ENVIRONMENT DIMENSION ELEMENTS .................... 19
TABLE 2.3 SIGNIFICANCE DIMENSION ELEMENTS ......................................................... 20
TABLE 2.4 EFFECTIVE TEACHING STRATEGIES ............................................................... 23
TABLE 2.5 EPISTEMOLOGICAL WORLD-VIEWS AND LINKS TO TEACHING STYLES.......................... 33
TABLE 3.1 TEACHER AND SCHOOL DETAILS .................................................................. 68
TABLE 4.1 INTELLECTUAL QUALITY-DESCRIPTIVE STATISTICS ................................. 89
TABLE 4.2 INTELLECTUAL QUALITY – ELEMENT DESCRIPTIVE STATISTICS ........ 89
TABLE 4.3 QUALITY LEARNING ENVIRONMENT – DESCRIPTIVE STATISTICS ......... 97
TABLE 4.4 QUALITY LEARNING ENVIRONMENT – ELEMENT DESCRIPTIVE STATISTICS .................................................. 98
TABLE 4.5 SIGNIFICANCE – DESCRIPTIVE STATISTICS ................................................. 105
TABLE 4.6 SIGNIFICANCE DIMENSION - ELEMENT DESCRIPTIVE STATISTICS ...... 106
TABLE 4.7 DIMENSIONAL SCORES - INDIVIDUAL TEACHERS .................................... 113
TABLE 4.8 ELEMENT SCORES - INDIVIDUAL TEACHERS .............................................. 114
TABLE 4.9 ANOVA RESULTS ............................................................................................ 115
TABLE 4.10 SCHEFFE TEST - INTELLECTUAL QUALITY ................................................ 115
TABLE 4.11 SCHEFFE TEST - QUALITY LEARNING ENVIRONMENT ......................... 116
TABLE 4.12 SCHEFFE TEST - SIGNIFICANCE ................................................................. 116
TABLE 4.13 FIELD NOTE ANALYSIS - TEACHING STRATEGY IDENTIFICATION .......... 117
TABLE 5.1 ‘TYPICAL HSIE PEDAGOGY’ ........................................................................ 150
<table>
<thead>
<tr>
<th>Abbreviation/Acronym</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AGQTP</td>
<td>Australian Government Quality Teaching Project</td>
</tr>
<tr>
<td>AITSL</td>
<td>Australian Institute for Teaching and School Leadership</td>
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<tr>
<td>NSWBoS</td>
<td>New South Wales Board of Studies</td>
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<td>CBAM</td>
<td>Concern Based Adoption Model</td>
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<tr>
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<td>New Public Management</td>
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<td>New South Wales</td>
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<td>New South Wales Institute of Teachers</td>
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<td>NSWQTM</td>
<td>New South Wales Quality Teaching Model</td>
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<tr>
<td>OBE</td>
<td>Outcomes-based education</td>
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<td>QSRLS</td>
<td>Queensland School Reform Longitudinal Study</td>
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<tr>
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<td>Systemic Implications of Pedagogy and Achievement in NSW Public Schools</td>
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<td>Statistical Package for the Social Sciences</td>
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</table>
Abstract

The purpose of this study was to use the New South Wales Department of Education and Training (NSWDET) Quality Teaching model (NSWQTM) to assess the variation in teaching in secondary Human Society and Its Environment (HSIE) Key Learning Area (KLA) classrooms and to explain the variations in the teaching observed from a participants' perspective. Overall, the findings indicated that the HSIE teachers in this study appeared to be ‘teaching defensively’ (by analogy with ‘driving defensively’) or ‘playing it safe’.

The mixed method ‘explanatory sequential design’ provided an innovative approach to researching classroom practice. This design involved two distinct data collection and analysis phases and an interpretation phase. The first phase of the study was quantitative and assessed the variation in teaching in eight Stage 4/5 History and Geography classrooms from five NSW public secondary schools using the NSWQTM descriptors. The second phase was qualitative with formal, semi-structured interviews exploring the teacher participants’ perceptions of influences on their classroom practice. Both data sets were analysed and reported separately.

The first phase findings indicated that the general qualities of good pedagogy, as measured by the NSWQTM, were not evident to any great extent in these Stage 4/5 HSIE classrooms. A major contribution of this study to research was the identification of a ‘typical HSIE pedagogy’ with a statistical upper (‘ceiling’) and lower limit (‘floor’) in the coded pedagogy.

The second phase of this study investigated these HSIE teachers’ perceptions of influences on their classroom practice and identified four ‘domains of influence’ as emerging from their responses. These included their own perceptions of ‘good teaching’, teacher professional learning, and educational leadership across schools and at a state and district/regional level and ‘Classroom Pedagogical Alignment’.

In the final interpretation phase, the second phase findings provided a qualitative basis to draw inferences and links to explain the classroom observation findings. From this comparison, it appeared that the ‘domains of influence’ impacted these HSIE teachers’ classroom instructional decisions and, subsequently, the pedagogy observed. In the broader context, these findings have implications for policy makers about what is needed for the NSWQTM and for good teaching in general, to become part of day-to-day classroom practice.
Chapter 1
Introduction

1.1 Background to the Research

One of the central questions facing education systems and educational researchers is how to improve the quality of classroom pedagogy and subsequently student learning outcomes (Gore & Ladwig, 2006a). This study is intended to contribute to research knowledge relating to teacher professional learning and classroom pedagogy. The findings support the need to link classroom observation data to teacher beliefs and the reasons they give for why they taught the way they did. This is not a new concern, but the literature indicates that educational policy makers still do not take classroom practice and observation and reflection on classroom practice as seriously as it deserves (Desimone, 2002; Elmore, 2002; Guskey, 1985; M. B. King, 2002; Knight, 2002; McRae, Ainsworth, Groves, Rowland, & Zbar, 2001; Shaw, 1999; Tan, 2008; Timperley, Parr, & Bertanées, 2009).

Over the past twenty years educational policy has focused on large scale, systematic approaches to improve the quality of teaching and student learning outcomes (D. K. Cohen & Ball, 1999, 2000; Desimone, 2002; Slavin, 2002). According to Desimone (2002) these approaches involved: increasing standards and regulations, articulating curriculum, maximising learning time, increasing school-level management, strong district and principal leadership and rethinking the organisational structures of schools. Other approaches involved creating a positive school climate by developing shared goals, increasing parental involvement and addressing the needs of families by expanding the relationships within and between schools, improvements in teacher education, school wide staff development and programs to increase the professional image of teachers. Increasingly, educational policy makers are now focusing on classroom practice to build instructional capacity (D. K. Cohen & Ball, 1999, 2000; Desimone, 2002; Slavin, 2002).

Recently, in Australia and overseas there have been a number of examples of new policy directions attempting to build instructional capacity by focusing on classroom practice (Gore, Ladwig, Amosa, & Griffiths, 2008; Griffin, McGaw, & Care, 2012; Ministerial Council on Education Employment Training and Youth Affairs, [MCEETYA] 2008; Newmann & Associates, 1996a; Queensland School Reform Longitudinal Study [QSRLS], 2001; Ramsey, 2000; Roelofs & Terwel, 1999; Vinson, 2002). In the New South Wales (NSW) context, the Vinson Report (2002), sponsored by the NSW
Teachers Federation & Federation of Parents and Citizens (P&C) Associations of NSW, emerged from an independent investigation into the state of public education. This comprehensive report generated considerable public debate and set agendas for future educational reforms in NSWDET schools (the NSWDET is now referred to as the NSW Department of Education and Communities or DEC).

The Vinson Report recommendations were a source of direction in the implementation of the current research study. The inquisitors were critical of the quality of teaching in NSW public schools and argued that while recent curriculum developments had introduced greater certainty and rigour into public education, many changes “leave unresolved the question of what constitutes appropriate pedagogies for today’s students” and specifically that “public education in New South Wales is deficient in the cultivation of improved teaching practice” (Vinson, 2002, pp. xv, 40). Subsequently, the Australian Curriculum and Reporting Authority (ACARA, 2008) has left classroom pedagogy to the teachers, providing content and skills but no instructional support. Therefore, if the quality of classroom instruction is crucial to student learning, the critical question that remains is: What is needed to help teachers and schools to consistently produce high quality instructional practices in classrooms?

One response to the Vinson Report was the introduction of the New South Wales Quality Teaching model (New South Wales Department of Education & Training, [NSWDET] 2003a, 2003b, 2003c, 2003d, 2003e, 2003f, 2003g). This was a major initiative by the NSWDET to raise the quality of pedagogy in public schools. The NSWQTM is a generic model of pedagogy with a common language and, by design, supports one understanding of ‘flexible pedagogy’ as advocated by the Vinson Report. Therefore, the NSWQTM provides a framework for professional learning for teachers, regardless of grade level or subject area, encouraging them to engage in collegial discussion and critical reflection on classroom practice.

While models of pedagogy have been part of educational discourse for some time, the notion of pedagogy is defined from a number of different perspectives. Gore (1993) for example, from an etymological perspective, defined pedagogy as the science of teaching children and is commonly used interchangeably with ‘teaching’ or ‘instruction’. Eisner (1979) used the term pedagogy to refer to the ways in which the curriculum is manifested in the classroom. Schraw and Olafson (2002) defined pedagogy as the variety of ways teaching, how instructional and assessment strategies are utilised and how the classroom is managed. Schraw and Olafson also stated that pedagogy involves a complex interplay of many other factors including school leadership, the
organisation of schools, socioeconomic backgrounds of students, the culture of schools, the growing diversity among students and teachers’ epistemological understandings of classroom instruction. In the context of the NSWQTM, the *Quality Teaching in NSW Public Schools: A discussion paper* (NSWDET, 2003a) describes pedagogy as the “the art and science of teaching” (p.4). Therefore, pedagogy is more about how teaching is done rather than what is taught, although the two are inter-connected.

While classroom pedagogy is only one dimension of the larger school context, research has shown that the quality of classroom instruction is one aspect over which a teacher has control (Hattie, 2003). To understand classroom instruction, and therefore what is needed to improve practice, the NSWQTM provided the researcher, as a Head Teacher in the Human Society and Its Environment (HSIE) Key Learning Area (KLA) with an opportunity to undertake a quantitative study enabling a degree of understanding about the variance in classroom practice not possible through more qualitative approaches. As such, with the assistance of NSWQTM item-rating scales and coding descriptors the first phase of the study addressed the following primary research question:

**Research Question 1:** 

*What variation in pedagogy is exhibited in classroom instruction in Stage 4/5 HSIE classes in NSW public secondary schools, based on repeated classroom observations using the NSWQTM?*

While the results involving the NSWQTM would provide a unique understanding of classroom pedagogy, schools are dynamic, unpredictable and non-linear organisations operating in an ever changing external environment (J. Cohen & Stewart, 1995; Lemke & Sabelli, 2008; Mason, 2008a, 2008b). These influences are often complex and difficult to predict with many factors influencing a teacher’s instructional decisions. For this reason, it was proposed to investigate influences on teachers and teaching from a participant perspective – to link actual classroom practice to teacher decision making through a second qualitative phase involving three additional research questions.

**Research Question 2:** 

*How do teachers’ perceptions of good teaching influence their implementation of the NSWQTM?*
Research Question 3:

How do teachers’ perceptions about forms of professional learning influence their response to the NSWQTM?

Research Question 4:

How do teachers’ perceptions about the organisational design of schools influence their choice of classroom instructional practices?

1.2 Significance of the Study

The significance of the current research study is in the nature of the classroom and in the proposed research design and methods. To support the researcher in answering the research questions, the research involved two distinct phases. The first phase was a quantitative phase and then a second qualitative phase was undertaken after the classroom observations were completed. Linking these methodologies involved a ‘mixed method explanatory sequential design’ (Creswell & Plano Clark, 2011; Greene, 2001; Onwuegbuzie & Teddlie, 2003).

In the first phase, the NSWQTM, as the model of choice, assessed the variation in teaching of a self-selected cohort of Stage 4/5 HSIE teachers in NSW public secondary schools. Classes were observed for this study in 2004 and, up to that time, most of the research studies had focused on the disciplines of English, Mathematics, Science and Social Studies. However, a major longitudinal study was conducted between 2004 and 2007, titled the ‘Systemic Implications of Pedagogy and Achievement in NSW Public Schools’ (SIPA) utilising the NSWQTM (Amosa & Cooper, 2006a, 2006b; Amosa, Ladwig, Griffiths, & Gore, 2007; Gore & Ladwig, 2006a, 2006b; Gore, Ladwig, Amosa, & Griffiths, 2008; Griffiths, Amosa, Ladwig, & Gore, 2007; Griffiths, Gore, & Ladwig, 2006a, 2006b; Ladwig & Gore, 2005d; Ladwig, Gore, Amosa, & Griffiths, 2009; Ladwig, Smith, Gore, Amosa, & Griffiths, 2007). This study involved the subjects of English, Mathematics, Science, Human Society & Its Environment and Physical Development (HSIE), Health & Physical Education (PDHPE, the current NSW version of Physical Education). However, while the international and Australian studies available were longitudinal in design they focused on single-point-in-time data collection with no studies undertaking data collection repeatedly over time. Therefore, the design and the timing of the first phase of the study were both significant.

The second phase of the study was qualitative and departed from much school based initiatives as it attempted to explain the classroom observations from the participants’
perspective. The two data sets were linked in the final interpretation phase, with the second phase findings providing a qualitative basis for the researcher to draw inferences to assess any pedagogical impacts on classroom instruction.

The findings from this study contribute significantly to the research in the field. What emerged was a ‘typical HSIE pedagogy’ with ‘ceiling’ and ‘floor’ effects evident in the coded pedagogy. On the basis of the formal, semi structured interviews four external ‘domains of influence’ as general influences on the teaching observed were identified. ‘Classroom Pedagogical Alignment’ (CPA) involving the purposeful alignment of subject content, instruction and assessment in classrooms in response to teacher perceptions of mandated curriculum requirements and testing benchmarks in externally administered assessment and these HSIE teachers’ perceptions of ‘good teaching’ were seen as benchmarks for Quality Teaching. Teachers perceived professional learning and educational leadership as important if they were to understand the latest educational initiatives and the implications of these initiatives for their classroom accountability.

Further, new policies are continually being introduced globally to build instructional capacity to meet the needs of 21st century learners to address the challenges of the global economy and new information and communication technologies (Dinham, 2007b; Goldspink, 2007; Grundy & Robison, 2004; Hardy, 2008, 2009; MCEETYA, 2008; Pickering, 2007). Central to the Australian government’s plan to improve educational outcomes for all young Australians was the Melbourne Declaration (MCEETYA, 2008). Educationally, the declaration focused on improving the nation’s social and economic prosperity through middle year school program development, quality teaching, school leadership, the development of a world-class curriculum and assessment. Given these policy directions, the findings of this study to stimulate further thought about Quality Teaching and classroom instruction to support 21st century learners are compelling.

1.3 Overview of the Thesis Structure

Following this introductory chapter, a review of the literature is presented in Chapter Two. The initial literature review involved literature pertaining to quality teaching and the development of the models of pedagogy. However, in the synthesis of these research findings a multitude of factors that could influence the quality of teaching were apparent. With this complexity in mind, a second review was undertaken to identify factors relating to the school effectiveness research that appeared to influence
classroom practice. A final review of the literature was undertaken after the analysis of the second phase findings reported in Chapter Four. From this on-going process, four broad literature areas were identified to support the second phase of this study.

Firstly, a review of the literature pertaining to beliefs generally, teacher beliefs and epistemology was undertaken to understand the relationships between teacher beliefs and practice, to explain why teaching works and looks the way it does. Secondly, in reviewing the teacher professional learning literature there were many varying approaches. It was decided to locate teacher professional learning within the more general concept of teacher change as described by Chin and Benne’s (1976) empirical-rational and normative re-educative strategies. The third literature area investigated aspects in education seen as impinging on teacher autonomy and subsequently the quality of teaching. This literature included the notions of ‘curriculum alignment’ and ‘constructive alignment’ and understandings of the nature of these controls and implications for teachers and teaching. The fourth area reviews the literature on educational leadership. As this literature area is so large, it was reviewed in the depth needed to gain an understanding of quality leadership practices within schools and leadership at the state and district/regional levels and how leadership at these levels can influence the quality of teaching.

Following on from the literature review, Chapter Three outlines the design and methodologies of this study. In Chapter Four the first phase classroom observations results are reported. In Chapter Five the classroom observations findings are presented and discussed in terms of the literature reviewed from Chapter Two. In Chapter Six the results from the data analysis of the semi-structured interviews are reported. In Chapter Seven the first and second phase findings are discussed in relation to the literature reviewed. These findings then provide a qualitative basis on which to draw inferences, not only to explain why these HSIE teachers taught the way they did, but also the impact on the pedagogy observed in the Stage 4/5 HSIE classrooms. In the final Chapter Eight the results are discussed in terms of the specific research questions and implication for policy and research are drawn. The limitations of the study are then discussed, the potential for further research is outlined and concluding comments made. Following this final chapter, detailed appendices provide information and other documentation related to the study including the instruments developed for use with the NSWQTM, interview questions and copies of consent letters.
Chapter 2
Literature Review

2.1 Introduction

In the broader societal context education and schooling in general are contested notions (Bernstein, 1971a, 1971b, 1975, 1973; Bourdieu, 1971; Freire, 1972; Goodlad, 1984; Illich, 1993; MCEETYA, 2008) and subject to various philosophical stances on purpose, validity and outcomes. However, discussions are more pragmatic within the life of the participants in schooling. One key issue in schools is the extent of the impact of the teacher on the teaching (P. Ayres, Sawyer, & Dinham, 2004; Brophy, 1986; Brown & Rose, 1995; D. K. Cohen & Ball, 1999; Rosenfeld & Rosenfeld, 2008; Rowan & Correnti, 2009; Rowe & Rowe, 2002).

Within the literature there are ongoing debates about the relative size of the influence of teachers and teaching. In the early school effectiveness research the consensus was that school effects had minimal impact on students’ learning outcomes and that ethnic and family socio-economic status (SES) background factors constituted the dominant determinants of students’ educational outcomes (Coleman et al., 1966; Creemers & Scheerens, 1994; Jencks et al., 1972; Plowden Committee, 1967). For example, Coleman et al., (1966) reported that only nine per cent of the variance in student achievement measures was due to school effects. However, while these findings from these studies could be interpreted as casting serious doubts on the capacity of schools in Australia to make a difference, there now seems to be a broad agreement that the quality of teaching is the most decisive factor in determining student achievement beyond student background (Alton-Lee, 2003; P. Ayres, et al., 2004; Cuttance, 2001; Fenstermacher & Richardson, 2005; Hattie, 2003; Ladwig, 2005; Rowe, 2003). Hattie (2003), for example, while acknowledging that student characteristics contributed significantly (50% of observed effect) to achievement found that teachers contributed 30%. Hattie then asserted that since variation in teaching accounts for such a high percentage of the variance in student achievement, interventions should focus at this level. However, to improve teaching we need to understand the characteristics of a quality teacher and what quality teaching or good teaching looks like. Therefore, the purpose of this literature review is to firstly to unpack these notions and secondly to understand the various factors that may influence teachers and, subsequently, the quality of teaching.
In Section 2.2 of this chapter the many characteristics and definitions of a quality teacher and quality teaching, and critiques of some of the check lists of best practice are reviewed. While these lists provide guidance, instructional leaders and researchers are now measuring the quality of classroom teaching using more holistic models of pedagogy. These models include the uni-dimensional Authentic Pedagogy model (Newmann & Associates, 1996a; Newmann, King, & Secada, 1996b; Newmann, Marks, & Gamoran, 1996c), multi-dimensional models in Productive Pedagogy (Ladwig, 2007; Queensland School Reform Longitudinal Study [QSRLS], 1998, 1999, 2001) and, as the model of choice in the current research study, the NSWQTM (NSWDET, 2003a, 2003b, 2003c, 2003d, 2003e, 2003f, 2003g). As these are complex models, and the research studies undertaken involve different designs and methodologies, it was decided that the research findings for each would be reported separately in Section 2.3. A synthesis of these findings is undertaken in Section 2.3.4 in order to make critical judgments in relation to the research design and methodology for the first phase of this study.

While these pedagogical models provide important insights into classroom practice, the school effectiveness research indicates that teaching can be influenced by many different factors. Complexity theory, by drawing on the research into complex systems (Alhadeff-Jones, 2008; Haggis, 2008; Osberg, Biesta, & Cilliers, 2008; Paucar-Caceres & Pagano, 2009), provides some support in understanding the multitude of factors influencing the individual teacher when teaching decisions are made. Therefore, complexity theory challenges educational philosophy to reconsider accepted paradigms of teaching and learning in educational research.

Complexity theory concerns itself with environments, organisations, or systems that are complex in the sense that very large numbers of elements or agents are connected and interact with each other in many different ways (J. Cohen & Stewart, 1995; Lemke & Sabelli, 2008; Mason, 2008a, 2008b). The relationships among the elements or agents that comprise a complex environment or system are central to complexity theory. In explaining these relationships, complexity theory breaks with simple linear cause-and-effect models and reductionist approaches to understanding phenomena, replacing them with organic, non-linear and holistic approaches (Santonus, 1998). Therefore, the decisions made by teachers about classroom pedagogy are not so much about the effects of agents in a complex system or one pedagogical model, but a web of interactions, emphasising networks, linkages, holism, feedback, relationships and interactivity in contexts (J. Cohen & Stewart, 1995).
Initially the synthesis of research findings involving the models of pedagogy, in Section 2.3.4, identified a multitude of factors that could influence the quality of teaching. With this complexity in mind, a second literature review was undertaken to identify factors related to school effectiveness research that appeared to influence classroom practice. This literature is reviewed in Sections 2.4 to 2.6. A further review of the literature occurred after the second phase data collection involving semi-structured interviews because, in relating their experiences, the participants raised some additional issues including ‘emic’ accounts, or descriptions of behaviour or beliefs that were meaningful to participants (Creswell, 1998, 2003, 2009). These accounts provided meaningful descriptions of factors influencing classroom behaviours and beliefs not supported in the first review of the literature. As such, four broad overriding literature areas were identified to understand influences on teachers and teaching and to provide a qualitative basis to draw inferences to explain the quality of teaching observed.

Section 2.4 reviews the relevant research literature relating to teacher beliefs, teacher perceptions about teaching and classroom practice. This is important because it has been well established in the literature that individual teacher’s thoughts, beliefs and values can lead to very different instructional approaches in the classroom (Chan & Elliott, 2004; Clark & Peterson, 1986; Kang & Wallace, 2004; M. M. Kennedy, 2004; Richardson, 1996; Richardson, Anders, Tidwell, & Lloyd, 1991; Schraw & Olafson, 2002; Stigler & Hiebert, 1999).

Section 2.5 reviews the research literature relating to teacher professional development, learning and change. This area of inquiry is important in a complex educational environment since effective professional learning is necessary to build teachers’ pedagogical repertoire of knowledge and skills and so promote quality teaching practices (Borko, 2004; Boyle, Lamprianou, & Boyle, 2005; Boyle, While, & Boyle, 2004; Fraser, Kennedy, Reid, & McKinney, 2007; Ostermeier, Prenzel, & Duit, 2010; Timperley, et al., 2009; Vinson, 2002). However, approaches to teacher professional learning are varied, so to better link conceptions of teacher professional learning as perceived by the teachers involved in this study, it was decided to locate teacher professional learning within the more general concept of teacher change as described by (Chin & Benne, 1976). That is, within empirical-rational and normative re-educative strategies.

Thirdly, Section 2.6 investigated relationships and aspects of education seen as impinging on teacher autonomy and subsequently the quality of teaching. In an attempt to understand the influence of the education system as a hierarchy on teaching in
classrooms, the research that led organisational theorists to describe schools as 'loosely coupled' systems (Bidwell, 1965, 2001; Boyd & Crowson, 2002; Goldspink, 2007; H. D. Meyer, 2002a, 2002b; Weick, 1976) is reviewed.

Further, governments are exercising increasingly direct control over schools, under the banner of 'managerialism' or 'New Public Management' (Goldspink, 2007; Moos & Moller, 2003). Consequently, school leaders increasingly need to deal with new forms of control over curriculum, assessment and teacher accountability for student performance. To better understand the nature of these controls and implications for teachers and teaching, the literature relating to 'curriculum alignment' (Bidwell, 1965, 2001; Goldspink, 2007; Rowan, 1990) and 'constructive alignment' (Biggs & Tang, 2007; Jones, 2006; McLoughlin, 2001; Vitale, 2010) is reviewed in Section 2.6. This shift towards greater autonomy, efficiency and accountability for student performance was also seen as placing new demands on principals, requiring effective leadership (S. Clarke, 2006; Hallinger, 2003; Southworth, 2002). To gain an understanding of these new demands on principals and possibly on the quality of teaching, a review of the educational leadership literature within schools (Dinham, 2007a; Hallinger, 2003; Mulford et al., 2007; Southworth, 2002; Timperley, 2005, 2008; Ylimaki, 2007; York-Barr & Duke, 2004) and at the state and district/regional levels (Chrispeels, Castillo, & Brown, 2000; Desimone, 2002; Desimone, Porter, Birman, Garet, & Yoon, 2002; Foley, 2001; Fullan, 2005, 2006; Mawhinney, Haas, & Wood, 2005) is undertaken in Section 2.7.

2.2 What is Quality Teaching?

What is quality teaching? What are the conceptual intricacies and fine distinctions of quality teaching? What are the characteristics of a quality teacher? Would we recognise quality teaching if we saw it? While these are modest questions, the answers are complex and far reaching with the literature taking many approaches and providing various descriptions and understandings.

Quality teaching has been defined by Fenstermacher and Richardson (2005) in terms of 'good teaching' and 'successful teaching'. According to Fenstermacher and Richardson, good teaching is teaching that accords with high standards for subject matter, content and sound principles of instructional practice. By way of contrast, 'successful teaching' is more than whether something is taught, it is also about how it is taught and if it yields the intended learning outcomes. 'Successful teaching' is then, teaching understood exclusively in an achievement sense. The question is, however,
whether either ‘successful teaching’ or ‘good teaching’ is what we mean by quality teaching?

Similar to Fenstermacher and Richardson (2005), Alton-Lee (2003) and Hattie (2003) developed understandings of quality teaching and teacher quality from a synthesis of international studies of the effects and influences on student achievement. Alton-Lee’s notion of quality teaching was derived from best evidence research linked to diverse student learning outcomes. A synthesis tool helped discriminate between the many claims about quality teaching through focusing on those approaches shown to make a bigger difference to student learning outcomes. The findings outlined ten best practices including, student achievement (inclusive of social outcomes), the use of pedagogical practices to establish cohesive learning communities and being able to coordinate multiple task contexts such as curriculum goals and ICT usage that support learning cycles. The researcher concluded that students learn best when teachers provide conditions that allow students to take responsibility for their own learning. This was not necessarily related to outcomes statements.

On the other hand, Hattie (2003) found that “nearly everything we (teachers) do” influences student learning, but certain things have a “marked and meaningful effect” (p. 4). In a synthesis of research findings from over 500,000 international studies Hattie identified five major dimensions with sixteen attributes that formed a profile, not a checklist of what excellent/expert teachers do. In this research, as with other studies such as Ayres et al., (2004), Hattie was careful to identify expertise rather than experience. Accordingly, expert teachers identify essential representations of their subject; guide learning through classroom interactions; monitor learning and provide feedback; attend to affective attributes and influence student learning outcomes. Others in earlier literature, including Leinhardt and Greeno (1986), identified the core activities of expert teachers in lessons as typically progressing from presentations and reviews, through shared problem solving to interactive seat work. Occasionally lessons would contain independent work. Thus, quality teaching could be seen as the domain of expert teachers.

From another perspective, Borko and Putnam (1995) presented a notion of ‘quality teaching’ developed from Shulman’s (1987) notion of ‘pedagogical content knowledge’. From Borko and Putnam’s perspective, ‘quality teaching’ involved teacher’s ongoing development in three areas – ‘pedagogical content knowledge’, ‘general pedagogical content knowledge’ and ‘subject matter knowledge’. Therefore, ‘quality teaching’ depends on a teacher’s knowledge of an individual student, their learning histories,
backgrounds and interests; an expert knowledge of the special circumstances and challenges faced by particular groups of students from different cultural or language groups. Using this approach, ‘quality teaching’ is a case of knowing the content, knowing the client(s), knowing the context(s) and being literate and competent in bringing these attributes together for good effect (Lovat, 2003). This approach is different from Fenstermacher’s and Richardson’s (2005) understanding as ‘quality teaching’ is not defined in an achievement sense in meeting intended student learning outcomes, but is linked to the development of a teacher’s skills and knowledge.

In earlier work, the NSWDET recognised the importance of quality teaching and quality learning in public schools. Similar to Alton-Lee (2003) and Hattie (2003) the document Quality Teaching Quality Learning (New South Wales Department of School Education, 1994) identified quality teaching through specific statements of best practice. In this rendition, quality teaching was associated with applying a wide range of organisational and instructional strategies appropriate to individual student learning styles that engaged students in learning experiences, helped students make connections to understand relationships within and between content areas. While the aim was for these best practice statements to be applied to all teaching contexts, the issue still remained about how to measure ‘quality’ teaching as opposed to ‘good’ teaching.

Notwithstanding formidable lists and definitions of ‘quality’ or ‘good’ teaching, the ability to consistently measure teacher quality or the quality of teaching is problematic. Such conceptual vagueness between best practice or, what the teacher is supposed to do and the teaching that actually occurs in the classroom led to the clarification of the characteristics of quality teaching (Ladwig, 2005). Recently developed models of pedagogy have attempted to elucidate the standards by which the quality of teaching can be measured regardless of teaching contexts, year level or subject area.

2.3 Models of Pedagogy

Models of pedagogy are becoming more common tools as research attempts to measure the quality of teaching in classrooms. Within the literature there are three key models which have been developed that are applicable to all schools and teaching contexts. These models allow some quantification of the teaching observed. The first model discussed is Newmann’s uni-dimensional vision of Authentic Pedagogy developed by the Centre on Organisation and Restructuring of Schools (CORS) at the University of Wisconsin, Madison in the United States (Avery, 1999a, 1999b, 2000; Avery, Freeman, & Carmichael-Tanaka, 2002; Avery et al., 2001; Avery & Palmer,
2000; Lee & Smith, 1996, 1999, 2001; Lee, Smith, & Croninger, 1995; Newmann, 2000; Newmann & Associates, 1996a; Newmann, Bryk, & Nagaoka, 2001; Newmann, King, & Rigdon, 1997; Newmann, King, & Youngs, 2000; Newmann, Lopez, & Bryk, 1998; Newmann, Marks, & Gamoran, 1995; Newmann, et al., 1996c; Newmann, Smith, Allensworth, & Bryk, 2001; Newmann & Wehlage, 1993). The second and third models are multi-dimensional models developed in Australia from the Authentic Pedagogy model. These include the Productive Pedagogy model (Gore, Griffiths, & Ladwig, 2004; Ladwig, 2007; QSRLS, 1998, 1999, 2001; Zevenbergen & Lerman, 2006, 2007) and the NSWQTM (Amosa & Cooper, 2006a, 2006b; Amosa, et al., 2007; Gore & Ladwig, 2006a, 2006b; Gore, Ladwig, Amosa, & Griffiths, 2008; Gore et al., 2008; Gore, Ladwig, Griffiths, & Amosa, 2007; Gore, Williams, & Ladwig, 2006a, 2006b; Griffiths, et al., 2007; Griffiths et al., 2006a, 2006b; Ladwig & Gore, 2005d; Ladwig et al., 2009; Ladwig et al., 2007; Moss, 2011; Noon, 2011; Stephenson, Bo, Chavez, Fayle, & Gavel, 2007; Treble, 2009; Ustick, 2005). These models add to our understanding of good teaching or quality teaching by distinguishing between the kind of teaching that a teacher does and the kind of teaching deemed high quality (Ladwig, 2005).

As there is limited international and Australian research and this research is generally not widely known, the key findings from each of the studies are reported separately in Sections 2.3.1 to 2.3.3. In Section 2.3.4, a synthesis of these research findings identifies areas of concern to assist in the research design methodologies and in developing the research questions for the first phase of this study.

2.3.1 Authentic Pedagogy - Determining the Quality of Classroom Instruction

The seminal research using the Authentic Pedagogy model was conducted over a five year period between 1990 and 1995 by the Centre on Organisation and Restructuring of School (CORS). The study collected classroom observation and assessment data in Mathematics and Social Studies to assess how organisational changes in schools contributed to learners intellectual accomplishments (Newmann & Associates, 1996a; Newmann, et al., 1996c). The study evaluated the quality of classroom instruction, assessment and student performance through ‘authentic achievement’ with the development of Intellectual Quality central to any understanding of quality teaching. ‘Authentic achievement’ involved intellectual accomplishments that were worthwhile, significant and meaningfully defined through three criteria: construction of knowledge, disciplined inquiry and value beyond the classroom. In understanding pedagogy, Newmann’s vision established a set of standards for Intellectual Quality, not a set of
teaching techniques or strategies as the focus for classroom instruction. An overview of the model is presented in Appendix 1.

From the CORS study conducted by Newmann and Associates (1996a), three key research findings emerged (the research findings are presented in more depth in Appendix 1). First, while some classrooms and schools were far more successful than others, the overall levels of Authentic Pedagogy observed, regardless of subject area or grade level, fell well below the highest levels of the proposed standards. The researchers also reported that both teachers and schools varied relative to each other and there was considerable variation in student performance. Second, in spite of these results, some teachers and schools had made considerable progress, suggesting that the standards of Authentic Pedagogy do improve authentic academic performance for students at all grade levels and in both Mathematics and Social Studies. Finally, the researchers found that it was possible for schools to provide authentic instruction reasonably equitably. That is, regardless of race, gender, ethnicity or socioeconomic status Authentic Pedagogy appeared to boost student performance. It would seem that as a whole, the findings support the pursuit of Authentic Pedagogy to help cultivate authentic academic performance for students. However, the generally low levels of Authentic Pedagogy reported and the considerable within school variability suggested that the task of implementing Authentic Pedagogy was difficult.

In the only other major study conducted using the Authentic Pedagogy model, Roelofs and Terwel (1999) determined the extent to which Dutch teachers fostered authentic learning after the implementation of a state mandated core curriculum. The research involved extensive multiple case studies and was conducted in Mathematics and English classes in three Dutch secondary schools over three school years from 1993 to 1996. In determining the extent to which the characteristics of Authentic Pedagogy were found in these classrooms, the Dutch researchers’ develop a different conception with four similar, but different understandings, to Newmann’s version. There was an expectation that the teachers involved would depart from traditional teaching patterns and incorporate the Dutch version of Authentic Pedagogy into everyday classroom practice. Overall the researchers concluded from the results that, in the context of the national curriculum for the first stage of Dutch secondary education, the characteristics of Authentic Pedagogy were not found to any real extent (the research findings are presented in more depth in Appendix 1).

There were also a small number of studies undertaken in the United States using Authentic Pedagogy to assess the quality of classroom instruction. In a small cross-
sectional study Avery (1999a) examined how student demographics, engagement and teacher instruction influenced student performance on one common assessment task from a common unit of work on immigration (these research findings are discussed in more depth in Appendix 1). This study was undertaken to address design limitations identified by the CORS researchers. The CORS researchers reported that because both the curriculum and assessments tasks varied, the research design did not allow for the “strongest possible test of the link between pedagogy and performance” (Newmann & Associates 1996a, p. 300). Other studies in the United States suggested that when teachers organise authentic instruction around authentic assignments, students tend to produce more intellectually complex work (Newmann, Bryk, et al., 2001; Newmann, et al., 1998; J. B. Smith, Lee, & Newmann, 2001).

Overall, the results from these studies found that the characteristics of Authentic Pedagogy were not evident to any great extent in classrooms. In assessing the quality of classroom instruction the research studies undertaken by Avery (1999a) and Newmann and Associates (1996a) were the only studies that gathered data through direct observation. In the Dutch National study Roelofs and Terwel (1999) determined the quality of classroom instruction using survey data. The other studies measured the Intellectual Quality of students work to determine the quality of classroom instruction.

2.3.2 Productive Pedagogy Model – A Multi-dimensional Construct

Productive Pedagogy provides a more complex model of classroom decision making and includes a focus on classroom observation. The Productive Pedagogy model (or Productive Pedagogies) is defined by four dimensions comprising Intellectual Quality, Connectedness, Socially Supportive Classroom Environment and Recognition of Difference and 20 elements developed from a range of educational research literature relating to student learning outcomes (Education Queensland, 2001, 2002; Ladwig, 2007; QSRLS, 1998). The only research to date undertaken with the Productive Pedagogy model has been conducted in Australia (Gore, Griffiths, et al., 2004; Ladwig, 2007; QSRLS, 1998, 1999, 2001; Zevenbergen & Lerman, 2006, 2007). A detailed overview of the dimensions and elements of the Productive Pedagogy model and research and findings undertaken with this model are presented in Appendix 2. These research findings and designs of these three studies are summarised below.

The first study in Australia using the Productive Pedagogy model was commissioned by Education Queensland as part of the Leading Schools Program (QSRLS, 1999, 2001). This research was conducted over three years (1998-2000) and investigated
classroom practice and assessment in relation to student learning and performance in grades 6, 8 and 11 in the Mathematics, English, Science and Social Science curriculum areas. The quality of classroom instruction was determined using the Productive Pedagogies; Classroom Observation Manual (Education Queensland, 2001, 2002) and involved single point-in-time data collection. The research also sought to understand local school organisational capacity and to examine the degree to which the findings of Newmann and Associates (1996a) were valid in the Queensland public education system.

When the dimensions of the Productive Pedagogy model were examined, a consistent pattern emerged across the three years of the study. Overall, the highest scores were found in the Supportive Classroom Environment with relatively low scores for Recognition of Difference and strong emphasis on neither Intellectual Quality nor Connectedness. The relatively high mean codes and small standard deviations for Supportive Classroom Environment indicated that the teachers and schools were consistently providing a supportive environment (overall observational scores and scores for the Social Science curriculum area are presented in Appendix 2). In the conclusions, the researchers reported that the findings were “consistent with an alignment between teachers’ pedagogical goals and their actual practices because teachers….appear to prioritise basic skills, self-discipline and personal growth over higher level skills” (QSRLS, 2001, p.27). Statistical differences were also found between the individual teachers with some teachers rating high across some elements while a very large number rated substantially lower. These findings the researchers reported were consistent with the CORS study conducted by Newmann and Associates.

In a further attempt to clarify explicitly what quality teaching entails, Gore, Griffiths and Ladwig (2004) explored the classroom practice of 10 pre-service primary and secondary education students in their final year of university using the Productive Pedagogy model. When the classroom observation data was analysed from this small cross-sectional study the element scores for the pre-service teachers were well below the theoretical mean (3). However, these pre-service teachers were better at producing a Supportive Classroom Environment than they were at developing Intellectual Quality, Relevance or Recognition of Difference. Survey results indicated that these pre-service teachers placed priority on “generic teaching methods and strategies, coupled with an emphasis on the management of student behaviour” (Gore, Griffiths, et al., 2004, p. 383). Overall, the results indicated that these pre-service primary and
secondary education students’ found promoting *Productive Pedagogy* difficult in their classrooms.

In another Australian study, Zevenbergen and Lerman (2006, 2007) coded the pedagogy related to Information and Computer Technology (ICT) use in middle school Mathematics classes in Queensland and Victorian (n=10). Over a period of 3 years, video data was collected at single points-in-time as teachers undertook lessons (n=40). In seeking to understand ICT use, the videoed lessons were analysed by the researchers using the *Productive Pedagogy* model item-rating scales. The results indicated that most aspects of *Productive Pedagogies* were poorly represented in the teaching of Mathematics, and that tensions existed between the quality of classroom pedagogy and ICT technologies. The lowest scores were in the *Intellectual Quality* dimension. The highest scores were in the *Supportive Classroom Environment* dimension with *student self-regulation, explicit criteria and social support* scoring above the theoretical midpoint (2.5). The researchers concluded, that the relationship between pedagogy and ICT only became obvious when classroom observations were undertaken using the *Productive Pedagogy* model.

### 2.3.3 The NSWDET Quality Teaching Model

The NSWQTM (NSWDET, 2003a, 2003b, 2003c, 2003d, 2003e) was introduced into public schools through the NSW Department of Education and Training (now DEC), in 2003, partly in response to the NSW Teachers’ Federation-sponsored Vinson Report (2002). The NSWQTM evolved from the *Productive Pedagogy* model with the specific purpose of raising the “standards of classroom practices associated with in-class learning and assessment” in all NSW public schools (NSWDET, 2003a, p. 4). It was intended to enable teachers, regardless of grade level or subject area, to critically reflect on their teaching, to enhance the intellectual quality of student work, to develop assessment strategies that effectively evaluate students’ learning and to receive feedback on the effectiveness of their classroom practice (Ladwig, 2005).

The NSWQTM incorporates a pedagogy that is characterised by three dimensions that were developed from the four dimensional constructs of the *Productive Pedagogy* model (see Appendix 2 and NSWDET, 2003c). The *Intellectual Quality* dimension remained unchanged while, *Socially Supportive Classroom Environment* became *Quality Learning Environment* (with *high expectations* added as the sixth element) *Connectedness and Recognition of Difference* were combined to create the
Significance dimension (dropping group identity, citizenship and problem based curriculum).

The three dimensions of the NSWQTM describe a type of pedagogy intended to promote high levels of Intellectual Quality, a pedagogy that creates a Quality Learning Environment and a pedagogy that develops and makes explicit to students the Significance of their work (NSWDET, 2003d). Within each of the three dimensions there are six observable items or elements. For the purpose of determining the quality of classroom pedagogy, each of the eighteen elements is described by a five point observational scale (examples of item-rating scales and coding descriptors are provided in Appendix 3). Each of the item-rating scales for each of the three dimensions makes distinctions based on whether or not the quality of pedagogy described is observed, the number of students who are engaged in that manner and the time these students were engaged (Ladwig, 2005). These rating scales and coding descriptors assist researchers to clarify the relationship between the pedagogy observed in lessons and the high quality pedagogy described by the NSWQTM. These observational rating scales and coding descriptors were used in this research study. In the next section the NSWQTM dimensions and elements are briefly described.

1) Intellectual Quality Dimension

Central to the NSWQTM is the Intellectual Quality dimension. The Intellectual Quality has six elements focused on producing deep understanding of important, substantive concepts, skills and ideas. Intellectual Quality pedagogy treats knowledge as something that requires active construction of and for students to engage in higher order thinking and to communicate substantially about their learning (NSWDET, 2003a). These elements are described in Table 2.1.
Table 2.1  Intellectual Quality Dimension Elements

<table>
<thead>
<tr>
<th>Intellectual Quality</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deep knowledge</td>
<td>-Involves either the teachers or the students providing information, reasoning or arguments that address the central ideas of the lesson, or when relatively complex relations are established to other concepts.</td>
</tr>
<tr>
<td>Deep understanding</td>
<td>-Is about how students demonstrate their understanding of the central concepts presented in a lesson.</td>
</tr>
<tr>
<td>Problematic knowledge</td>
<td>-Involves understanding knowledge, not as a fixed body of information, but rather as being socially constructed and subject to political, social and cultural influences.</td>
</tr>
<tr>
<td>Higher-order thinking</td>
<td>-Requires students to manipulate information and ideas in ways that transform meaning, to solve problems or to create new meaning and understandings. Such pedagogy treats knowledge as something that requires active construction and communication by students about what they are learning.</td>
</tr>
<tr>
<td>Substantive communication</td>
<td>-Involves communication that is focused on the substance of the lesson and moves beyond merely recounting of experiences, facts, definitions or procedures evident in simple IRE (initiate–respond–evaluate) patterns. Communication is sustained and encourages critical reasoning such as making distinctions, applying ideas and raising questions.</td>
</tr>
<tr>
<td>Metalanguage</td>
<td>-Involves students and teachers understanding how language works using text types, scaffolding and understanding the construction of words.</td>
</tr>
</tbody>
</table>

(adapted from NSWDET, 2003a, 2003b, 2003c, 2003d)

2) Quality Learning Environment Dimension

The Quality Learning Environment dimension describes certain requirements in the classroom that need to occur for students to work productively to obtain deep understanding in learning. The pedagogy in a Quality Learning Environment is characterised by the construction of knowledge and skills based on prior knowledge embedded in contexts that are authentic (QSRLS, 1998). Such pedagogy sets high and explicit expectations and develops ample opportunities for social interactions to build positive relationships between the teachers and the students (NSWDET, 2003d). The elements of this dimension are described in Table 2.2.

Table 2.2  Quality Learning Environment Dimension Elements

<table>
<thead>
<tr>
<th>Quality Learning Environment</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Explicit quality criteria</td>
<td>-Occurs when students and teachers use criteria to develop and check the quality of their work or the work of others.</td>
</tr>
<tr>
<td>Engagement</td>
<td>-Involves on task behaviours by students that signal a serious investment in class work essential to the learning process. This goes beyond the concept of students simply being on task.</td>
</tr>
<tr>
<td>High expectations</td>
<td>-Involves the teacher encouraging students to participate in challenging work to enhance knowledge and understanding and to take risks to become enthusiastic learners.</td>
</tr>
<tr>
<td>Social support</td>
<td>-Is present in a classroom when teachers encourage all students to try hard and risk initial failure in a climate of mutual respect. Actions by students and teacher encourage and value effort, participation in the pursuit of learning.</td>
</tr>
<tr>
<td>Students’ self-regulation</td>
<td>-Lessons proceed without interruption with students demonstrating autonomy and initiative in relation to their own behaviour.</td>
</tr>
<tr>
<td>Student direction</td>
<td>-Students exercise control over aspects of a lesson including the choice and time spent on activities, the pace of the lesson and the criteria by which they will be judged.</td>
</tr>
</tbody>
</table>

(adapted from NSWDET, 2003a, 2003b, 2003c, 2003d)
3) **Significance** Dimension

The pedagogy of the **Significance** dimension draws clear connections with students’ prior knowledge and identities, with contexts outside the classroom and with multiple ways of knowing or cultural perspectives (NSWDET, 2003d). This pedagogy makes learning more meaningful and important for students. The six elements that support the pedagogy of **Significance** are described in Table 2.3.

In the research literature there was only one study, titled ‘Systemic Implications of Pedagogy and Achievement in NSW Public Schools’ (SIPA) undertaken using the NSWQTM. This longitudinal study was conducted between 2004 and 2007 and involved a major collaboration between the NSWDET and university researchers. The field work for the current investigation was undertaken in 2004 and preceded the SIPA study.

### Table 2.3 Significance Dimension Elements

<table>
<thead>
<tr>
<th>Significance</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Background knowledge</td>
<td>Provides students with opportunities to make meaningful connections between their knowledge and experiences and the substance of the lesson. Includes knowledge from prior lessons, other subjects and courses, cultural knowledge, local knowledge, personal experiences and knowledge of the media and popular culture.</td>
</tr>
<tr>
<td>Cultural knowledge</td>
<td>Focuses on the degree to which non-dominant culture knowledge’s are valued in the classroom. Is evident when lessons value, accept and understand the traditions, beliefs, skills, knowledge, languages and diverse social groups in an authentic, detailed and profound manner.</td>
</tr>
<tr>
<td>Knowledge integration</td>
<td>Involves making meaningful connections between topics and or between different subject areas.</td>
</tr>
<tr>
<td>Inclusivity</td>
<td>Is the degree to which students from all socio-cultural groups are presented as integral members of a classroom as a community.</td>
</tr>
<tr>
<td>Connectedness</td>
<td>Makes clear to students what the value of the lesson will be outside the school or the lesson. This is done through addressing either a public problem, or real-life experiences or situations that student’s will confront now or in the future.</td>
</tr>
<tr>
<td>Narrative</td>
<td>Utilises personal stories, biographies, historical accounts, case studies, literacy and cultural texts and performances to bring to life the knowledge that students are addressing.</td>
</tr>
</tbody>
</table>

(adapted from NSWDET, 2003a, 2003b, 2003c, 2003d)

The SIPA study investigated relationships between teacher professional learning, the quality of pedagogy and the quality of learning outcomes for more than 2000 students (Amosa & Cooper, 2006a, 2006b; Amosa, et al., 2007; Gore & Ladwig, 2006a, 2006b; Gore, Ladwig, Amosa, & Griffiths, 2008; Griffiths, et al., 2007; Griffiths, et al., 2006a, 2006b; Ladwig & Gore, 2005d; Ladwig, et al., 2009; Ladwig, et al., 2007). An important design aspect of the SIPA study was the tracking of three cohorts of students as they moved from Year 3 to Year 6; Year 5 to Year 8; and Year 7 to Year 10. The study involved the subjects of English, Mathematics, Science, Human Society and Its Environment (HSIE, or the Social Sciences) and Physical Development, Health and
Physical Education (PDHPE, the current NSW version of Physical Education). English, Mathematics and HSIE data were collected across Primary (elementary) and Secondary grades while Science and PDHPE data was collected primarily in secondary schools.

In the SIPA study the teaching and learning experiences of teachers and students were recorded through four data collection processes (Amosa & Cooper, 2006a; Amosa, et al., 2007; Gore & Ladwig, 2006a; Gore, Ladwig, Amosa, & Griffiths, 2008; Griffiths, et al., 2006a). In determining the quality of instruction each of the elements was scored on a 5-point ordinal scale (possible range 1-5) using the item rating scales provided in *Quality teaching in NSW public schools: A classroom practice guide* (NSWDET, 2003d). The findings from the Stage 4/5 HSIE classroom observations (n=34) are of specific interest to the current study (Gore & Ladwig, 2006a; Griffiths, et al., 2006a). In supporting understanding, the HSIE classroom observation results are organised into four observational score ranges or bands. That is, scores between 4 and 5 are ‘high range’; scores between 3 and 4 are ‘mid-range’; scores between 2 and 3 are ‘low mid-range’ and scores between 1 and 2 in the ‘low-range.

In secondary Stage 4/5 HSIE SIPA classrooms the dimensional scores (possible score range 6-30) for the *Intellectual Quality, Quality Learning Environment* and *Significance* were all below the theoretical mid-point of 18 (Gore, Ladwig, Amosa, & Griffiths, 2008). In the *Intellectual Quality* dimension (mean=13.18, std dev=4.30), all six elements scored below the theoretical mid-point (3). *Deep knowledge, deep understanding, higher-order thinking and substantive communication* scored in the low-mid range. *Metalanguage* and *problematic knowledge* scored in the low-range. In developing a *Quality Learning Environment* (mean=14.88, std dev=3.62) *social support* (second highest score of all 18 elements), *student self-regulation* and *engagement* had mid-range scores. *Explicit quality criteria* had a low-range score, the second lowest of all 18 elements. The *Significance* dimension had the lowest score of the three dimensions (mean=13.44, std dev=3.71). In creating *Significance, inclusivity* had a high-range score, the highest of all 18 elements. *Background knowledge, narrative and connectedness* had low mid-range scores. *Knowledge integration and cultural knowledge* (lowest score of all 18 elements) scored in the low-range. Overall, these findings indicated that high levels of Quality Teaching were not evident in the SPIA HSIE classrooms with the dimensional and element mean scores relatively low.

In their conclusions the researchers reported that while the overall KLA mean scores for each of the dimensions and elements were relatively low, in view of the possible
range of scores, there was potential for improvement. The researchers expected that after professional development there would be improvements over time in all aspects of Quality Teaching. They advocated particular forms of professional development which focus on teacher self-reflection and increasing teachers’ range of teaching practices.

2.3.4 Effective Teaching Strategies

The NSWQTM is a synthesis of general characteristics of pedagogy with any teaching strategy or instructional approach applied in ways to create high or low levels of Quality (Ladwig, 2005; Newmann & Associates, 1996a). However, in determining whether student-centred or teacher-centred modes of teaching are better at promoting Quality Teaching, the architects of Authentic Pedagogy do make connections between the constructivist perspective and 'authentic achievement' (Newmann & Associates, 1996a; Newmann, et al., 1996c). As teachers can use a variety of teaching strategies to facilitate student learning, these different approaches to teaching are reviewed.

Teaching can be described as being either teacher-centred or student-centred (Killen, 2003a, 2007). These two approaches differ in the way that the teacher organises the lesson, how much students are involved in the learning activities and how much control students have over their learning.

Teacher-centred approaches involve direct instruction or deductive teaching as the teacher directly controls all aspects of the learning process (P. Ayres, et al., 2004; Borich, 2003; Brophy, 1987; Brophy & Alleman, 1998; Brophy & Good, 1986; Englemann & Carnine, 1991; Killen, 2003a, 2007; Rosenshine, 1987, 1995). Student-centred approaches place greater emphasis on the student’s role in the learning process.

Teachers can use a variety of student-centred strategies including, discussion (Bridges, 1990; Brookfield, 1990, 1995; de Bono, 1985; Dillon, 1994; Killen, 2003a, 2007); small group work and cooperative learning (Curry, 1997; Ellis & Whalen, 1992; Good, Grouws, Mason, Slavings, & Cramer, 1990; Huber, 1998, 2003; Killen, 2003a, 2007; Michaelsen, Fink, & Knight, 1997; Vermette, 1995); Problem Based Learning (PBL) or problem solving (Ishida, 1997; Killen, 2003a, 2007; Mayo, Donnelly, Nash, & Schwartz, 1993; Shepardson, 1997; West, 1992; D. R. Woods, 1994); using a variety of student research strategies (Chapel, 1993; Cooper, Nuyen, & Buturo, 2003; Killen, 2003a, 2007; Lemley, 1994; March, 2003, 2006; Paynter, 1993; Peters, 1994; B. White & Frederiksen, 2000) and performance based activities including role plays (Alden,

While this body of literature is expansive, Killen’s (2003a, 2007) synthesis of these teaching strategies is an authoritative source and was used in the current study to describe classroom practices. These teaching practices and teachers’ use of them were useful in the current study in providing a glimpse into a classroom. The general features of these common teaching strategies are summarised in Table 2.4.

**Table 2.4 Effective Teaching Strategies**

<table>
<thead>
<tr>
<th>Teaching Strategy</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direction Instruction</td>
<td>Direction instruction is a teacher-centred approach to deliver academic content in a highly structured learning environment. In direct instruction, the teacher develops the instructional activities and controls the sequencing and pacing of the lesson. The teacher usually monitors student learning with specific and clear learning outcomes. The emphasis is usually on academic achievement.</td>
</tr>
<tr>
<td>Discussion</td>
<td>Discussion is an orderly process of face-to-face interactions in which people exchange ideas about an issue for the purpose of problem solving, answering a question, enhancing their knowledge or understanding, or making a decision. Discussion is a versatile teaching student-centred strategy that can be applied at various levels in all classrooms.</td>
</tr>
<tr>
<td>Group Work</td>
<td>Group work involves two or more students working together productively. While there are many variations to this strategy, a distinguishing feature is that students are working together without the direct intervention of the teacher. Group work can be viewed as a modification of whole school discussion or to conduct an experiment, or construct a model or a local history. However, simply grouping students in different parts of the room and having them work individually is not group work.</td>
</tr>
<tr>
<td>Co-operative learning</td>
<td>Co-operative learning is both an instructional technique and a teaching philosophy that encourages students to work together to maximise their own learning and the learning of their peers. There are a number of approaches including co-operative pairs, Student Team Learning (STL), Jigsaws (small groups have specific tasks to support whole group learning), Group Investigations, and Dyadic (pairs). There are two essential ingredients of co-operative learning: these include a co-operative task and a co-operative incentive structure. This means that students are deeply dependent on each other for the success of the learning.</td>
</tr>
<tr>
<td>Problem Solving</td>
<td>A problem can be defined as a situation in which some information is known and other information is needed. Problem solving or problem-based learning (PBL) can be considered as the process of applying existing knowledge to a new or unfamiliar situation in order to gain the new knowledge. Therefore, problem solving is a form of inquiry learning. However, it is important to distinguish between teaching problem solving and problem solving as a teaching strategy.</td>
</tr>
<tr>
<td>Research</td>
<td>Research involves a systematic process of gathering information, interpreting it and then, based on the findings, reaching some conclusions from the information. WebQuests are an example of how teachers can extend research beyond the traditional methods. As such, student research facilitates self-directed learning.</td>
</tr>
<tr>
<td>Performance Based Activities</td>
<td>Performance activities are those teaching strategies in which one or more students are required to ‘act’ a part. Performance activities may be very formal activities, such as a scripted play or free flowing as in a role play. These activities usually only involve a few ‘active’ participants with the remainder of the class being required to learn through observation. Various performance activities require students to have various skills and different levels of self-confidence.</td>
</tr>
</tbody>
</table>

(adapted from Killen, 2003a, 2007)
2.3.5 A Synthesis of Research Findings – Establishing Facets of Quality Teaching

This section provides a synthesis of the research from Sections 2.3.1, 2.3.2 and 2.3.3 that supports the first phase of the current study. The results and designs reviewed in the limited number of Australian and International studies undertaken using these models of pedagogy informed the research design and methodology and in the development of the research question.

Firstly, the literature reviewed indicated little evidence of the pedagogy described by each of these models in classrooms, regardless of the subject, grade level, teaching experience or level of teacher expertise. Studies involving the Authentic Pedagogy model reported that the characteristics of ‘authentic achievement’ were not found to any real extent (Avery, 1999a; Newmann & Associates, 1996a; Newmann, et al., 1996b; Newmann, et al., 1996c; Roelofs & Terwel, 1999). The research involving the Productive Pedagogy model (Gore, Griffiths, et al., 2004; QSRLS, 1999, 2001; Zevenbergen & Lerman, 2006, 2007) found that Intellectual Quality was not strongly emphasised in classrooms, including the Social Sciences. The SIPA researchers reported that the overall scores and scores in the HSIE KLA for each of the dimensions and elements of the NSWQTM were relatively low, in view of the possible range of scores (Gore & Ladwig, 2006a; Griffiths, et al., 2006a). Therefore, while Newmann & Associates (1996a) and Avery (1999a) reported that students who receive high levels of authentic instruction are more likely to demonstrate a higher level of authentic performance, achieving Quality Teaching as described by these models seemed a difficult task.

Secondly, the studies reviewed used different methodologies, data collection and measurement methods to gauge the quality of classroom instruction. The longitudinal studies (Gore & Ladwig, 2006a; Griffiths, et al., 2006a; Newmann & Associates, 1996a; Newmann, et al., 1996b; Newmann, et al., 1996c; QSRLS, 1999, 2001) measured the quality of instruction by collecting classroom observation data from the same class cohorts at single-points in time, by coding the quality of class assessment tasks presented by the teacher and by assessing the quality of students’ work. Avery (1999a) combined in-class observations and student performances on a common performance-based task. Other studies, including the Gore et al., (2004) cross-sectional study and the Zevenbergen & Lerman (2006, 2007) longitudinal study, collected classroom observation data from the same cohorts at single points-in-time. Other cross-sectional studies, including Roelofs and Terwel (1999) and J. B. Smith et al., (2001) assessed
the quality of classroom instruction using survey instruments. Some studies only coded class assessment practices (Newmann, Bryk, et al., 2001; Newmann, et al., 1998; J. B. Smith, et al., 2001) to determine the quality classroom instruction.

Thirdly, data collection was undertaken in the subject or Key Learning Areas (KLAs) of English, Mathematics, Science and Social Science or Social Studies. The SIPA study was the only study that has conducted lesson observations in HSIE classrooms in NSW public schools. There were no studies specifically focusing on Stage 4/5 History and Geography in NSW DEC schools.

Fourthly, some studies reported that while individual teachers and schools rated highly across the elements and constructs measuring the quality of instruction, there were other individual teachers and schools that rated substantially lower (Newmann & Associates, 1996a; QSRLS, 1999, 2001). Further, the QSRLS (2001) researchers reported that there were considerable statistical differences between individual teachers across the schools in the study, including teachers of Social Science. Clearly, there is a need to further explore teacher differences, both within and across schools.

Within the constraints of this limited research on classroom practice there was little exploration of why the individual teachers taught the way they did. Roelofs and Terwel (1999) for example, reported that school level variables such as flexible timetables, the large numbers of separate subjects and faculties, the lack of co-operation between faculties and extensive use of textbooks influenced teachers’ instructional decisions. Newmann and Associates (1996a) reported that Intellectual Quality was promoted by smaller more personalised school units, multi-year instructional groups, school wide curriculum themes and well defined linkages between the school, teachers, students and the community. The QSRLS (2001) researchers reported that low levels of external organisational support for professional learning, systemic and leadership constraints in schools and alignment issues between curriculum, pedagogy and assessment were factors influencing practice. The SIPA researchers, drawing on survey data, considered similarities and difference between professional learning in schools to determine relationships between professional learning and the quality of pedagogy (Gore & Ladwig, 2006a; Griffiths, et al., 2006a). Collectively, these findings suggest that the quality of classroom instruction may not necessarily be determined by single cause and effects, but by multiple causes (Mason, 2008a, 2008b). Consequently, a second qualitative phase of this study was implemented.
The literature reviewed for the second qualitative phase was developed in two stages. An initial review of the literature on things seen as influencing the quality of teaching was followed by a second review after the analysis of the classroom observation results and the analysis of the semi-structured interviews undertaken with the teacher participants. The literature concerning the second qualitative phase is reviewed in Sections 2.4 to 2.6.

2.4 Teacher Perceptions and Beliefs about Teaching

Understanding relationships between teacher beliefs and practice is an important aspect of ascertaining how and why teachers make decisions about classroom instructional practices. It seems probable that teachers’ thought processes or mental states strongly influence such things as how they view the nature of their subject matter, planning, classroom instruction and behaviour, the change processes and how teachers learn to teach (Aguirre & Speer, 2000; Brophy, 1989; Fang, 1996; Karaagac & Threlfall, 2004; M. M. Kennedy, 2004; Richardson, 1996; Sato & Kleinsasser, 2004; Schraw & Olafson, 2002; Stigler & Hiebert, 1999).

In Section 2.4.1 the numerous approaches, definitions, general agreements and conventions that help to understand teacher beliefs are discussed. Argyris and Schön’s (1974, 1978, 1996) notions of ‘theories-in-use’ and ‘espoused theory’ and the Clark and Peterson (1986) model of teacher ‘thought and actions’ provide theoretical frameworks to understand links between thought and practice. Importantly, questions then arise about alignment between what teachers do in the classroom (‘theories-in-use’) and what they say they are doing (‘espoused theory’). Therefore, in Section 2.4.2 research investigating alignment between teacher beliefs and practice is reviewed. In Section 2.4.3 relationships between beliefs and practice, epistemological beliefs and links to classroom instructional decision-making are explored.

2.4.1 Teacher Beliefs – Varying Approaches, Definitions and General Agreements

The literature reveals numerous approaches, definitions, general agreements and conventions in use to understand teacher beliefs. For this reason beliefs are, as Pajares (1992) contends, a ‘messy construct’ and difficult to define or elicit. These variations may be explained by the different agendas of the researchers and the studies.
Some of these definitions highlight relationships between what an individual believes to be true and the actions undertaken based on these beliefs (Dewey, 1933; Goodenough, 1963; Howard, McGee, Schwartz, & Purcell, 2000; Kang, 2007a, 2007b; Lam & Law, 2008; Pajares, 1992; Prawat, 1992; Richardson, 1996; Rokeach, 1968). For example, Rokeach (1968) defined beliefs as simple propositions, conscious or unconscious from what a person says or does. Pajares (1992) maintains that teachers’ attitudes about education, about schooling, teaching and learning are generally referred to as ‘teacher beliefs’. Others differentiate between ‘teacher beliefs’ and ‘teacher perspectives’ (Goodman, 1988; Janesick, 1979; Tabachnick & Zeicher, 1984). Goodman (1988), for example, suggests that ‘teacher perspective’ is more appropriate because two teachers may express similar beliefs about teaching and their work, but the image associated when espousing these beliefs may differ. Additionally, the notion of a ‘belief system’ has been promoted in the literature (Harvey, 1986; Rokeach, 1968; Therborn, 1980). For example, Harvey (1986) viewed a belief system as a “set of conceptual representations which signify to its holder a reality or given state of sufficient validity, truth and/or trustworthiness to warrant reliance upon it as a guide to personal thought and actions” (p. 660). In other words, while there are numerous understandings, there seems to be some agreement that multiple individual experiences influence the consistency or inconsistency of teacher beliefs.

Teachers’ beliefs may be based on their own life experiences as both a student and as a teacher (Nestor-Baker & Hoy, 2001; Richardson, 1996; van den Berg, 2002). In explaining these relationships, Richardson (1996) described three categories of experience as influencing teacher beliefs - personal experience, experience with schooling and instruction and experience with formal knowledge. Of importance to this study is personal experience. According to Richardson, personal experience includes aspects of life that form world-views; intellectual and virtuous dispositions and beliefs about one’s self in relation to others; and ones’ understanding of the relationship of schooling and society. Ethical and religious backgrounds and geographic, socioeconomic and gender variations are amongst the many things that may affect an individual teacher’s beliefs, which in turn affect classroom practice.

gained from practical experience as ‘tacit’ knowledge. According to the latter, tacit knowledge entails, among other things: knowledge of how to structure and represent academic content for direct teaching to students; knowledge of common conceptions, misconceptions and difficulties that students encounter when learning particular content and knowledge of the specific strategies that can be used to address students’ particular classroom situations. Further, a study undertaken by Lam and Law (2008) involving teacher interns (n=72) in Hong Kong, showed that pedagogical content knowledge is a better predictor of teaching performance than is pedagogical knowledge. In other words, the professional knowledge of teachers is primarily gained from practical experience.

In an attempt to understand the thought or cognitive processes of teachers and the relationship to classroom practice, Clark and Peterson (1986) formulated a model of teacher ‘thought and action’. This model had two major domains. The first domain emphasised the importance of a teacher’s unobservable thought processes, i.e. teacher cognition. The second domain described a teacher’s actions and the observable effects of those actions including teacher behaviour, student behaviour and student achievements. Clark and Peterson postulated from the research findings, that teacher beliefs and/or theories served as a ‘contextual filter’ through which the teachers screened their classroom experiences, interpreted them and adopted their subsequent classroom practices. These cycles are very complex. However, the theoretical schemas provided by Argyris and Schön (1974, 1978, 1996) give some guidance to an explanation.

Argyris and Schön (1974, 1978, 1996) viewed individuals as being part of learning systems. They argue from a cognitive perspective that, in learning systems such as schools, individuals construct ‘mental maps’ to explain reactions and to guide actions. These ‘mental maps’ are conceptualised as ‘theories-of-action’ and involve two guiding premises, theory and action. Firstly, implicit in the actions of an individual/s are ‘theories-in-use’. In the educational context, ‘theories-in-use’ are the observed actions of teachers in the classroom. Secondly, ‘espoused theory’ are the words an individual teacher or groups of teachers would use to convey to others what they are doing in the classroom or what they would like others to think they have done. Therefore, what teachers actually do in the classroom and what they say they are doing may be very different.
2.4.2 Alignment between Teacher Beliefs and Practice

Examining alignment between teachers’ ‘theories-in-use’ and ‘espoused theory’ is important in understanding classroom practice. In the literature some researchers have found teachers’ stated beliefs about teaching and learning to be consistent with classroom practice (Hashweh, 1996; Levitt, 2001; Richardson, et al., 1991; Thompson, 1984), while others have reported inconsistencies between teachers’ stated beliefs and their teaching practice (Olafson & Schraw, 2002; Raymond, 1997; Thompson, 1984; B. C. White, 2000; Wilcox-Herzog, 2002). These disparities are expected because individually, and as a society, we all espouse ideas that are more idealistic than the ideas that actually guide our everyday practice. Although comparing these studies was difficult due to the different theoretical frameworks and the different designs and methodologies used, key themes and issues relevant to understanding classroom practice emerged from them.

In science classrooms in Israel, Hashweh (1996) investigated the classroom effects of a group of teachers who held constructivist epistemological beliefs (student-centred) as opposed to a group of teachers who held more traditional and empiricist beliefs (teacher-centred). From the teachers’ survey results, constructivist teachers reported a greater number of single-type and multiple-type strategies and more frequent use of the more effective strategies when compared with the empiricists. After reviewing the results Hashweh concluded that the teachers’ beliefs in the study were stable, strongly influenced pedagogical practices and were consistent with each individual’s preferred ways of teaching.

In another study, Levitt (2001) using Clark and Peterson’s (1986) model of teacher ‘thoughts and actions’ (see Section 2.4.1) reported that teachers’ beliefs about teaching and learning were consistent with the philosophy underlying a new elementary Science education program introduced in two school districts in the United States. Importantly, the findings indicated that teacher beliefs interact in ongoing ways and that change in one brings about changes in others, with a need to address individual concerns if reforms are to be adopted fully into practice. Overall, Levitt found that conventional teacher professional learning had limited success when attempting to change teacher beliefs about practice and, as individuals, teachers change at their own pace.

Similar to Hashweh and Levitt, Richardson et al., (1991) reported relatively strong relationships between elementary school teachers’ stated beliefs about the reading process and their classroom practice (n=39). The researchers found that genuine
change only comes about when teachers think differently about what is going on in their classrooms. From the findings Richardson concluded that teachers need to be provided with professional development that matches their different ways of learning and that professional learning outside the classroom was unlikely to influence or change classroom practice.

To counter these studies, Wilcox-Herzog (2002) and B.C. White (2000) found that there was no relationship between teachers' beliefs and actions. B.C. White (2000), building on the previous work of Perry (1968), using King and Kitchener's (1994) delineation of epistemology found that pre-service teachers (n=20) from mid-western universities in the United States differed in epistemology and there appeared to be no relationship between a teacher's position in a school, whether pre-service or experienced and their epistemology in relation to schooling. The researchers also reported that the participants did not move from one category of epistemology to another in stage-like fashion and that epistemological beliefs appeared to be interconnected in a web. Similarly, Wilcox-Herzog (2002) in an early childhood study in the United States involving teachers (n=47) found that for this group of teachers there was no on-going relationship between teacher beliefs and actions. Raymond (1997) also reported that beginning Mathematics teachers' beliefs were not always consistent with their teaching practices. He found that while the teachers may have had non-traditional beliefs about how they should teach, when faced with the constraints of actual classroom teaching, they tended to implement more traditional practices. Raymond concluded that early and continued reflection about mathematics beliefs about practice was the key to improving the quality of classroom instruction. Continued reflection about beliefs also minimised inconsistency between beliefs and practice. Collectively, these findings indicate that teachers may not necessarily professionally develop in stages, as stage theorists such as Berliner (1994) and Dreyfus and Dreyfus (1986) suggest, as teacher learning in these studies was a very complex process.

Collectively, these findings suggest that relationships between teachers' beliefs, epistemologically or otherwise and practice are interactive and ongoing. There are occasions where the practices of teachers are consistent with beliefs, espoused or otherwise and there are other occasions where inconsistencies occur. Furthermore, teachers' beliefs do not change quickly or easily and conventional forms of professional learning were seen as less likely to bring about changes in beliefs and, therefore, classroom instructional practices. Importantly, then, if beliefs drive actions, changes in
beliefs are only likely to take place when teachers can see their actions improving student learning outcomes (Guskey, 1986; Richardson, 1996).

2.4.3 The Notion of Epistemology and Links to Conceptions of Teaching

Understanding the relationships between epistemological beliefs and instructional practices may help explain why teachers adopt certain classroom pedagogical practices compared to others. The notion of epistemology according to Hofer (2002) is “concerned with the origin, nature, limits, methods and justification of human knowledge” (p. 4). Therefore, epistemology used in its broadest sense, refers to a theory of knowledge and understanding (Hofer & Pintrich, 2002; Lehrer, 1990; Pollock, 1986; Stone, 2008). On the other hand, epistemological belief refers to a specific belief or understanding about knowledge that is part of this broader epistemology or belief (Olafson & Schraw, 2002). Further, epistemological beliefs about knowledge, curriculum, pedagogy, assessment, reality and truth can lead to differing views of the role of teachers and for that matter, most other aspects of teaching including classroom pedagogy.

In understanding epistemological beliefs Schommer's (1990, 1993a, 1993b, 1994) seminal research and Schommer, Crouse and Rhode's (1992) research into student personal epistemological beliefs identified five independent dimensions. These five dimensions were: certain knowledge (absolute knowledge exists and will eventually be known), simple knowledge (knowledge that consists of discrete facts), omniscient authority (authorities have access to otherwise inaccessible knowledge), quick learning (learning occurs in a quick or not-at-all fashion) and innate ability (the ability to acquire knowledge is endowed at birth). These dimensions can be viewed from two epistemological perspectives; naive and sophisticated. Accordingly, Schommer (Schommer, 1990, 1993a, 1993b, 1994) would argue that a teacher who holds naive epistemological orientations believes that knowledge is simple, clear, unchanging and resides in authorities. These teachers believe concepts are learned quickly or not at all. Alternatively, Schommer argued that a teacher who holds sophisticated epistemological orientations believes that knowledge is complex and uncertain and is constructed by the learner gradually through reasoning processes. Importantly in understanding classroom instruction these different epistemological outlooks of individual teachers can result in very different teaching styles (Chan & Elliott, 2004; Cunningham & Fitzgerald, 1996; Kang, 2007a, 2007b; Kang & Wallace, 2004).
Chan and Elliott (2004) found causal relationships in exploring links between naive and sophisticated epistemological orientations and certain modes of teaching and learning conducted with Hong Kong student teachers in education (n=385). The researchers reported that naive epistemologies seemed to be linked to more traditional/transmissive modes of learning involving strategies such as skill worksheets and activities sheets to transmit knowledge to learners with tests focusing on specific expected outcomes. On the other hand, sophisticated epistemologies seemed to be associated with more constructivist modes of learning. In these classrooms, teachers believe that humans constructed knowledge by participating in certain experiences, that learning happens when one constructs both mechanisms for learning and his or her own unique version of the knowledge, coloured by background, experiences and aptitudes (Cobb, 1994; Dalke, Cassidy, Grobstein, & Blank, 2007; Howard, et al., 2000; Newmann, et al., 1996b; Phillips, 1995; Prawat, 1992; E. Smith, 1995; Windschitl, 2002). Further, in understanding science teachers’ epistemological beliefs Kang and Wallace (2004) reported that the teacher’s naive epistemological beliefs were clearly reflected in their teaching practices. However, the teacher’s sophisticated epistemological beliefs were not always clearly connected to practice. In some instances the two conceptions were intermingled in classroom instruction. While the findings from these studies illustrate the complexity of practice, they also raise questions about the value of discussions around the dichotomy between traditional and constructivist conceptions suggested in the literature.

In examining relationships between teacher beliefs and classroom practice Olafson and Schraw (2002, 2006) and Schraw and Olafson (2002) described a multi-disciplinary perspective involving three epistemological world-views. The three epistemological world views are realist, contextualist and relativist. Olafson and Schraw describe these epistemological world views as a set of beliefs about knowledge and knowledge acquisition that influences the way teachers think and make important instructional decisions. Further, the researchers reported in their findings that each epistemological world view can lead to different choices about curriculum, pedagogy and assessment. Table 2.5 summarises the type of knowledge that characterises each of the world-views and professed links to conceptions of teaching.
Table 2.5  Epistemological World-views and Links to Teaching Styles

<table>
<thead>
<tr>
<th>Realist</th>
<th>Contextualist</th>
<th>Relativist</th>
</tr>
</thead>
<tbody>
<tr>
<td>-There is an objective body of knowledge that is best acquired through experts via transmission;</td>
<td>-Knowledge has authentic applications to the context that it is learned in;</td>
<td>-Knowledge is subjective and highly changeable;</td>
</tr>
<tr>
<td>-Knowledge is relatively unchanging;</td>
<td>-Knowledge changes over time;</td>
<td>-Each learner constructs a unique knowledge base that is different but equal to other learners.</td>
</tr>
<tr>
<td>-Students are passive recipients of a pre-established knowledge base.</td>
<td>-Learners construct shared understanding in collaborative contexts in which teachers serve as facilitators.</td>
<td></td>
</tr>
</tbody>
</table>

(source: Olafson & Schraw, 2006, p. 73)

The research undertaken by Olafson and Schraw (2002, 2006) examined the relationship between beliefs, teaching practices, discrepancies between the three epistemological world views and teaching practices. The study involved 24 teachers with one to 15 years teaching experience from a large urban community in the southwest of the United States. Data collection involved pencil and paper surveys/questionnaires with no classroom observations undertaken.

In the findings the researchers reported relationships between teacher beliefs and practice. Firstly, discrepancies were found between what the teachers said (‘espoused theory’) and what they did (‘theories-in-use’). That is, while some teachers espoused a belief in student-centred (contextualist or relativist) approaches, they frequently opted for teacher-centred, transmissive instructional practices (realist). The researchers suggested that this inconsistency may have occurred because many of the instructional practices used by the teachers were specifically designed to discourage student misbehaviour.

Secondly, many of the teachers in the study were unaware of their beliefs or how their beliefs affected teaching practice. Further, the teachers endorsed a variety of individual epistemological beliefs and were not completely aware of the overarching philosophy of any epistemological world-views. This lack of knowledge about epistemological world-views was linked to the level of teacher experience and the influences of external constraints over which teachers had little or no control. The researchers concluded that as a consequence, some teachers may not feel able to implement classroom practices that were consistent with their beliefs.

Finally, the researchers reported that the epistemological views of the teachers in the study did not substantially differ from the realist, contextualist and relativist world views. Also, the decisions by teachers about which instructional approaches or teaching styles they utilised in their classroom were linked to these different epistemological world views.
2.4.4 A Synthesis of Research Findings

The literature reviewed in Section 2.4.1 established that a teacher’s thoughts and beliefs play an important role in knowledge acquisition, theories about student learning, theories of student motivation, beliefs about the teacher’s role and responsibilities and beliefs about the nature of subject matter (Dewey, 1933; Goodenough, 1963; Goodman, 1988; Harvey, 1986; Pajares, 1992; Prawat, 1992; Rokeach, 1968; Tabachnick & Zeichner, 1984). However, in exploring relationships between beliefs and practice in Section 2.4.2 some researchers reported that teacher stated beliefs or ‘espoused theory’ about teaching and learning to be consistent with classroom practice or ‘theories-in-use’ (Hashweh, 1996; Levitt, 2001; Richardson, et al., 1991; Thompson, 1984), while others reported inconsistencies (Olafson & Schraw, 2002; Raymond, 1997; Thompson, 1984; B. C. White, 2000; Wilcox-Herzog, 2002). Therefore, teacher perceptions and beliefs are important in understanding decisions about classroom instructional practices, whether they support practice or not.

The research literature reviewed in Section 2.4.3 indicated that teachers’ instructional approaches or teaching styles were associated with the different epistemological positions. For example, Chan and Elliott (2004) and Kang and Wallace (2004) in researching relationships between teacher beliefs and practice found that the different epistemological orientations described by Schommer (1990, 1993a, 1993b, 1994) lead to very different modes of teaching and learning in classrooms. Similarly, Olafson and Schraw (2002, 2006) reported that decisions by teachers about which instructional approaches or teaching styles they utilised in classrooms were linked to realist, contextualist and relativist world views and that most teachers were not completely aware of their beliefs or how they impacted on their instructional decisions.

Additionally, the research literature indicated that teacher beliefs were difficult to change (Levitt, 2001; Olafson & Schraw, 2002, 2006; Richardson, et al., 1991; B. C. White, 2000). If improvement in teaching requires changing teacher beliefs, then effective professional learning with the aim of improving professional practice is necessary. Effective professional learning is seen as continual, information-rich and socially constructed in communities of practice (Falk, 2007; Lave & Wenger, 1991; Wenger, 1998) to engage teachers in collaborative problem solving and in the pedagogy of investigation (D. K. Cohen & Ball, 1999; McLaughlin & Talbert, 2006). Therefore, to improve professional practice understanding teacher professional learning and relationships to classroom practice is important. Section 2.5 reviews literature on teacher professional development, learning and change.
2.5 Teacher Professional Development

This section reviews the research literature on teacher professional development, learning and change. However, in Section 2.4.2 the research indicated that when innovations are introduced into schools, teacher beliefs about what works best for them and their students are difficult to change (Levitt, 2001; Olafson & Schraw, 2002, 2006; Richardson, et al., 1991; B. C. White, 2000). Therefore, if improvement in teaching outcomes requires changing teacher beliefs, or at the very least helping teachers recognise their beliefs about good teaching, then more holistic professional learning with the aim of improving professional practice is necessary.

The research base involving teacher professional learning is large. In most of the research literature teacher professional development and learning is defined and assessed by different types of teacher engagement, for example, attendance at workshops or teacher change, such as change in knowledge or classroom practice (P. Ayres, et al., 2004; Coffield, 2000; Fraser, et al., 2007; A. Friedman & Philips, 2004; Fullan, 2006; Gore, Ladwig, & King, 2004; Hoban, 2002; Hunter & Beveridge, 2002). Other studies have focused on linkages between teacher professional development and student achievement with limited research attempting to establish connections between teacher professional learning and improved teaching practice (Fishman, Marx, Best, & Tal, 2003; Garet, Porter, Desimone, Birman, & Yoon, 2001; Gore, Ladwig, Amosa, Griffiths, et al., 2008; Loucks-Horsley & Matsumoto, 1999). Organising this research was challenging, as the research base is complicated by a ‘conceptual vagueness’ with many different approaches, understandings and contested concepts (Fraser, 2007; Coffield, 2000). Given these challenges, any review of the research literature relating to teacher professional learning requires an organising framework.

While there are numerous definitions in the research literature, it was decided to locate teacher professional learning within the more general concept of ‘teacher change’ (Chin & Benne, 1976; D. Clarke & Hollingsworth, 2002; Guskey, 1986; Knight, 2002; Richardson & Placier, 2001). In the current study ‘teacher change’ may be understood as a manifestation of particular change strategies described by Chin and Benne (1976). Strategies for planned change described by Chin and Benne include empirical-rational, normative-re-educative and power-coercive forms.

The empirical-rationalists use the processes of education and the dissemination of information in order to put pressure on people to change. In education, empirical–rational change strategies are concerned mainly with fostering conventional knowledge
transfer processes through traditional professional learning, such as workshops. Conversely, normative–re-educative change strategies involve ongoing professional learning activities that enable teachers to exercise more autonomy through cultivating their own professional growth (Richardson & Placier, 2001). Therefore, the direction of change comes from those involved in the process of change. Power-coercive strategies involve political and economic mechanisms to promote change. For example, government funding grants may have a coercive influence by putting pressure on schools to implement new programmes, even if they do not support them fully. This third strategy was not addressed in the present study. It is often seen as counter-productive to change, rarely reviewed or written about in the educational literature on professional development (Richardson & Placier, 2001; Warrican, 2006) and was not referred to by the teachers in the present study. It could however be seen as a hidden influence on events in the classroom but not able to be ascertained by the current research study. Therefore, because of the relevance to issues of educational change, and in understanding the complexity of professional learning, Chin and Benne’s (1976) schema for planned change, involving empirical-rational and normative-re-educative approaches provides a functional and conceptual structure to guide the research literature reviewed in Sections 2.5.1 and 2.5.2.

Importantly, within both the empirical-rational and normative-re-educative approaches, Chin and Benne (1976) recognised that feelings and emotions at the personal level may affect an initiative’s success. In supporting this understanding, van den Berg, (2002) has shown that implementation of initiatives in both teaching and learning is strongly influenced by the needs, concerns and emotions of teachers. The research of Fuller (1969), Hall and Loucks (1977) and Van der Vegt, Smyth and Vandenberghe (2001) collectively focused on teacher concerns. For example, Fuller’s (1969) Concern Based Adoption Model (CBAM) proposed that teachers pass through three linear stages of concerns. It would appear from this research that teachers have personal or self-concerns, task concerns and impact concerns when initiatives are introduced (van den Berg, 2002). In the current study, teachers may have personal or self-concern or react instinctively as feeling unable to fulfil the demands to effect change, especially when being asked to develop classroom pedagogy involving the NSWQTM.

Embodied within the notion of teacher concerns are the notions of teacher self- and collective efficacy. In social cognition theory, self-efficacy is a belief in one’s capabilities to organise and execute the courses of action required to produce given attainments
(Bandura, 1997; Ross & Gray, 2006). Further, research has established the existence of strong connections between teacher efficacy and teacher behaviours (Ross, 1995).

Ross (1995) reported that teachers with high levels of self-efficacy tend to impose higher standards on themselves, set higher goals and use more challenging teaching methods in their classrooms. Teachers with low levels of efficacy have low levels of motivation and are more prone to stress and often avoid new pedagogical practices and react defensively to new ideas and theories (Bandura, 2000; Goddard, Hoy, & Woolfolk Hoy, 2000). On the other hand, collective efficacy targets the beliefs of the organisation to which an individual belongs, that is the perceptions of teachers that the efforts of the faculty or the school provide the necessary support to effect change (Bandura, 2000; Goddard, et al., 2000). Therefore, as van den Berg (2002) claims, teacher professional learning is only possible if a teacher’s own professional identity is not at issue and so the models addressed above must take this into account. If teachers do not believe in themselves, or their ability to cope with change, then the chance of long-term improvement in pedagogical practice suggested by the NSWQTM is reduced.

2.5.1 The Empirical-rational Approach - Traditional Strategies Promoting Teacher Professional Learning and Change

In implementing Chin and Benne’s (1976) empirical-rational strategy, some person or group proposes a change which they believe is desirable, effective and is in line with the self-interest of those in the organisation to be affected by the change. In the educational context, it could be educational policy makers from outside the classroom determining the processes, methods, behaviours or techniques that they believe are worthy of replication by teachers in classrooms (Richardson & Placier, 2001). In this way, according to Warrican (2006), the empirical-rational approach utilises power to disseminate information from ‘those who know’ to ‘those who do not know’, and by doing so, puts pressure on those people toward whom the professional learning is directed, to change. The assumption is that people will follow their own self-interest once they understand what is needed to be done and introduce changes into practice.

Embodied within the empirical-rational strategy are a number of common approaches involving the training or traditional model and the deficit model and cascade model. The following analysis involves a consideration of the circumstances in which each of these professional learning models may be adopted and the form(s) of knowledge developed.
The training or traditional model is universally recognisable in the literature and has arguably been the most dominant form of professional learning for teachers in recent years (Fraser, et al., 2007; Kelly & McDiarmid, 2002; A. Kennedy, 2005; Little, 1994; Richardson & Placier, 2001; Zeichner, 2003). This model supports a skills-based view that provides teachers with opportunities to update skills and knowledge they do not have in order to be able to demonstrate competence. The transmission of skills and knowledge to teachers usually involves attending one-off workshops, special courses, or in-service days conducted inside schools delivered by an expert or by outside providers such as district personnel (D. Clarke & Hollingsworth, 2002; Elmore, 2002; Hoban, 2002; A. Lieberman, 1999; Stein, Smith, & Silver, 1999; Stoll, 1998, 1999). In most instances it is the content or knowledge learnt that is seen as the important in determining the nature and quality of the professional learning (D. K. Cohen & Ball, 1999; Guskey & Sparks, 1996; Huffman, Thomas, & Lawrenz, 2003; Loucks-Horsley & Matsumoto, 1999). However, studies in Australia and Internationally have found that non-expert driven, non-purposeful one-day events or one-off models of professional learning are less preferred learning activities as they do not allow for the same degree of teacher autonomy and reflection (Ancess, 2000; Darling-Hammond & McLaughlin, 1995; Elmore, 2002; Fraser, et al., 2007; Hartas, Lindsay, Arweck, & Cullen, 2009; Hoban, 2002; Hunter & Beveridge, 2002; M. B. King, 2002; M. B. King & Newmann, 2000; A. Lieberman, 1995; McRae, et al., 2001; Newmann, et al., 2000; Richardson, 1994; Richardson, 1994a; Wilson & Berne, 1999).

The deficit model addresses a perceived deficit in teacher performance and is set within the context of performance management (A. Kennedy, 2005; Rhodes & Beneicke, 2003). Rhodes and Beneicke (2003) viewed this approach as a means for an educational provider, whether a government or management board, to raise the standards of teaching or an element of intervention to exact greater efficiency, effectiveness and accountability to redress the individual failings of teachers. The effectiveness of such deficit model in supporting teacher professional learning is very much dependent on the organisational and management practices of educational leaders within and across schools (Boreham, 2004; Rhodes & Beneicke, 2002, 2003).

When a teacher or a group of teachers return from a training event they may be required to disseminate or cascade new information to colleagues (A. Kennedy, 2005). The cascade approach is of benefit where resources are limited and there is a need for a high degree of central control focusing on coherence and standardising teaching and learning (A. Kennedy, 2005; Solomon & Tresman, 1999). While the cascade approach
supports individual learning, in many instances there is no detailed consideration given to the very principles of participation, collaboration or ownership. This reduces the ability of teachers to be proactive in identifying and meeting their own learning needs, a central part of teacher learning (Day, 1999).

Together the training, deficit and cascade models suggest that an accumulation of skills and knowledge in a linear, step-by-step manner over time is required for teachers to become skilled professionals (Richardson & Placier, 2001). Such teacher skill acquisition can be described from a stage theory perspective. Berliner (1994) and Dreyfus and Dreyfus (1986) described teacher skill acquisition as progressing through five stages of development along a continuum; a novice, advanced beginner, competent, proficient and expert stage. Higher stages represented higher levels of knowledge and skills acquisition. Importantly, there is acknowledgment that some teachers can move more quickly through these stages, while some may even become fixed in one stage (e.g., advanced beginner) and never be able to move to the expert level. Therefore, skill acquisition is not necessarily based on years of teaching or experience alone. Understanding stage theory is important when understanding differences amongst teachers, their practices and their attitudes to change and professional learning.

Teacher professional learning supported by stage theory often sees teachers’ skill and knowledge development as separated from practice (Berliner, 1994; Dreyfus & Dreyfus, 1986). However, skill acquisition is not context-free but context-dependent and such a static view of professional learning rarely gives teachers the opportunity to apply and explore new knowledge in more dynamic situations – that is, to experiment with initiatives in actual classroom settings (Dall'Alba & Sandberg, 2006). Importantly, according to Feiman-Nemser & Remillard (1996), focusing teacher change on the presentation of independent skills and knowledge in isolation from teaching context tends to reinforce existing practices. This isolation encourages teachers to see their world in terms of instrumental ends through recipes of “tried and true practices” (Dall'Alba & Sandburg, 2006, p. 385).

According to Hoban (2002), there are a number of organisational reasons for the dominance of the traditional training model workshop approach to teacher professional learning over the years. Firstly, the workshop approach provides opportunities for large numbers of teachers from different schools or teachers from different faculties within schools to interact with each other. Secondly, professional learning undertaken with large groups of teachers is a relatively cost effective method on both teachers’ time and
on the professional development budgets of schools. It seems that time and funding issues are important factors in determining the approach educators use to support teacher learning and the change agenda. However, as M.B. King (2002) points out, if teacher professional learning only focuses on the individual learning through workshops or courses that make no provision for follow-up and long-term feedback, the likelihood of gains in student learning is diminished.

The nature of professional learning and the school as an organisation can influence the way teachers teach. Conceptually, empirical-rational strategies have been linked to the way teachers view their teaching and learning. According to Stein et al., (1999) the ‘traditional training model’ approach is designed to support a behaviourist paradigm of teaching and learning in which the student’s role consists of memorising straightforward facts and skills and the teacher’s role consists of demonstrating procedures, assigning tasks and assessing students. In trying to make links, Rosenshine and Stevens (1986) and Crockett (2007) viewed such professional learning as promoting teaching that entails:

1. Reviewing and checking the previous day’s work (and re-teach, if necessary)
2. Present new content/skills
3. Guided student practice (and check for understanding)
4. Provide feedback and correctives (and re-teach, if necessary)
5. Independent student practice
6. Weekly and monthly reviews of work covered.

The traditional training model approach has also been associated with a ‘craft’ or ‘labour’ view of teaching described by Wise, Darling-Hammond, McLaughlin and Bernstein (1985). As a craft, teaching is viewed as a collection of skills that have been built up over a period-of-time. In a craft view of teaching, general rules for specific techniques are developed and proper use of these rules combined with knowledge of the techniques is expected to produce the desired learning outcomes. From a labour view, teaching is a set of goals, lesson plans and skills designed by the teacher in isolation and mastered by students over a period-of-time. Therefore, when teaching is viewed as a ‘craft’ or ‘labour’ it is logical to assume that teacher learning would be facilitated by attending workshops (Hoban, 2002).

In summary, empirical-rational strategies are mainly concerned with fostering a conventional transfer process through one-off workshops or conferences conducted either inside or outside school. These conventional transfer processes were seen to
isolate teachers in classrooms and tended to promote more routine and teacher-centred instructional practices (Crockett, 2007; Feiman-Nemser & Remillard, 1996; Rosenshine & Stevens, 1986; Stein, et al., 1999). The traditional paradigm of professional learning attempts to change teachers’ beliefs about practice first, in the hope that changes in classroom instructional practices will follow (D. Clarke & Hollingsworth, 2002; Guskey, 1986; Knight, 2002). Therefore, it would seem that the empirical-rational strategies would have difficulties in addressing the complexity of practice to assist teachers to implement the high quality pedagogy described by the NSWQTM.

2.5.2 **Normative Re-educative Approach – Collaborative, Socio-cultural Strategies Promoting Teacher Professional Learning and Change**

This section of the literature review develops an understanding of the professional learning experiences purported to support teachers to implement the NSWQTM pedagogy. This effective professional learning is located within Chin and Benne (1976) normative-re-educative strategies. These normative-re-educative strategies are situated within the more phenomenological and hermeneutic approaches to understanding how individuals make sense of and contribute to the situations in which they live and work (Richardson & Placier, 2001; Warrican, 2006). Within the literature there are numerous normative-re-educative strategies designed to promote the professional autonomy of teachers.

Strategies seen better at creating professional autonomy to connect theory and practice to support the implementation of NSWQTM into classroom practice form around Communities of Practice (CP). Communities of Practice involve a socio-cultural perspective of professional learning (Cole & Engestrom, 1993; Engestrom, 1987; Lave, 1991; Lave & Wenger, 1991; Leont’ev, 1978; Louis, Kruse, & Marks, 1996b; Louis, Marks, & Kruse, 1996a; Putnam & Borko, 2000). Within a Community of Practice, networking (Hargreaves, 2003; O’Brien, Burton, Campbell, Qualter, & Varga-Atkins, 2006; Trotman, 2009; Varga-Atkins, Qualter, & O’Brien, 2009) and teaming (Cardno, 2002; Giroux, 1992; A. Lieberman & Miller, 2005; Supovitz, 2002) are common strategies. Teacher reflection and reflective dialogue (Dewey, 1933; Grushka, Hinde-McLeod, & Reynolds, 2005; Killen, 2003b; Leonard & Leonard, 2003; Ottesen, 2007; Rarieya, 2005; Schon, 1983; Song & Catapano, 2008; Tan, 2008; van Manen, 1977, 1991, 1995) are tools for connecting experience and theory and for increasing professional autonomy, especially for the more experienced teachers. Other normative-
re-educative strategies reviewed that were seen as important included action research (Carr & Kemmis, 1986; Carr & Kemmis, 1997; Day, 1999; Fazio & Melville, 2008; Kemmis & Wilkinson, 1998; Lewin, 1959) and peer coaching/mentoring models (Clutterbuck, 1991; A. Kennedy, 2005; Rhodes & Beneicke, 2002). These strategies are reviewed in the depth needed to gain an understanding of how each promotes the professional autonomy of teachers.

1) Communities of Practice – A Socio-cultural Perspective of Professional Learning

To understand teacher professional learning we must take into account teachers as individual learners as well as the social systems in which they participate (Hoban, 2002; Putnam & Borko, 2000). Socio-cultural theory provides a useful framework for analysing professional development. Fundamental to socio-cultural theory are ideas about human action (Lantolf, 1999). Socio-cultural theory recognises that within a community, learning happens as a result of that community and its interactions and not merely as a result of planned learning episodes (Wenger, 1998). Therefore, the focus is not just on individual teachers' professional learning, but on collective professional learning situated within the community context (Stoll, Bolam, McMahon, Wallace, & Thomas, 2006). Of particular interest to this study is the type of socio-cultural learning advocated in the Community of Practice model (Lave & Wenger, 1991; Wenger, 1998; Wenger, McDermott, & Snyder, 2002).

The notion of a Community of Practice (CP) was first popularised by Lave and Wenger (1991) and further developed by Wenger (1998) and Wenger et al., (2002) formed the basis of a significant rethinking of learning theory and thereupon how professional development can be enhanced in schools. A Community of Practice has three fundamental elements: the ‘domain of knowledge’, ‘the notion of community’ and ‘shared practice’. The ‘domain of knowledge’ supports a common foundation that legitimises the community’s purpose and provides boundaries to enable members to decide what is actually worth sharing, how to present and value their ideas and which activities to pursue to inspire members (teachers) to become involved. The notion of a ‘community’ is a key factor in creating the “social fabric for learning” (Wenger et al., 2002, p. 28) to foster learning based on mutual trust and respect. The third aspect, ‘shared practice’ is the “set of frameworks, ideas, tools, information, styles, language, stories and documents that community members share” (Wenger et al., 2002, p. 29). In education, these can be agreed ways and methods of teaching, such as direct instruction or constructivist approaches, the curriculum and methods of assessment, or strategies to
support students to manage behaviour. Importantly, all of these elements need to be working together if a community of practice is to exist.

Communities of Practice are potentially important in this study because they form the basis of an AGQTP or Australian Government Quality Teaching Project (Commonwealth of Australia, 2000, 2003, 2005). Two of the five schools (Mountain View High School and Blue Ridge High School) involved in the present investigation also participated in the AGQTP.

In education, Communities of Practice can be either formal or informal (Little, 1990). Formal communities include networks, school faculty department, teacher design teams, work teams or committees; grade-level teaching team, a school committee, an entire school district, a state department of education or a professional organisation. Examples of informal communities include informal networks, informally constituted cliques, factions and in-groups and out-groups. Networking, Teacher Design Teams (TDT), Project Teams and Faculty departments as Communities of Practice are now discussed in the depth necessary.

- Networking

Networking, as an organisational form allows collaboration to flourish within schools and across traditional school boundaries (O’Brien, et al., 2006; Trotman, 2009). Typically between schools, networking involves teachers and executives negotiating and agreeing to network priorities for professional learning and to facilitate associated learning activities. Examples of activities could include subject or KLA coordinators’ meetings, mentoring/coaching sessions, leadership courses, network days, joint visits to network schools, identifying experts within a network to facilitate the sharing of practice, or different professionals or groups of professionals working within schools on a more individual basis (Varga-Atkins, et al., 2009).

Networking within schools has the ability to form collegial ties between high school departments and to provide a structural base for the collective understanding of teaching, which in turn, should provide the opportunity to ground individual teachers judgment in sound pedagogical practices (Bidwell & Yasumoto, 1999). In this way, networks can support the creation of discourse communities to foster a belief that all teachers could benefit from such new relationships. With the creation of such discourse communities, the culture of schools can change, as such interactions can become part of everyday practice if they persist for long enough (Bidwell, 2001; Bidwell & Yasumoto,
1999; Borko, 2004; Borko, Elliott, & Uchiyama, 2002; Grossman, Wineburg, & Woolworth, 2001; O'Brien, et al., 2006; O'Brien, Varga-Atkins, Burton, Campbell, & Qualter, 2008; Putnam & Borko, 2000). Therefore, networking has enormous potential benefits as it is able to increase the pool of ideas on which teachers can draw as one idea or practice is transferred between faculties or schools to extend and enlarge the community of practice (Hargreaves, 2003).

- **Teacher design teams (TDT) and project teams**

According to organisational theorists (Argyris & Schon, 1978, 1996; Deming, 1986; Senge, 1990; Supovitz, 2002) teaming approaches allow people in an organisation to continually expand their capacity, to create the results they truly desire and to facilitate the necessary feedback for on-going improvement and learning. Therefore, in the educational context, team based learning has the potential to bridge the gap between individual, isolated learning and collective learning to improve school culture and enhance the instructional practices of groups of teachers (Cardno, 2002; Supovitz, 2002).

The theoretical basis for the formation of Teacher Design Teams lies in the findings of researchers including Giroux (1992) and Lieberman and Miller (2005) who view teaching as a complex intellectual activity. In schools, teacher design teams (TDT) provide opportunities for groups of teachers, both within faculty departments and across the whole school to consider the teaching of their subject and the intellectual stimulus of working together (Mooney Simmie, 2007). Also, the principal may want to create a team to complete a specific project. In this situation the members are selected on the basis of their ability to contribute to the collective goals of the school (Senge, 1990). When the task is completed the project team is disbanded. The effectiveness of teaming approaches is highlighted in a project undertaken by Avery, Freeman and Carmichael-Tanaka (2002) and the Minneapolis school district in the United States. The project involved a strong collaborative effort between the schools involved and a University partner. Professional learning involved peer coaching of school teams to promote 'authentic achievement'. The researchers reported that the teachers involved were more motivated, felt more involved in the decision-making and the change process resulting in improved instructional practices that influenced school culture.

However, while team-based learning in schools seems common, effective implementation is a much more complex enterprise than those who developed the notions envisaged (O'Neil, 1995). According to the research, the ability of teams to
operate effectively in schools has been restricted by traditional organisational and hierarchical structures that have governed learning in schools for many years (Callan, 2006; V. Friedman, 1997; Supovitz, 2002). A lack of organisational support, inadequate or poorly scheduled planning time and role conflicts have all been identified as reducing the effectiveness of team based learning in schools.

- **Faculty departments as pedagogical consensual subgroups**

The organisation of teachers into faculty departments (KLAs), subject teams, year or stage grouping can serve as communities of practice (J. Lieberman, 2009). At the secondary school level, faculty teams are seen as an integral part of the framework for problem solving and social networking to either support change or to stabilise pedagogical values and norms (Bidwell, 1965, 2001; Bidwell & Yasumoto, 1999; Johnson, 1990; J. Lieberman, 2009; McLaughlin & Talbert, 2001; Park & Burgess, 1921; Siskin, 1994; Talbert & McLaughlin, 1994; Yasumoto, Uekawa, & Bidwell, 2001). In understanding the process through which a social group is able to consider and affect the ends of a collective activity Bidwell’s and Yasumoto’s (1999) and Yasumoto, et al., (2001) understandings of ‘social control’ is useful.

Teachers in faculties in secondary schools form ‘social ties’. According to Yasumoto, et al., (2001) ‘social ties’ are supported by social interactions to create ‘pedagogical consensual subgroups’ as a result of the sheer amount of time teachers need to work together around similar curriculum themes and discipline specific pedagogy. Specifically, interpersonal ties support channels of communication that are mediums for interpersonal influence. The denser and stronger the ties are in a faculty the greater its power to induce members to adopt preferred lines of classroom action and the greater the aggregate potency of sanctions that members can apply to one another’s instructional performance. Therefore, the instructional practices of teachers tend to converge on normatively preferred teaching objectives and methods as a function of the cohesiveness within the pedagogical consensual subgroups and faculty networks (Bidwell & Yasumoto, 1999).

Further, the ‘domain of knowledge’ can provide boundaries because it legitimises a faculty’s purpose, direction and value and so is ideally situated to inspire members to become involved, to participate and to guide their own professional learning (Wenger, 1998; Wenger, et al., 2002). From this perspective Siskin (1994) describes high school departments as occupationally ‘ethnocentric’ social worlds. In these social worlds, subject knowledge and skills that are common to each faculty support and reinforce a
culture and perception of a teacher’s work to create common approaches to work activities and pedagogical practices.

In summary, it would seem that in many schools the existing cultures in discourse communities have not traditionally supported critical examination of classroom practice (Putnam & Borko, 2000). This has occurred because of the effect of faculty based paradigms and subcultures fragmenting, both individual and collective learning to reinforce traditional cultural norms that promote, or more likely, significantly impede teacher professional learning. Therefore, there needs to be an increasing focus on the relationships between the faculty as a workplace and the nature of the teaching for changes in classroom practice to occur (Bidwell, 2001).

2) Communities of Practice - Teacher Participation

In the development of effective professional learning, active teacher participation in Communities of Practice such as networks, project teams, TDT and in faculty departments, while difficult, is desirable. Participation in these Communities of Practice is both personal and social and incorporates doing, talking, thinking, feeling and belonging but involvement can be at different levels (Wenger, 1998).

Lave and Wenger (1991) described different levels of participation. Firstly, at the centre there is a core group participating in the dialogue. Secondly, when people initially join a community their participation usually occurs at the periphery as they have limited knowledge. Over time, some of these members may choose to sit and observe from the periphery while some choose to move into the core group as they become more competent. In education, there can be many reasons why teachers, as groups or individuals, remain at the periphery and rarely engage in the work life of the community.

Even when professional learning is supportive of teacher participation, teachers at various times can be in agreement or in opposition over basic educational matters including classroom pedagogy (Grossman, et al., 2001; Hartnell-Young, 2006; Little, 1990). Grossman et al., (2001) for example, found in a Seattle (USA) high school that group learning was inhibited by tensions created by the background diversity of the teachers including teacher personalities, interests, backgrounds and differing levels of experience, subject expertise (History or English) and anything else to do with education. Due to these tensions some teachers did not see themselves as sharing the same group values forming what Grossman (2001) described as a ‘pseudocommunity’
of practice. In this ‘pseudocommunity’, those involved gave the impression of choosing techniques, activities and materials that conformed to group norms, adjusting on the basis of their own goals and experiences without making any real changes to classroom practice. The researchers concluded that for change to occur professional learning needed to create ‘multiple corridors for participation’ to address the diverse needs and interests of all teachers.

Within and across schools, faculties or KLAs, teams and networks need to be working together for changes to be successfully implemented. This means as a Community of Practice, schools need to align meaning across the boundaries of communities to establish continuity and mutual understanding (Fernandez, Ritchie, & Barker, 2008). Two concepts central in developing continuity between school communities that are particularly appropriate to this research study are ‘brokering’ and ‘boundary objects’ (Wenger, 1998; Wenger, et al., 2002).

According to Wenger, ‘brokering’ involves the connections made between members of a community to enable the introduction of elements from one Community of Practice into another. In education, brokers are teachers and community members, principals, researchers and the students (Hartnell-Young, 2006). ‘Boundary objects’ are reifications around which different Communities of Practice can organise successful interconnections. Examples of ‘boundary objects’ include the school’s curriculum documents, the school’s policies and technological capacity that allow the school and teachers to co-ordinate their participation and communications (Fernandez, et al., 2008).

A recent Australian study reported that in developing school-based communities which crossed classroom boundaries, some teachers were able to act as ‘brokers’ to facilitate ‘boundary exchanges’ between communities both within a school and externally, while others remained “as islands of excellence with no ferry service” (Hartnell-Young 2006 p. 475). The researchers concluded that these notions are more difficult to put in place than the theory suggests due to existing frameworks of leadership, power, empowerment and accountability, with some teachers feeling constrained by the curriculum frameworks and policy concerns.

A teacher’s career stage level could also be relevant in teacher participation in a community of practice. The work of Fessler and Christianson (1992) and Huberman (1989, 1993) is representative of such career stage theories. Huberman for example, found a common sequence of six career stages including: survival & discovery,
stabilisation, experimentation & activism, stock taking, self-doubt and disengagement. Fessler and Christenson’s (1992) model was more extensive with eight phases. The first four phases (pre-service, induction, competency building and enthusiastic growth) are characterised by high motivation, high task accomplishment and enthusiasm. The other four career phases (career frustration, stable and stagnant career, wind-down and career exit) suggest a reduction in career satisfaction and lower expectations about teaching. These frameworks point to a teachers’ career cycle as being complex and influenced by a number of factors including professional and personal experiences as well as organisational influences.

3) Communities of Practice - Teacher Reflection

In the current study, the NSWQTM enables teachers to inquire into classroom practice by providing a common language about such pedagogy. Such professional learning is consistent with the research literature both in Australia and Internationally with inquiry and reflective dialogue seen as the cornerstone of effective professional learning (Grushka, et al., 2005; Hunter & Beveridge, 2002; M. B. King, 2002; Shaw, 1999).

In the research literature the notions of reflective dialogue, reflection, reflective practice and teacher talk or teacher conversations are used interchangeably with dialogue meaning many different things to different people (Leonard & Leonard, 2003; Rarieya, 2005). Additionally, while there is clear recognition of the importance of teacher talk about professional practice as an essential element of professional development, the types of conversations required to transform practice are not clearly defined (Prestridge, 2009). Therefore, a review of some of these various meanings may help establish a common perception of effective professional learning.

Several generations ago, Dewey (1933) defined reflective thought as “active, persistent and careful consideration of any belief or supposed form of knowledge in the light of the grounds that support it and the further conclusions to which it tends” (p. 118). From Dewey’s perspective, teacher reflection is seen as a problem solving or a ‘trial and error process’ (Grushka et al., 2005) with teachers needing to identify the problem and develop solutions to generate change. Schön’s (1983, 1987) notion of reflective practice further developed Dewey’s (1933) understanding. According to Schön professional decisions require judgments involving ‘reflection-in-action’ and ‘reflection-on-action’. The notion of ‘reflection-in-action’ occurs spontaneously or suddenly and can be described as ‘thinking on our feet’. The notion of ‘reflection-on-action’ is done
later and enables professionals as individuals or in a group to spend time exploring and reflecting on classroom practice.

In most instances the reflective process usually resides in the mind of an individual and is difficult to observe (Rarieya, 2005). Reflection can also involve written activities in the form of dialogue in journals, which Holly (1994) describes as ‘talk with oneself’. From a different perspective, van Manen (1977, 2002) and Louden (1991) view reflection as temporal, with personal reflection which focuses on one’s own life at one end of a continuum and critical or problematic reflection which is about the resolution of problems of professional action at the other end. Simply, different types of reflection can occur at different times as needed during the teaching experience (Grushka, et al., 2005). Further, engagement in reflective practices and collegial dialogue necessitates the formation of organised social places in learning communities and developing teacher networks and teaming, in teacher professional development. Therefore, ongoing reflective dialogue involving ‘good, honest, open, safe talk’ (GHOST) in social places creates conditions where teachers can learn in contexts that are free from criticisms and where experience is valued (Shaw, 1999). Therefore, engagement in reflective dialogue helps move reflection from the realm of a private activity to a collective activity.

Within the literature, action research, peer coaching and mentoring models are seen as supporting reflective dialogue, to create self-awareness (Avery, et al., 2002; Avery, et al., 2001; Avery & Palmer, 2001; Avery & Palmer, 2000; A. Kennedy, 2005; Ponte, 2005; Rhodes & Beneicke, 2002, 2003). Action research is a form of self-reflective inquiry undertaken by participants to investigate in social situations the reality practice in order to understand and change it (Carr & Kemmis, 1986; Carr & Kemmis, 1997; Day, 1999; Kemmis & Wilkinson, 1998; Lewin, 1959). One approach to action research is lesson study (Stigler & Hiebert, 1999). Lesson study involves a team of teachers collaboratively setting goals, reviewing curriculum, developing or revising a lesson, observing and then discussing observations in order to reflect on the teaching and learning (Lewis, Perry, & Murata, 2006; J. Lieberman, 2009). Peer coaching and mentoring involve one-to-one relationships with coaching more skills based with mentoring involving professional friendship and counselling (A. Kennedy, 2005; Rhodes & Beneicke, 2002). The mentoring usually implies a relationship where one partner is a novice and the other more experienced (Clutterbuck, 1991). Collectively, these models develop teachers interpersonal and communication skills and increase professional autonomy to open the classroom door to move teachers beyond the
concept of ‘my students my classroom my subject’ to transform existing classroom practice (Goulet, Krentz, & Christiansen, 2003; A. Lieberman, 1995; Rhodes & Beneicke, 2002).

2.5.3 Teacher Professional Development - Policy and Practice in Australia

This section examines how external managerial pressures have influenced teacher professional development policy and practice. Day and Sachs (2004) argue that the content (what is learnt) and processes (professional learning activities and strategies) of professional learning have been substantially influenced by a ‘managerial’ conception of professionalism. This managerial conception, Day and Sachs explain, was system driven by a political agenda imposed from beyond the field of education to introduce business management principles into the public sphere to promote more competitive practices.

Politicians and administrators regarded management strategies involving ‘New Public Management’ (NPM) as vital ingredients in the renewal of education in the 1980s and 1990s (Moos & Moller, 2003). Under ‘managerialism’, there is devolution of responsibility to middle managers for budgetary and administration functions (this is often referred to as neo-liberalism or economic rationalism) to promote self-government and self-responsibility (Goldspink, 2007; Hardy, 2008; Moos & Moller, 2003). The influence of NPM is evident in the ‘Teacher Assessment Review Schedule’ or TARS process in NSW public schools (New South Wales Department of Education & Training, 2011). TARS, is an annual process that involves the school principal or nominee assessing each teacher's performance through conferencing and by providing feedback on teaching and learning programs. Accordingly, Pickering (2007) noted, these managerial reforms mainly support school management and school effectiveness rather than promote teacher professional learning.

Internationally, this managerial approach has meant that teacher professional learning has become focused on nurturing the ‘thinking teacher’ who is able to respond to the challenges of the global economy and new information and communication technologies (Grundy & Robison, 2004; Hardy, 2008; Sugrue, 2004; Tripp, 2004). In Australia, Australian Federal Government policies influencing teacher professional development throughout the previous decade are described collectively under the banner of AGQTP or Australian Government Quality Teaching Program (Commonwealth of Australia, 2000, 2003, 2005). This program over the years has consistently endorsed literacy/English, numeracy/Mathematics, Science, Information
and Communications Technology (ICT) and Vocational Education and Training. These programs encouraged teachers to have input into the process of developing learning activities, to ensure the learning is collaborative, with teachers working with colleagues in other schools, as well as educators and other experts beyond teachers’ respective school sites, undertaken to empower teachers (Commonwealth of Australia, 2005). As a result, state-endorsed teacher professional learning experiences have also revolved around these particular curriculum areas (McRae, et al., 2001).

In the NSW context, a new Professional Learning Policy (New South Wales Department of Education & Training, [NSWDET] 2004) was introduced into NSW public schools in 2004. The new Professional Learning Policy enabled schools to make decisions about professional learning needs for teachers and school leaders and provided considerably more funding for developing appropriate professional learning programs (Alden, 2000). There were seven such priority areas specified in the new policy with Quality Teaching being one of these areas. State office and regions were required to support the professional learning of staff through the development of policy and the provision of a range of resources and opportunities. The then, NSWDET maintained a web-based list of its professional learning programs and activities with links to associated providers. Importantly, the evaluation of professional learning across the state, districts/regions and within schools was to identify trends, needs and to inform the planning of future professional learning. Recently, the NSWDEC Professional Learning and Leadership Development Directorate (New South Wales Department of Education & Training, 2008) linked the NSWQTM to the Teaching Standards of the NSW Institute of Teachers (NSW Institute of Teachers, 2005) at the key stage of Professional Competence with suggestions and activities directed at principals and school leaders to promote effective teacher professional learning. The newly formed Australian Institute for Teaching and School Leadership defined the standard for school principals and made explicit the role of quality school leadership (Australian Institute for Teaching and School Leadership, [AITSL] 2011).

In summary, internationally and in Australia, strategies involving ‘New Public Management’ (NPM) were ingredients in the renewal of education especially in influencing teacher professional development policy and practice. In response, the then NSWDET and more recently the NSWDEC introduced into public schools new professional learning policies with state office and regions supporting teacher professional learning based on school needs. However, this approach presupposes
that principals and senior executives in schools have the leadership capacity to support these initiatives.

2.5.4 A Synthesis of Research Findings

To support quality instruction, the strength of the NSWQTM is seen not only in its ability to provide insights into the pedagogy of teachers but, also in its potential to support teacher professional learning and subsequently whole school change (NSWDET, 2003c). It would seem from this comment, some forms of professional development support teacher learning more effectively to create the type of pedagogy described by the NSWQTM than others. To understand teacher professional development, learning and change, two broad paradigms formed an organisational framework to review the literature.

Firstly, empirical-rational strategies, involving the training, deficit and cascade models viewed teacher change as a linear process. This linear process is consistent with a mechanistic view of the world that categorises what teachers know into discrete sets of knowledge and skills in isolation from teaching contexts with an expectation of implementation into the classroom (D. Clarke & Hollingsworth, 2002; Hoban, 2002; A. Kennedy, 2005). Therefore, it should be of no surprise that the empirical-rational strategies that are essentially bureaucratic/hierarchical models have restricted the ability of schools and teachers to organise themselves in ways to support the NSWQTM pedagogy.

Secondly, normative-re-educative strategies were seen as more able to promote a culture of inquiry to encourage teachers to be responsible for their own learning and to value the information collected within their own contexts and to actually try new practices with students in the classroom. Importantly, connections between normative-re-educative strategies and improved instructional practices were clearly evident in the research literature (Avery, et al., 2002; Gore & Ladwig, 2006a, 2006b; Supovitz & Turner, 2000). For that reason, when professional learning supports teachers to experiment with initiatives in the classroom that are found to improve student learning outcomes, changes in teacher beliefs and attitudes tend to follow (D. Clarke & Hollingsworth, 2002; Guskey, 1986).

It would seem that from the literature reviewed that some decisions by teachers about which instructional approaches to use in the classroom are linked to professional learning. Therefore, a research question exploring teachers’ professional learning
experiences over the course of their careers and the professional learning associated with the introduction of the NSWQTM may identify sources of influence to draw inferences to explain classroom practice.

2.6 ‘Curriculum Alignment’ and ‘Constructive Alignment’

Controls over curriculum and teacher accountability for student learning by governments are increasingly prominent. In this section the notions of schools as complex systems, ‘constructive alignment’ (Biggs, 1996; Biggs & Tang, 2007; Jones, 2006; McLoughlin, 2001) and ‘curriculum alignment’ (Richardson, 1998; Rowan, 1990, 2002) provides an understanding of such influences on teachers and teaching.

As discussed in Section 2.5.3, global trends cast increasing doubt on the effectiveness of the classical bureaucratic/hierarchical model that had long dominated educational systems in the organisation of public administration (Goldspink, 2007). As a consequence of this concern, public governance introduced new forms that have cast school leaders into new sets of conditions under the banner of New Public Management (Moos & Moller, 2003).

While New Public Management (NPM) gave greater administrative and financial autonomy to schools, it also increased controls over curriculum and assessment (Goldspink, 2007; Moos & Moller, 2003). This occurred because organisational theorists believed that the classic bureaucratic/hierarchical model in education lacked the organisational support to improve the quality of teaching and student learning outcomes (H. D. Meyer, 2002a, 2002b; J. W. Meyer & Rowan, 1978; Rowan, 1990, 2002; Vitale, 2010; Weick, 1976). The assumption was that tighter ‘links’ or ‘coupling’ needed to exist between educational policy (e.g. curriculum and assessment) and how teachers’ teach (Goldspink, 2007; Rowan, 2002).

Bidwell, (1965, 2001) was the first to put forward an explanation for loose structuring or ‘coupling’ in schools. Bidwell argued that the mechanisms structuring schools are external and because of this relationship classroom instruction was essentially decoupled from the educational administrative core. This explanation was built on by others, including Weick (1976) and J.W. Meyer and Rowan (1977, 1978). This understanding has strong parallels to the notion of schools as complex systems with some elements of education systems ‘loosely coupled’, while other elements remain more ‘tightly coupled’ (Goldspink, 2007; H. D. Meyer, 2002a, 2002b; J. W. Meyer & Rowan, 1977, 1978; Orton & Weick, 1990).
The coupling metaphor has relevance in understanding classroom practice. Weick (1976) described two common mechanisms, the technical core and the authority of office. In schools, the technical core is the classroom and the authority of office is defined by the educational hierarchy from the Minister of Education to off-site administrators and providers. The 'loose coupling' metaphor suggests that when classrooms are independent of the authority of office the goals of classroom instruction are variable with no clearly demonstrable cause and effect relationships between classroom practice and student achievement (Rowan, 1990, 2002). As such, the authority of office can create legitimacy by adopting tighter coupling mechanisms. The principles of 'constructive alignment' (Biggs, 1996; Biggs & Tang, 2007; Jones, 2006; McLoughlin, 2001) and 'curriculum alignment' (Richardson, 1998; Rowan, 1990, 2002) described these processes. Alignment in this context is defined as the extent to which curricular expectations and assessments are in agreement and work together to provide guidance for educators’ efforts to facilitate students’ progress toward desired academic outcomes (Roach, Niebling, & Kurz, 2008).

The principles of ‘constructive alignment’ were developed by Biggs (1996) and are primarily located within the higher education literature. ‘Constructive alignment’ is a means of verifying and ensuring that learning objectives are aligned with both the teaching activities and assessment in a course to measure the level of students achievement (Biggs & Tang, 2007; Jones, 2006; McLoughlin, 2001; Vitale, 2010). In the broader educational context, these principles are consistent with outcomes-based education (OBE) where “standards are stated upfront and teaching is tuned to test and meet them, assessment being the means of checking how well they have been met” (Biggs & Tang, 2007, p. 5).

From a similar perspective, ‘curriculum alignment’ involves a standardised system of input, behaviour and output controls over curriculum goals, instructional materials and predetermined testing benchmarks for students (Richardson, 1998; Rowan, 1990, 2002). Within this paradigm, standardised textbooks, framed around syllabus content knowledge and skills serve as input controls and guide teacher’s decisions about instructional processes. Output controls involve standardised tests that are centrally developed and uniformly administered and scored to assess student achievement (Boyd & Crowson, 2002; Graham & Neu, 2004). This highly rationalised approach views teaching as a routine technology where centralised decision making and standardised work practices are adopted to promote efficiency by focusing teachers’ efforts on clearly defined goals (Rowan, 1990). It would seem that the purpose of
‘curriculum alignment’ is explicitly bound up with the issue of accountability in the education system (Graham & Neu, 2004).

In the context of this study, the NSWBoS, as a separately appointed government body, has the responsibility for curriculum and assessment procedures for all schools, including the private sector. In the HSIE classrooms these curriculum requirements and assessment procedures are outlined in the Stage 4/5 History and Geography syllabus documents (New South Wales Board of Studies, [NSWBoS] 2003a, 2003b). Commercially-developed textbooks written to meet curriculum requirements serve as input controls to guide teacher’s decisions about instructional processes.

Curriculum development in NSW Schools is outcomes-based and student achievement is judged in relation to syllabus standards (NSWBoS, 2003a, 2003b). The learning outcomes are stage and age appropriate and are consistent with Bloom’s Taxonomy of Learning (Anderson & Krathwohl, 2001; Bloom, 1976, 1956). Within schools, in meeting accountability requirements, syllabus standards are reported through A to E achievement scales described in the Curriculum planning and programming, assessing and reporting to parents K – 12: policy standards document (New South Wales Department of Education & Training, [NSWDET] 2006a). Externally, the NSW School Certificate (SC: discontinued in 2012) and NSW Higher School Certificate (HSC) involve standards-referenced examinations that judge student achievement in relation to these syllabus outcomes. While the HSC examinations cover a wide range of subjects, the SC only examined English, Mathematics, Science, Geography and History. As the School Certificate applied at the time the present study took place, schools were responsible for awarding each student studying an A to E grade. The Stage 5 performance descriptors for each course describe student achievement (New South Wales Board of Studies, 2005a, 2005b). Grades are awarded based on teacher judgment as to which descriptor best describes the achievement of that student. Course grades are then reported on each student’s School Certificate record of achievement. Measuring student achievement in this way provides a simple, but effective framework from which to assess the extent to which teaching is meeting learning outcomes. In effect, how well learning outcomes and teaching are ‘constructively aligned’ (Biggs & Tang, 2007).

However, while ‘curriculum alignment’ is seen as appropriate for school improvement and effectiveness, critics have argued that such controls reduce the professional autonomy of teachers. For example, Windschitl (2002) argues that ‘curriculum alignment’ reinforces teacher-centred or objectivist approaches rather than student-
centred approaches to teaching. Windschitl also advocated that ‘curriculum alignment’ discourages teachers from spending time inquiring about their own practices. Others have argued that ‘curriculum alignment’ limits commitment to change as teachers feel disempowered and not being able to make a difference in their classrooms (Goldspink, 2007; Rowan, 1990; van den Berg, 2002). These findings suggest that due to increasing accountability from governments and society, teachers are starting to view themselves as not being particularly effective, contributing to what some researchers are observing as a process of ‘deprofessionalisation’ and ‘deskilling’ of the teaching profession (Ballet, Kelchtermans & Loughran, 2006; van den Berg, 2002). On the other hand, Ayres et al. (2004) studying teaching of high achieving grade 12 students in the NSW HSC reported that the teachers involved advocated that they were not exam driven. Building student deeper understanding involved problem solving, higher-order thinking and applying knowledge in different contexts.

2.6.1 A Synthesis of Research Findings

Overall, the research literature provides a sobering understanding of the complexity of the educational system. Highlighted in the literature are the mitigating effects of ‘curriculum alignment’ and ‘constructive alignment’ in the organisational design of schools and the subsequent impact on classroom instructional practice. The tighter coupling of the instructional core (the classroom) to the authority of office (educational hierarchy) associated with standardised assessment and curriculum was designed to promote teacher efficiency and to improve school effectiveness. As such, the influence of these controls on teachers’ instructional decisions warrants further investigation in this study.

2.7 Educational Leadership

In current discussions, the quality of educational leadership is seen as a key influence in what happens in the core business of schools, teaching and learning (Mulford, 2005; Mulford, et al., 2007). In the NSW context, the Ramsey Report (2000) stressed linkages between leadership in education, school effectiveness and the quality of teaching. However, according to Cardno (2005) the knowledge base of theory and practice relating to educational leadership is a much contested area. Given this dilemma, the leadership literature reviewed is organised into two sections.

Firstly, the literature relating to foremost models of leadership, as measured by the number of empirical studies expected to be able to transform the internal conditions of
schools are reviewed. These include instructional leadership, transformational leadership, distributive leadership and more recently, shared instructional leadership (Glatthorn, Boschee, & Whitehead, 2006; Gurr, Drysdale, & Mulford, 2007; Hallinger, 2003; Timperley, 2008). While these models focus explicitly on leadership in schools to bring about improved educational outcomes, state and district/regional support is also viewed in the literature as a critical factor to improve educational outcomes in schools (Chrispeels, et al., 2000; Desimone, et al., 2002; Fullan, 2006; Knapp, Copland, & Talbert, 2003; Marshall, Pritchard, & Gunderson, 2004; Mawhinney, et al., 2005). Therefore, the second part of the educational literature reviewed examines the role of district/regional leadership in supporting school improvement.

Instructional leadership models emerged in the 1980s from the research on effective schools. This body of research identified strong, directive leadership focused on curriculum and instruction from school principals as affecting the behaviours of teachers to support or otherwise the learning outcomes of students (Blase & Blase, 1998; Glanz, 2007; Gurr, et al., 2007; Hallinger, 2003; Ylimaki, 2007). Approaches vary, with the Blase and Blase (1998) conceptualisation of instructional leadership providing a good example. The Blase and Blase notion focused on teacher perceptions of what worked for them and involved a blend of supervision, staff development and curriculum development. The researchers found that the most influential leadership practice supporting teacher professional learning involved three important interrelated aspects, talking with teachers (conferencing), promoting teachers’ professional growth and fostering teacher reflection. These views are especially potent, as they provide insights not only into what helps teachers to grow, but also what teachers want and find helpful from their leaders. However, by the 1990s educational research began to view instructional leadership as too directive and principal-centred and largely ignoring the voice of teachers and community members as school leaders (Frost & Harris, 2003; Hallinger, 2003; Ylimaki, 2007). As a result, others models characterised by transformational leadership and shared or distributive leadership emerged.

Transformational leadership focuses on developing an organisation’s capacity to innovate (Hallinger, 2003). However, while this concept seems simple, there are numerous definitions and conceptions within the literature (Bass, 1997; Burns, 1978, 1979; Leithwood & Jantzi, 2000a, 2000b; Silins & Mulford, 2002). The notion of transformational leadership was first found in the leadership literature in the late 1970’s with the work of researchers such as Burns (1978, 1979). Burns advocated that transformational leaders were visionaries seeking to appeal to their followers’ better
nature to be able to move them toward higher and universal needs and purposes. Following on from Burns, Bass (1997) in a major research study identified a number of transformational components that included: idealised influence (charisma), inspirational motivation (leaders articulate vision and change standards), intellectual stimulation (leaders question old assumptions), individualised consideration (leaders deal with others as individuals). In Australia, Silins and Mulford (2002) identified from research six dimensions of successful transformational practices by principals. These included providing individual, cultural and instructional support to staff, capturing a vision for the school, communicating high performance expectations and offering intellectual stimulation during professional learning. Silins and Mulford (2002) concluded that success as a school principal was an interactive, reciprocal and evolving process with many players, which in turn influenced the contexts in which it occurred.

An alternative conception is the notion of distributed leadership. Within the literature the notion of distributed leadership varies (Harris, 2004, 2007; Lima, 2008; National College of School Leadership, 2004a, 2004b; Ritchie & Woods, 2007; Spillane, 2006; Timperley, 2005, 2008; P. A. Woods, Bennett, Wise, & Harvey, 2004; York-Barr & Duke, 2004). York-Barr and Duke (2004) and Harris (2004) viewed distributed leadership as a process whereby teachers, individually or working together in teams, engender collective responsibility to influence their colleagues in order to improve professional practices either inside or outside the classroom. The more dispersed these perceptions within a school or in a network of teachers, the more the leadership is distributed (Lima, 2008). From another perspective, the National College of School Leadership (National College of School Leadership, 2004a, 2004b) in the United Kingdom maintains that the distinctiveness of distributed leadership is that it is able to separate leadership from leadership roles. Therefore, within the literature an indication of the process of distributed leadership is when teachers, as colleagues, are influencing other teachers.

In a further body of research literature, another approach is that of shared instructional leadership. This form of leadership incorporates understandings from both transformational and instructional leadership and comes in a number of versions (Glatthorn, et al., 2006; Hallinger, 2003; Jackson, 2000; Marks & Printy, 2003; Southworth, 2002, 2004). For example, Hallinger’s (2003) model would have the principal focusing on creating a shared sense of purpose, developing a climate of high expectations, developing a wide range of professional learning activities that are stimulating and ongoing, being visible and modelling the school values and
pedagogical knowledge and skills. Glatthorn et al., (2006) supporting Hallinger’s (2003) notion of shared instructional leadership, further added, that for leaders to be effective they not only needed to have transformational skills, but also need to understand current pedagogy and curriculum theory if educational change is to take place.

While this research literature highlights the importance of leadership, understandings of leadership can vary from setting to setting as school leaders do many things at once. Consequently, educational leadership can be described as socially constructed and influenced by the cultural values of schools. That is, the effectiveness of leadership in transforming schools is highly dependent on the formal arrangements of work, the degree of power sharing, group norms and common beliefs that underscore the overt behaviours of school organisational members. Importantly, these elements interact in a complex manner with the ineffectiveness of one person for instance, potentially reducing the effectiveness of leadership (Koffman & Senge, 1993; Mohrman & Mohrman, 1995). With these complexities in mind, the work of school leadership could be described as “polyphonic” (Southworth, 2002, p. 75) that is, leadership is not related to any set of particular tasks, but a whole range of tasks that need to be brought together to form a coherent whole.

Secondly, the critical role of state and district/regional offices is strongly emphasised in the literature on school improvement (Desimone, 2002; Foley, 2001; Fullan, 2005, 2006; Mawhinney, et al., 2005; McLaughlin & Talbert, 2003). At state and district/regional levels administrators and staff members’ leadership in policy implementation, advocacy and capacity building is central in supporting school effectiveness (Mawhinney, et al., 2005). This is particularly so if the district/region has some control over financial resources. What is needed from district/regional leadership is to sustain effective communications between schools and to make resources available according to the individual needs and practices of schools and teachers (Chrispeels, et al., 2000; Darling-Hammond, 1995; David, 1989; Fullan, 2005).

District/regional offices can play an important role by increasing the knowledge base of teachers and by providing learning opportunities to support school or site-based reforms (Chrispeels, et al., 2000; David, 1989; Desimone, et al., 2002). The challenge for districts/regions is in the delivery of high quality professional learning (Desimone, et al., 2002; Massell, 1998). District support may range from endorsement of, to participation in, training by active involvement, with district personnel coordinating and participating in school teams, by ensuring that these teams have relevant and timely student data to guide planning and by providing follow-up support. Leadership at the
district/regional level is responsible for providing equitable learning opportunities for teachers across that region and in creating the motivation to take advantage of such opportunities (Knapp, et al., 2003). Building a collaborative culture is one approach across a region or in a school. This is grounded, conceptually in the notion of “lateral capacity building” (Fullan, 2006, p. 10) to connect professional learning that changes the learning culture of individual schools.

2.7.1 A Synthesis of Research Findings

The review of the research literature in this section revealed that quality educational leadership is central in providing equitable professional learning opportunities for teachers to improve the effectiveness of schools and the quality of teaching. Some key features have emerged, in spite of the many phases and fashions with various, empirical, theoretical and even idealistic stances through which educational leadership has passed (Dinham, 2007a, 2007b).

Firstly, educational leadership is very complex. In schools, under the new managerial and neoliberal approaches principals, executive and other school leaders need to be organisational managers, transformational leaders and change agents and to be able to inspire and motivate teachers as individuals or in groups. Importantly, to improve teacher quality and the quality of teaching, educational leaders need be instructional leaders with expertise in pedagogical knowledge and skills. These broader expectations are placing new demands on educational leadership (S. Clarke, 2006; Hallinger, 2003; Southworth, 2002). The collision of NPM and accountability could leave educational leaders in schools with an unclear basis for their praxis and at times, unclear perceptions of the consequences of their decisions (Moos & Moller, 2003).

Secondly, the quality of educational leadership at state and district/regional level is a key transformational variable in support of teaching and learning, which are the core business of schools. Case studies conducted by Foley (2001) and McLaughlin and Talbert (2003) strongly emphasised the importance of the role of school district/regions in supporting schools in improvement initiatives.

In summary, the review of this literature highlighted the importance of educational leadership as a key contributor to educational success, innovation and for quality teaching and learning. One way that educational leaders can significantly influence those they manage, influence development in the schools and, in turn, positively influence the learning experiences of students is by supporting and effectively
managing the professional learning of staff (Cardno, 2005). Therefore, the introduction of initiatives such as the NSWQTM provides an opportunity to understand what teachers needed from educational leaders to implement change through effective professional learning. Importantly, no matter how well developed, structured or conceptualised initiatives and reforms are (including the NSWQTM) they are likely to fail when put into practice without effective educational leadership at all levels and professional learning supporting change in schools.

2.8 Concluding Comment

In conclusion, the principal concern in reviewing this literature was to gain an understanding across the multiple levels identified of the complexity of the educational enterprise and the interconnections and patterns to understand classroom pedagogy. As such, the causality between the literatures reviewed in this Chapter Two, not only provide insights into the pedagogy that may be observed and how it may have occurred, but will inform educational leadership in NSW public schools about what could be enacted to promote Quality Teaching in everyday classroom practice.
Chapter 3
Research Design and Methodology

3.1 The Research Questions

The growing body of Australian and International educational research of overarching models of classroom pedagogy was reviewed in Section 2.3. While these studies were impressive in their endeavours, three areas of concern emerged. Firstly, regardless of year group or subject area the pedagogical characteristics described by these models were not evident to any great extent in the classrooms studied. Secondly, while some classroom observations were undertaken, the designs involved single-point in time data collection that did not assess rigorously changes in the pedagogical practices of teachers on a daily or weekly basis. Thirdly, at the time this study began, there were no studies exclusively assessing the quality of classroom instruction pedagogy in NSW public schools using the NSWQTM. These three areas of concern provided a strong case to develop a study to assess the quality of pedagogy in schools using the NSWQTM (as the model of choice in this study).

The 2004 field study was the first phase of this investigation and the earliest research use of NSWQTM in NSW public schools. The first phase addressed the following research question:

Research Question 1:

What variation in pedagogy is exhibited in classroom instruction in Stage 4/5 HSIE classes in NSW public secondary schools, based on repeated classroom observations using the NSWQTM?

The first phase of this study was quantitative and aimed to describe classroom practice through use of NSWQTM coding. However, the research literature reviewed in Chapter Two indicated that there are many interrelated factors in a complex education environment impacting on classroom instructional decisions. With limited research on classroom practice there was little guidance as to why teachers taught the way they did. Evidence of outside influences on the observed pedagogy emerged as this first phase was being conducted. A further review of the research literature (presented in Section 2.3) indicated that many interrelated factors could influence the quality of classroom pedagogy. To explore the teacher participants’ perspectives of influences on teachers and teaching, a second qualitative phase of study was then implemented. This second phase involved three further research questions.
The research literature reviewed in Section 2.4 indicated that there were strong connections between teachers' beliefs and epistemologies, their classroom behaviours, the learning environment and instructional practices. Further, in understanding relationships between beliefs and practice, both inconsistencies and consistencies between what teachers say they do and observed practice were reported in the research literature. Therefore, if beliefs are indicators to why teachers make certain instructional decisions, a research question to ascertain the Stage 4/5 HSIE teachers’ perceptions of good teaching and the NSWQTM can further extend our understanding of influences on teachers and teaching to explain classroom practice, information that is not evident in many of the studies examined herein.

Research Question 2:

*How do teachers' perceptions of good teaching influence their implementation of the NSWQTM?*

The literature reviewed in Section 2.5 indicated that teacher professional development and learning was a key mechanism for raising the standard of in-class learning. The literature contained many descriptions of what effective professional learning looks like and teachers’ decisions about which instructional approaches to use in classrooms may be connected to professional learning. Therefore, given the importance of teacher professional learning and apparent scarcity of high quality pedagogy, it seemed reasonable to examine the overall professional learning experiences of the Stage 4/5 HSIE teachers in this study in comparison to their experiences with the introduction of the NSWQTM.

Research Question 3:

*How do teachers' perceptions about forms of professional learning influence their response to the NSWQTM?*

The fourth area of inquiry investigated other factors influencing teachers and teaching to understand why teachers taught the way they did. This area of inquiry was seen as important as the literature indicated that there were a very large number of elements or agents that interact in many different ways in the organisational design of schools to influence teachers’ thoughts and instructional decisions. From the HSIE teachers conversations, ‘curriculum alignment’, ‘constructive alignment’ (Section 2.6) and educational leadership (Section 2.7) were seen as factors influencing teachers and their teaching.
Research Question 4:

*How do teachers’ perceptions about the organisational design of schools influence their choice of classroom instructional practices?*

To answer these research questions this study had two separate methods, quantitative and qualitative. The quantitative phase was undertaken first, followed then by the qualitative phase. Linking these methods involved a ‘mixed method explanatory sequential design’ (Creswell & Plano Clark, 2011; Greene, 2001; Onwuegbuzie & Teddlie, 2003). This mixed methods design is outlined in Section 3.2. In Sections 3.3 and 3.4 the quantitative and qualitative methods are explained. In the Section 3.5 the procedures for drawing on both data sets in the final or interpretation phase are discussed with concluding comments in Section 3.6.

### 3.2 The Mixed Methods Design

Particular philosophical or epistemological perspectives are involved in methodological considerations (van Manen, 1990). Any research design is a basic plan of action that links the methodology or philosophical assumptions to specific methods (Creswell, 2003). The mixed method design adopted in this study reflects the contextualist worldview (see Table 2.5) that underlies much educational research.

A mixed methods design combines both quantitative and qualitative methods into a single study, a series of studies or into a multi-phased study (Creswell & Plano Clark, 2011; Greene, 2001; Onwuegbuzie & Teddlie, 2003). Creswell (2003) and Creswell and Plano Clark (2011) described a number of mixed method designs that include the convergent design, explanatory design, exploratory design or explanatory sequential design, transformational design, multiphase design and triangulation design. This study adopted techniques consistent with an ‘explanatory sequential design’. The advantage of developing this design was that it was straightforward and simple for the researcher to implement and conduct given time constraints.

The ‘explanatory sequential design’ of this study had two sequential phases. The first phase was quantitative. In this phase, classroom observation data from a self-selected cohort of eight Stage 4/5 History and Geography teachers from five NSW government secondary schools was collected from the same class weekly for each teacher (between late July and early October in 2004). Observation utilised the item-rating scales and coding descriptors developed for use with the NSWQTM (NSWDET, 2003d). The emergent results from the data analysis in Chapters Four and Five and the
literature reviewed in Chapter Two informed the methodology to be used in the second phase of the study.

The second qualitative phase took place in Terms Two and Three of 2005 after the researcher and his initial supervisor had discussed the first phase results, both individually and collectively with the teacher participants. The researcher invited the HSIE teachers involved in the first phase to take part in the second phase. In this second phase formal, semi-structured interviews were conducted to explore these HSIE teachers’ personal experiences about factors they perceived as influencing their classroom instructional practices. The data from these interviews was analysed with the findings reported separately in Chapters Six and Seven.

In an ‘explanatory sequential design’ there is a final interpretation phase. In this final phase, the researcher placed priority on explaining the quantitative results through the qualitative findings. Therefore, the second phase findings, informed by the literature, enabled the researcher to draw conclusions and inferences to support a deeper understanding of the classroom observation results than either approach could do alone.

3.3 Quantitative Methodology and Design

3.3.1 Introduction

The first phase of the research was quantitative. Quantitative research is characterised by the use of statistical techniques. In the literature this type of research is commonly referred to as descriptive research and involves the measurement and analysis of causal relationships between variables to determine cause and effect so inferences from sample or population data can be drawn (Creswell, 2008; Denzin & Lincoln, 1994; Hittleman & Simon, 2002; Hoy, 2010; Liebscher, 1998; Orlikowski & Baroudi, 1991). This research methodology is appropriate as the purpose of the first research question was to describe the variation in teaching in Stage 4/5 HSIE classrooms using the coding instruments developed for use with the NSWQTM.

In the NSW education system the curriculum developed by NSW Board of Studies is delivered through seven Key Learning Areas or KLAs in six stages (Stages 1-3, K-6; Stage 4, Years 7/8; Stage 5, Years 9/10 and Stage 6 Years 11/12). The HSIE KLA is one of these curriculum areas covering a wide range of Social Science subjects,
including History and Geography. These subjects occupy the majority of HSIE time in Stages 4 and 5.

Section 3.3.2 outlines the processes involved in the selection of participants for this study. Sections 3.3.3 and 3.3.4 describe the data collection process. Then, in Section 3.3.4 the methods to analyse the classroom observation data are explained.

3.3.2 Sampling - The Selection of Participants

This research involved five secondary schools from one NSW Department of Education and Training (now NSWDEC) region. The region was located to the north of Sydney. The use of a single region was both practical and economical, as it was not feasible to include schools from all NSWDET regions due to distance across the state. Further, from research studies reviewed in Section 2.3, we know that there is sufficient variance within a single educational region sample to provide valid findings from classroom observation data. All Stage 4/5 HSIE teachers in the selected region were offered the opportunity to volunteer for the study. This appears to be an example of simple random sampling (Creswell, 2008; Green, Camilli, & Elmore, 2006; Hittleman & Simon, 2002; Hoy, 2010; Mertens, 1998).

All high school principals from the selected NSWDET region received an information package that explained the proposed research study in May of 2004. School principals were requested to pass on the information to teachers who were currently teaching Stage 4/5 History and/or Geography classes and were genuinely interested in participating in the research study. It was preferable to have two teachers, one from each of the History and Geography disciplines. Teacher participation was voluntary and it was stated clearly in the information package that the decision to participate or not, would not disadvantage the school or teachers in any way. The information package is presented in Appendix 4.

After the closing date for submissions, nine teachers from five schools expressed interest. As part of the selection process, the teachers provided a copy of their teaching schedules to the researchers. These teaching schedules were an important part of the selection process as both the researcher and his initial supervisor had limited time to undertake classroom observations.

After the selection process eight teachers, two female and six males, from five public secondary schools in the selected region participated in the study. One teacher who
volunteered was not able to participate due to clashes between participant and researcher timetables. Of the eight teachers who participated, four were HSIE Head Teachers, one had been relieving as a Head Teacher HSIE for over twelve months and one was a Head Teacher Administration. The other two participants were experienced classroom teachers. Of the five schools in the study, three schools had two teacher participants, with one HSIE teacher from each of the other schools represented. Where the schools had two teachers in the study, one taught Geography and the other History; there were two teachers who taught Stage 4 Geography; one teacher who taught Stage 4 History; there were three teachers who taught Stage 5 Geography and two teachers who taught Stage 5 History. Accordingly, from Berliner (1994) and Dreyfus and Dreyfus (1986) stage theory perspective, these Stage 4/5 HSIE teachers could be described as being expert teachers with higher levels of knowledge and skills than teachers with less experience. Two of the five schools (Mountain View High School and Blue Ridge High School) participated in the Australian Government Quality Teaching Project (AGQTP), which involved extensive school based professional learning using the NSWQTM.

The classes and scheduled times for the lesson observations were negotiated with the participants with the researcher’s initial project supervisor undertaking eight lesson observations with Ms Smith (Cherry View High School) and three lesson observation with Mr Brown (Mountain View High School). Table 3.1 contains the participants and school pseudonyms and details.

3.3.3 Data Collection – Coding Classroom Instruction

The first phase of the study was longitudinal in design. Longitudinal designs are used to collect data in a variety of ways over an extended period of time (Creswell, 2008; Hittleman & Simon, 2002). Specifically, classroom observation data relating to single teacher class-cohorts was gathered repeatedly over time. A cohort study is one in which a subpopulation based on specific characteristics is identified and then studied over time (Creswell, 2008). This involved observing the same Stage 4/5 Geography/History class with same HSIE teacher at the same time each week over a 10 week period comprising Term 3 of NSW school year 2004. Each class observation was given a unique code to allow easy identification (e.g., 03/E230904).

The timing of the study is significant. New state-mandated syllabi had been implemented in 1999 and then revised in response to substantial criticism in 2003. This
study took place two school terms after the revised syllabi were issued and so external compliance was on all school agendas.

The instruments to measure the quality of classroom instruction in these single teacher class-cohorts were defined operationally in *Quality Teaching in NSW public schools: A classroom practice guide* (NSWDET, 2003d). This had been distributed to all NSWDET Schools (examples of item-rating scales and accompanying coding descriptors are provided in Appendix 3). The degree to which each of the 18 elements the NSWQTM were present during instruction were measured by a five point item-rating scale (Likert scale) where each point had a meaning specified by the model. Each of the item-rating scales allowed the researchers to make distinctions based on whether or not the quality in question was observed, how many students were engaged in that manner and for how much of the lesson (Ladwig, 2005). Therefore, in determining the nature of the students’ learning experiences, each element was within an observable range of 1 to 5 and each dimensional construct within an observable range of 6 to 30.

### Table 3.1 Teacher and School Details

<table>
<thead>
<tr>
<th>Teacher (1)</th>
<th>School (1)</th>
<th>Grade &amp; Subject Level</th>
<th>Years Teaching</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ms Smith</td>
<td>Cherry View High School</td>
<td>Year 9 Geography (Stage 5)</td>
<td>12 Years</td>
<td>Head Teacher HSIE</td>
</tr>
<tr>
<td>Mr Brown</td>
<td>Mountain View High School (2)</td>
<td>Year 10 History (Stage 5)</td>
<td>16 Years</td>
<td>Head Teacher Administration</td>
</tr>
<tr>
<td>Mr Reynolds</td>
<td>Co-educational school 7-12</td>
<td>Year 10 Geography (Stage 5)</td>
<td>20 Years</td>
<td>Head Teacher HSIE</td>
</tr>
<tr>
<td>Mr Wilson</td>
<td>Red Ridge High School Co-educational school 7-12</td>
<td>Year 10 Geography (Stage 5)</td>
<td>22 Years</td>
<td>Head Teacher HSIE</td>
</tr>
<tr>
<td>Ms Norris</td>
<td>Cedar Ridge High School</td>
<td>Year 8 History (Stage 4)</td>
<td>26 Years</td>
<td>Classroom Teacher</td>
</tr>
<tr>
<td>Mr Jones</td>
<td></td>
<td>Year 8 Geography (Stage 4)</td>
<td>15 Years</td>
<td>Head Teacher HSIE</td>
</tr>
<tr>
<td>Mr Dennis</td>
<td>Blue Ridge High School (2) Co-educational school 7-12</td>
<td>Year 8 Geography (Stage 4)</td>
<td>26 Years</td>
<td>Relieving Head Teacher HSIE</td>
</tr>
<tr>
<td>Mr Sutton</td>
<td></td>
<td>Year 9 History (Stage 5)</td>
<td>28 Years</td>
<td>Class Room Teacher</td>
</tr>
</tbody>
</table>

(1) pseudonyms used for teacher and school identification; (2) participated in AGQTP

Measuring the same sample of teacher participants using the NSWQTM instruments repeatedly had a number of advantages. Firstly, such a design allowed the researcher to measure variability reliably to assess instructional differences between schools and teachers. The second advantage was in the provision of information about the importance of each of the elements and dimensions of NSWQTM relative to each other.
3.3.4 Data Collection – Establishing Reliability and Validity

For the results and findings from the analysis of the classroom observations to be useful in various discourse communities, establishing reliability and validity in the data collection process was of importance. Reliability signifies consistency of measure, that is, the ability of an instrument to measure the same thing each time it is used (Singh, 2007). Validity indicates whether a measure of a concept really measures that concept, that is, the extent to which the instrument measures what it is designed to measure (Crawford & Impara, 2001; Dawson, 1997; Goetz & LeCompte, 1984; Sapsford & Jupp, 2006; Singh, 2007).

While reliability and validity are two different concepts, they are related. That is, validity presumes reliability, which means that if a measure is not reliable it cannot be valid, though the opposite is not true and a study can be reliable even if it is not valid (Singh, 2007). The various threats to validity and reliability can be avoided if internal validity is ensured. According to Huit (1998), internal validity signifies the rigour in which a study is conducted and the extent to which it takes into account alternative explanations for any causal relationships. From a more theoretical perspective, Parker (1993) describes internal validity as addressing any errors of variance that are created when undertaking research (as distinct from measurement and sampling error variance) so that the researcher can reliably conclude that the observed outcomes are due to the independent variable(s) alone. In other words, internal validity is the extent to which the classroom observation data collected represents reality.

The researcher identified two perceived threats to internal validity that needed to be controlled before embarking on the data collection process, coding accuracy and feedback to participants. In addressing these threats Campbell and Stanley's (1963) and Cook and Campbell’s (1979) conventional approaches to internal validity in experimental and quasi-experimental designs, provided an authoritative source to fully and precisely, articulate, define and to address these specific threats.

- Coding Accuracy – An ‘instrumentation’ threat to internal validity

In the data collection process a perceived threat to internal validity was the ability of the researcher to consistently apply over the observation period the instruments developed for use in the NSWQTM. In essence, this involves what Campbell and Stanley (1963) and others, including Crawford and Impara (2001) and Dawson (1997) refer to as an ‘instrumentation’ threat to internal validity. According to Crawford and Impara (2001), a
deterioration or change in the accuracy of the instruments, devices or observers to measure the outcome variables can lead to questions about ‘instrumentation validity’. Singh (2007) refers to ‘instrumentation validity’ as ‘criterion validity’. The threat to internal validity in this study was addressed and controlled through the research design.

Firstly, to promote coding reliability the researcher undertook a rigorous lesson-coding program with his initial supervisor leading up to the commencement of the study in July 2004. Supporting these sessions were the Continuing the discussion about classroom practice: Lesson extracts 7-10 (NSWDET, 2003f) and the coding descriptors from Quality teaching in NSW public schools: A classroom practice guide (NSWDET, 2003d) resource materials. These resource materials contained videos of exemplar lessons and coding notes that identified Quality Teaching. The researcher and his initial supervisor individually coded the secondary lessons and discussed at length the reasons for any differences. From this training and from the ensuing discussions the researcher was able to develop consistency and rating reliability in the coding process.

Secondly, with the research being conducted over a 10 week period and involving both the researcher (n=50) and his initial supervisor (n=11) coding lessons, accuracy in coding needed to be maintained. To maintain reliability in coding when more than one observer is involved means establishing inter-rater reliability or inter-observer consistency (Creswell, 2008; Singh, 2007). To establish rater consistency, three joint lesson observations were undertaken with different HSIE teachers at key junctures during the observation period. An initial reliability rating observation occurred at the beginning of the study, one rating occurred in the middle and a final rating occurred near the end of the observation period. During each lesson, both researchers recorded their observation scores independently. In determining inter-rater reliability Pearson’s product-moment correlation coefficients (or Pearson’s r) were calculated using statistical procedures described by Allen and Bennett (2010). That is, the strength and direction of the linear association/relationships between the two researcher’s scores for each of the 18 elements of the NSWQTM, for each of the lessons observed was assessed. The results are reported in Section 4.2.

If coding variations occurred discussions were undertaken and an agreed coding score determined. Coding variations were not seen as misunderstanding of the coding descriptors, but related to professional judgment emanating from the different teaching backgrounds. That is, the researcher, as an experienced HSIE teacher and Head Teacher could translate the coding descriptors based on 26 years of teaching
experience in secondary HSIE classrooms in NSW public schools. The researcher's initial supervisor was an experienced University researcher who had coded many K-12 lessons across the KLAs. The agreed score was recorded for that element in the data set.

Thirdly, to establish reliability in coding the researcher also recorded field notes during each lesson observation. However, while field notes are able to provide temporal descriptions to reduce a researcher’s initial interpretations and biases there is no standard definition of field notes, their form, or content (Glesne & Peshkin, 1992; Schwandt, 1997, 2001, 2007). As field notes are a kind of evidence on which researchers base claims about meaning and understanding (Schwandt, 1997, 2001, 2007) during each lesson observed the content/skills, the timing of transitions between tasks, discussions between the researcher and students, discussions between the teachers and students, as well as discussions between students was recorded in a simple scaffold. The instructional strategies, resources and any other aspects of the lesson the researcher considered as important were also recorded. As such, these field notes provide a systematic and rigorous qualitative record of what was observed in these Stage 4/5 HSIE classrooms (coding sheets, field notes and student worksheets for a sequence of three Stage 4 Geography lessons are presented in Appendix 5).

- Feedback to Participants – A ‘maturation’ threat to validity

Another threat to internal validity was the possibility that the HSIE teachers could change practice over time, based on comments or feedback by the researcher after each of the lesson observations. This threat is consistent with Campbell and Stanley’s (1963) notions of ‘maturation’ and ‘learning’. Maturation involves processes within the participants, either psychological and/or biological, that take place as a function of the passage of time while ‘learning’ involves corruption of results by increasing participant understanding of the researcher’s intent (Crawford & Impara, 2001; Dawson, 1997).

To control for these threats to validity, prior to the commencement of the study, a meeting was held with each of the HSIE teachers to explain the procedure for conducting the lesson observations and to address any concerns that they may have had. While most of the teachers were keen for feedback, when the threats to validity were explained they were accepting and understood that feedback during the observation period could not be undertaken. Discussion and reflection after each lesson observation was restricted to procedural issues.
After the completion of the study the classroom observation data was presented to all participants (information letters sent to prospective schools are presented in Appendix 4). The presentation of the observation data involved a group seminar with extensive debriefing between the researcher, initial supervisor and participants. The discussions were reflective, enabling the HSIE teachers involved in the study to build on current knowledge, skills and beliefs and to construct their own knowledge through professional dialogue. Avenues for on-going professional development, at an individual, faculty or whole school level were available to support each of the participants’ needs.

- **The Researcher as a Participant Observer**

To support internal validity the student researcher took on the role as a participant observer to code the *deep understanding* element in the *Intellectual Quality* dimension accurately. In participant observation, the researcher interacts with the participants making observations in the course of any exchanges and discussions (Creswell, 2003, 2008; Kellehear, 1993; Mertens, 1998; Wolcott, 1995). To understand practice, the researcher after seeking permission from the classroom teachers, assumed the role of an ‘inside’ observer at appropriate junctures in the lesson. The researcher, by engaging in conversations with the students during the course of class work was better able to judge the Stage 4/5 HSIE students’ *deep understanding* of the *deep knowledge* presented in each lesson. As the researcher was also a HSIE teacher, these interactions took on the appearance of normal teacher/student conversations. These observations were recorded in the researcher’s field notes to support reliability of coding (refer to the field notes and lesson coding sequence presented in Appendix 5).

3.3.5 **Data Analysis**

When the data collection process was completed, analysis of the Stage 4/5 HSIE classroom observation data was undertaken at three levels to address the research question. Firstly, a descriptive analysis of the observation data was undertaken. To determine trends in the data, the teacher’s individual dimensional scores were graphed over time. Secondly, to determine any statistically significant differences between each HSIE teacher’s pedagogical practices compared to the group a One-way ANOVA and a multiple range test (Scheffe test) were undertaken at the dimensional level. Thirdly, the researcher’s field notes, which provided qualitative information to support the lesson
coding process, were also analysed using quantitative methods to determine common teaching strategies supporting student learning.

A descriptive analysis of the observation data was undertaken using functions available in Statistical Package for the Social Sciences (SPSS) and described by Pavkovich and Pierce (1999); Sweet and Grace-Martin (2003) and Allen and Bennett (2010). The initial analysis involved simply checking for coding errors using the cross-tabs function. Descriptive statistics then revealed relationships in the data. Means, modes and medians were calculated to determine the distribution for each of the elements and dimensional constructs. Standard deviations measured the spread or dispersion of the data. Histograms displayed the frequency distribution of scores for each of the dimensions and elements. To further understand patterns in the observation data, two measures of asymmetry, skewness and kurtosis described by Green et al., (2006), Kaplan, (1987), Vernoy and Vernoy (1997) and Mertens (1998) were calculated. Skewness described the density of the data to the right or left of the mean. Kurtosis is the peak/flatness of the data distribution, with normal (mesokurtic), peaked (leptokurtic) or flat (platykurtic) distributions. These statistical measures are reported in the results in Chapter Four.

To determine whether any of these Stage 4/5 HSIE teachers’ pedagogical practices were significantly different, statistical procedures involving a One-way ANOVA described by Kaplan (1987) and Diekhoff (1992, 1996) were undertaken at the dimensional level. This analysis was able to be undertaken as the skewness measures reported in Chapter Four indicated that the distributions at the dimension level were sufficiently normal to allow such a comparison. The ANOVA was to test whether the groups formed by the categories of the independent variable (HSIE teachers observed pedagogical practices as measured by the NSWQTM elements and dimensions) were similar, that is, they have the same pattern of dispersion as measured by comparing estimates of group variances (Allen & Bennett, 2010; Diekhoff, 1992, 1996; Kaplan, 1987; Sweet & Grace-Martin, 2003; Vernoy & Vernoy, 1997). Importantly, if differences occurred then there was a need to determine which groups were statistically different. A multiple range test (Scheffe test) would determine which groups of the teachers, if any, were statistically significantly different. This analysis occurred at the dimensional level as the study was looking at the differences between individual teachers and between schools.

A quantitative analysis of the field notes was also undertaken to identify common teaching strategies (refer to Table 2.6) in the coded classes. The research literature
contains many suggestions of how to quantify qualitative data using numerical codes and statistical methods (Crone & Teddlie, 1995; Sandelowski, 2001; Tashakkori & Teddlie, 1998; Witcher, Onwuegbuzie, & Minor, 2001). In the current study meaning was obtained from the field notes by assigning identified teaching strategies a score of 1, 2 or 3 (1: strategy not used in the lesson; 2: strategy used for less than half, or a minor part of the lesson; 3: strategy evident for most of the lesson). By quantifying the data in this way, an ‘order-of-preference’ of teaching strategies used was determined.

However, while the quantitative design had the analytic power to describe the pedagogy observed in these Stage 4/5 HSIE classrooms, there were difficulties in capturing the individual teacher’s subjective or ‘emic’ descriptions and understandings of these behaviours. Described in Section 3.4 are the qualitative designs and methods to collect and analyse data for the second phase of the study.

### 3.4 Qualitative Design and Methods

#### 3.4.1 Introduction

The research literature reviewed in Chapter Two indicated that there many interrelated factors impacting on classroom instruction. These factors influencing teachers and teaching warranted further investigation, in an attempt to make sense of, or interpret the findings from the first phase classrooms observation results.

It was important to give the HSIE teachers in this study a voice to explain their thoughts, feelings, understandings and emotions. The previously described quantitative methodology makes them the objects of study and denies them such a voice. Qualitative methods were appropriate because an emphasis on people’s lived experiences is fundamentally well suited for locating the meaning that teachers place on the events, processes and structures in their teaching lives (Denzin & Lincoln, 2005; Miles & Huberman, 1994; van Manen, 1977). These naturally occurring rich descriptions of the social world are valuable in seeking answers to questions that stress how social experience is created to give meaning (Denzin & Lincoln, 2008b, 2005, 2008a; Miles & Huberman, 1994; van Manen, 1977). Therefore, to ascertain factors influencing teachers and teaching (refer to research questions in Section 3.1) the researcher conducted formal, semi-structured interviews with seven of the Stage 4/5 HSIE teachers.
For this second qualitative phase the processes for selecting participants are outlined in Section 3.4.2. Section 3.4.3 and 3.4.4 described data collection and data analysis methods.

3.4.2 Selection of Participants

This second phase of the research occurred after the completion of the classroom observations and after the professional development was undertaken with the HSIE teachers to support understanding of the findings. All the HSIE teachers involved in the original classroom observations in Term 3 2004 were invited to take part. Therefore, data collection involved processes consistent with purposeful sampling described by Creswell and Plano Clark (2011) and Mertens (1998).

An invitation was sent to all participants outlining the purpose of the research and provided information about what they would be asked to do, the time involved and privacy issues relating to data collection (this documentation is presented in Appendix 6). Of the eight HSIE teachers involved in the first phase, seven accepted the invitation. The other teacher (Mr Sutton) while expressing a desire to participate had to decline as he was going on extended leave. A consent form was completed by all participants. School principals were notified as a matter of courtesy of the involvement of the teachers from their schools. Data collection and analysis took place during Terms 2 and 3 of 2005.

3.4.3 Data Collection - The Research Interview

Creswell (1998) described data collection as a “zigzag process, out in the field to gather information, analyse the data, back in the field to gather more information” (p. 57) and so on. In the second phase of this study, data collection involved undertaking one formal, semi-structured interview with each of the HSIE teacher participants. Formal, semi-structured, extended interviews were chosen for a number of reasons.

Firstly, interviewing involves an epistemological shift to more interpretive, hermeneutic approach that aims to produce findings not necessarily amenable to statistical procedures (Gubrium & Holstein, 2001; Holstein & Gubrium, 1995, 1995a; Howe, 2001; Olson, 2011; Strauss & Corbin, 1998). Secondly, the decision to use interviewing had a pragmatic appeal as the teacher participants were all very busy people and they found it hard to give their time to this project. Pragmatically, interviews do not take long to conduct and can be organised at convenient times at either the researcher’s school or
Interviewing involves repeated face-to-face encounters between the researcher and the participants directed towards understanding their lives, experiences or situations as expressed in their own words (Atkinson, 2002; Fontana, 2002; Fontana & Frey, 2005; Holstein & Gubrium, 2003; Kvale, 1996; Minichiello, Aroni, Timewell, & Alexander, 1995a; Olson, 2011). According to Olson (2011) and Fontana & Frey (2005) there are two basic forms of interviews that can be conducted with either individuals or groups, that is, formal and informal. Formal interviews are commonly used in both quantitative and qualitative research as the primary data collection methods (Fontana, 2002; Fontana & Frey, 2005). Alternatively, informal interviews usually take on the appearance of a normal conversation without any interview questions. In this study the interviews took on the appearance of formal, semi-structured interviews.

According to Olson (2011), formal interviews can be structured, unstructured or semi-structured. With structured interviews the knowledge base usually guides the direction of the questions with a limited range of response for participants. With unstructured interviewing, there is no formal ordering of the questions with the interactions between the interviewer and participants designed to illicit information. The participant has maximum control of the interview process. When conducting semi-structured interviews the interviewer uses information that they may have acquired during the research process to construct focus questions. In conducting semi-structured interviews, while the content of the interviews is focused on the issues that are central to the research questions, the questioning allows for greater flexibility to enable the participants to express opinions.

Therefore, the research decision to use interviewing as opposed to other interrogative processes such as life histories, structured surveys or focus groups supported the theoretical perspectives for data collection as well as practical concerns by the researcher. Specifically, as a data collection method, interviewing was seen as best suited by the researcher to support these HSIE teachers in addressing the research questions, while providing flexibility for the teachers to express opinions. In this way, the interviewer became a partner in the study, hoping to use the results to ameliorate conditions and to identify ways to support the HSIE teachers to promote Quality Teaching in the future.
While interviewing as a method of data collection is able to facilitate open and rich discussion, threats to validity in data collection, data analysis and the interpretation need to be considered. Among the variety of different approaches and numerous descriptions and strategies in the literature, Maxwell's (1992, 1996) typology involving three main threats to validity (descriptive, interpretative and theoretical) is a common approach to address potential validity issues. Specific strategies were undertaken in data collection and data analysis to ensure the correctness or credibility of the HSIE teachers’ descriptions and the researcher’s interpretations. Theoretical validity is addressed in the final, or interpretation phase in Section 3.5.

3.4.4 Data Collection - Questioning Strategies and Interview Questions

According to Maxwell (1992, 1996), the main threat to valid interpretations is the researcher imposing their own framework or meaning rather than understanding the participants’ perspective. Others, including Minichiello, et al., (1995a) and Fontana and Frey (2005) suggest that researchers should not impose views and bias, play a neutral role (‘etic’ perspective) and never interject opinions of a participant’s answers. The researcher, in conducting the interviews, avoided the risk of constructing or imposing on the HSIE teachers a different view by using specific methods.

Framing questions takes skill and practice. Interview questions must explore both the researcher’s topic and the participant’s experiences (Charmaz, 2003, 2005; Mears, 2009). In recounting the everyday work lives of these HSIE teachers, Strauss’ and Corbin’s (1998) grounded theory view of questioning as a complex grounded process and Kvale’s (1996) understanding of the purpose of opened-ended questions supported the interview process.

Strauss and Corbin’s (1998) understanding of guided questioning supported the researcher in developing and asking the interview questions. Guiding questions are open-ended allowing participants to explain how they perceived or viewed topics and to gain richer descriptions of the phenomena being researched (Creswell & Plano Clark, 2011; Kvale, 1996). As an interview progresses, sensitising questions necessitating an understanding of the informants’ knowledge about the topic attuned the researcher in the direction of the themes in the research questions (Kvale, 1996). Theoretical questions can also be utilised if needed to connect concepts and to support new directions. Therefore, it is essential to ask good questions to lead to productive conclusions and not down alternative paths that may be interesting, but not related to developing understanding (Charmaz, 2003, 2005).
With an understanding of the fundamentals of developing and asking good questions, an interview schedule or guide (presented in Appendix 6) was developed to support the HSIE teachers in recounting their social realities and experiences and to provide flexibility to explore other issues (Fontana & Frey, 2005; Minichiello, et al., 1995a; Olson, 2011). The interview schedule was developed around three interrelated sections relating to the research questions outlined in Section 3. Each section contained open-ended questions and prompts developed from the literature and research reviewed in Chapter 2 (refer to Appendix 6). Importantly, while the interview schedule was an analytical device, it was not used as a script (Kvale, 1996).

In the data collection process there is a need to ensure descriptive validity through factual accuracy. Factual accuracy involves complete data collection methods and the recording of what the informants said, or what the researcher heard accurately (Maxwell, 1992, 1996). Factual accuracy ensures trustworthiness in data collection and credibility of description so conclusions, explanations or inferences and interpretations drawn from the data are valid (Eisenhart & Howe, 1992; Maxwell, 1992, 1996; Miles & Huberman, 1994). To support factual accuracy, specific strategies were undertaken when conducting the interviews, in the recording and in the transcription of the interview data. These strategies are explained in Section 3.4.5 and in Section 3.4.6.

3.4.5 Data Collection - Conducting the Interviews

In conducting the interviews with the HSIE teachers six modes of understanding were developed consistent with good interviewing as described in the literature (Charmaz, 2005; Fontana, 2002; Fontana & Frey, 2005; Kvale, 1996; Mears, 2009; Minichiello, et al., 1995a; Olson, 2011; Strauss & Corbin, 1998). These modes supported factual accuracy.

Firstly, to promote factual accuracy each of the HSIE teachers received a copy of the interview schedule one week in advance of their planned interview date. A copy of the interview schedule was also made available at the time of the interview. With time to reflect, participants are more relaxed and engaged in the conversations (Minichiello, et al., 1995a; Minichiello, Aroni, Timewell, & Alexander, 1995b, 1995c). Therefore, as the HSIE teachers had received the schedule some time prior to the interviews, they knew the questions and were able in most instances to determine the direction of the conversations.
Secondly, asking the wrong questions is a common source of validity error in qualitative research (Minichiello, et al., 1995a; Olson, 2011). In an attempt to avoid this, the researcher conducted, recorded and transcribed a pilot interview with a senior independent University researcher. The ensuing discussion focused on the suitability of the interview questions and the effectiveness of the student researchers’ interviewing techniques. Subsequently, adjustments to the wording of the questions in the interview schedule occurred, but the themes remained the same.

Thirdly, in collaboratively constructing the interview narratives with the HSIE teachers there was a need for the researcher to create flexibility to pose new questions and at times alter existing questions (Fontana & Frey, 2005; Gubrium & Holstein, 2003; Holstein & Gubrium, 1995, 1995a, 2003; Strauss & Corbin, 1998). This occurred as the teachers discovered for themselves new aspects of the themes and questions that they were not aware of prior to the commencement of the interview (Kvale, 1996). Importantly, while the initial themes sometimes varied, there was a consciousness by the researcher to keep directing the interviews “in order to keep the informants relating experiences and attitudes that were relevant to the problem[s]” (Burgess, cited in Minichiello et al., 1995a, p. 65). The researcher also avoided, as Fontana and Frey (2005) suggest, answering questions asked by the teacher participants or providing personal opinions on matters being discussed.

Fourthly, establishing equality in roles was essential in supporting the HSIE teacher participants in relating their experiences (Kvale, 1996; Minichiello, et al., 1995a). To address any imbalance in power the researcher spent considerable time with each of the HSIE teachers in the previous part of the current research study. In doing so, the researcher and the participants developed a professional rapport, both as teachers and in a research capacity. Therefore, knowing these teachers increased social interactions and positive feelings during the interview experience. These positive feelings in turn stimulated intellectual curiosity to gain accurate and rich understandings. In all, the trust and respect, relaxed and engaged the informants to generate positive experiences for all (Kvale, 1996). Good interviewing needs to recognise this situation, with the interviewer being sensitive to how interactions can influence participants’ responses.

Fifthly, questions about participant bias need to be addressed (Minichiello, et al., 1995a). That is, how does the researcher know that these HSIE teachers during the interviews were giving an accurate account when answering the questions? Even though the interview questions were well developed and written “informants can
manipulate the researchers’ interpretation and definition of the situation—just as the researcher can—by half answering questions, not answering them, or making misleading statements” (Minichello et al., 1995a, p. 186). To address this concern, the researcher crosschecked the HSIE accounts during the interviews with interview schedule.

Finally, the researcher was aware of the importance of nonverbal techniques in interviewing. According to Charmaz (2005) there are four basic modes of nonverbal communication that need to be considered. Proxemic communication is the use of interpersonal space to communicate attitudes; chronemic communication is the use of pacing of speech and length of silence in conversation; kinesic communication includes any body movements or postures and paralinguistic communication involves variation in volume, pitch and quality of voice. While the respondent use of these modes was not recorded during the interview, the researcher did consider them during the interview process and adjusted and responded to nonverbal communication as needed.

3.4.6 Data Collection - Recording the Interviews

To enhance factual accuracy the interviews conducted with these HSIE teachers were electronically recorded. The literature highlights both advantages and disadvantages associated with the electronic recording of interviews (Alston & Bowles, 1998; R. Fuller & Petch, 1995; Kvale, 1996; Minichiello, et al., 1995a; Seidman, 1998; Tyson, 1995). The central advantage of electronically recording the interviews is that it allowed the researcher to concentrate on the context of the discussion, rather than focusing attention on taking detailed notes. In such a situation, according to Kvale (1996) the electronic recording of an interview can enhance the “subjectivity and remembering” (p. 161) by the researcher. Therefore, rather than having to rely on empathy and memory the researcher was able to take down field notes about how the interview had progressed and areas that were of interest or concern. The advantage of taking field notes at the end of the interview was to support the researcher to recall immediate memory, including the visual information and personal interactions, which to an extent are lost during the recording process (Alston & Bowles, 1998). Examples of these field notes are presented in Appendix 8 that served as reference points for subsequent interviews with other HSIE teachers.

While the electronic recording of the interviews has advantages, sometimes difficulties arise when working with the technology. To control for unforeseen technological problems, the pilot interview provided an opportunity to field-test the technology. This forward planning reduced the risk of errors occurring during the interviews.
Another perceived difficulty was how the presence of the recording device could affect interactions during the interview between the researcher and participants (Minichiello, et al., 1995a; Tyson, 1995). To reduce this impact, prior to the commencement of the interview the researcher conducted a test to determine if the equipment was working effectively. The test involved both the participant and researcher in a brief discussion. At the end of each of the interviews (each interview was about 45 minutes) the participants, if they wanted, could have the interview replayed to check for accuracy or to clarify issues if they were unclear. Such an approach gave confidence to the participant and reinforced an understanding that their input was valued and significant.

3.4.7 Transcribing the Interviews

With the interviewing completed, the next step was transcription to enable text analysis to take place. Transcription is the act of recording and preparing a written account, a text, of a respondent's own words in response to researchers' questions, with its own set of rules, to a written language with another set of rules (Kvale, 1996; Schwandt, 1997, 2001, 2007). However, in the transcription process some authors argue that it is inappropriate to edit transcriptions because they should stay close to the voices of the participants (Robertson, 1995). The question is, then, should an interview be transcribed verbatim, that is, word-by-word or should the interview be transformed into a more formal written style? In the current study, levels of transcription occurred. The first draft was unedited with a second edited version developed to support data analysis.

An experienced typist who was unfamiliar with the context of the research study transcribed the first draft. The first unedited draft included false starts to sentences, redundancies such as “um or er,” and crutch words such as “I mean” and “you know” and incorrect grammar (oral and dialect) features such as “catch'n” rather than “catching”. This version of the transcription allowed the researcher to infer how the participants would want their conversations recorded textually.

The second draft editing retained lines of thinking and themes, as Maxwell (1992) recommends. The editing involved removing some crutch words, correcting some grammar with some editorial changes to assist in the subsequent coding. Editing using this approach captured meaning and made it easier for the teacher participants to read and to make corrections or add comments (an exemplar transcript is presented in Appendix 5).
Each of the HSIE teachers received, via email, a draft edited copy of the transcript to carry out a participants’ check. The participant’s check of the transcribed information maintained factual accuracy (R. Fuller & Petch, 1995; Schwandt, 1997, 2001, 2007; Strauss & Corbin, 1998). Sending the edited version was beneficial in terms of clarifying meaning, as some people may experience quite a shock because “verbatim transcribed oral language may appear as incoherent and confused speech, even as indicating a lower level of intellectual functioning” (Kvale 1996, p. 172). None of the HSIE teachers requested a copy of their original transcripts and no corrections were received. With these measures in place, the text analysis could take place to bring order, structure and meaning to the research questions.

3.4.8 Data Analysis

With the interviews transcribed the text needed to be analysed to answer the research questions. Data analysis is a process of organising, managing and retrieving the most meaningful bits of information, to identify themes, to construct hypothesis as suggested by the data and attempts to demonstrate and support those themes and hypotheses (Miles & Huberman, 1994; Miller & Crabtree, 1999; Perakyla, 2005; Tesch, 1990). The process of organising textual information to generate key themes, concepts and patterns involves data coding.

Firstly, before the coding of the text was undertaken the researcher needed to become familiar with each of the individual HSIE teacher’s transcripts. This involved the reading and reviewing the transcripts several times and recording thoughts questions and ideas to promote the coding process. These thoughts and questions were recorded in short one-sentence notes or memos on the transcripts. Strauss and Corbin (1998) note the importance of memos, recommending (specifically, when undertaking grounded theory) that researchers should make frequent use of memos so ideas, insights and questions are not lost during detailed analysis.

Secondly, within the literature there is a variety of analytic coding procedures described that would support data reduction and simplification (Charmaz, 2003, 2005; Coffey & Atkinson, 1996; Miles & Huberman, 1994; Neuman, 1997; Perakyla, 2005; Strauss & Corbin, 1998). For example, Miles and Huberman described a sequence of analytical practices utilised across different qualitative research types. However, in this study Strauss and Corbin’s (1998) grounded theory approach provides probably the best example of coding for data reduction and simplification. In grounded theory, ‘open coding’ is the initial type of coding undertaken and involves an unrestricted approach to
break the data down into discrete parts that can be closely examined and compared for similarities and differences (L. Ayres, 2007; Charmaz, 2003, 2005; Creswell, 1998; Strauss, 1987; Strauss & Corbin, 1998). Such procedures increase the sensitivity of the researcher to help recognise ‘bias’ and overcome ‘analytic blocks’ in the data analysis process (Strauss & Corbin, 1998).

The open coding procedures described here provided guidance and understanding in the coding of the data from the HSIE teachers’ interviews. To identify themes in the text the researcher undertook a broad based ‘open coding’ approach using N.VIVO software techniques describe by Gibbs (2002). As the transcripts of the HSIE teachers were a window into experience rather than being the object of study, as in more linguistically based analysis, coding was at a paragraph level, although many of the paragraphs could have contained multiple codes (Ryan & Bernard, 2000). Therefore, the coding on broad themes was appropriate for the current study rather than a very detailed analysis of the text. In this way, the codes assigned to the segments of text would still represent links between the raw data on the one hand and the theoretical concepts that the researcher is trying to relate to in each of the research questions on the other.

Once the fragments of data related to a particular idea or concept had been identified, they were brought together to create categories of data that had some common properties, elements or themes. That is, everything that belonged to one category was reassembled in one place. Tesch (1990) refers to this reassembly process as ‘recontextualistion’.

### 3.5 Interpretation Phase – Combining the Two Data Sets

In an ‘explanatory sequential design’ the final stage is the interpretation stage (Creswell & Plano Clark, 2011). In the interpretation phase processes of data comparison described by Onwuegbuzie and Teddlie (2003) were undertaken to create new and different interpretations of the classroom observation findings.

Once the data analysis was complete the interpretation involved the researcher looking across the quantitative results and qualitative findings and making an assessment of how the information addresses the three qualitative research questions. Therefore, the second phase findings provide a qualitative basis to draw inferences, to address questions about and ascertain factors influencing the individual teaching observed in the Stage 4/5 HSIE classrooms.
However, in the process of interpretation, methodological questions can arise as inferences about causality are controversial in qualitative research (Maxwell & Loomis, 2003). In addressing this methodological question, the second phase of the study was not about establishing what Maxwell (1992, 1996) refers to as explanatory or theoretical validity as this involves claims about causal processes and relationships. The influences on practices revealed by these HSIE teachers were seen as general influences and not direct cause and effects established by abstraction (Maxwell & Loomis, 2003). As Maxwell points out, validity is relative and has to be assessed in relationship to the purpose and circumstances of the research and teacher views on why they taught as they did is a very complex construct unlikely to provide definitive answers.

3.6 Concluding Comments

This research study involved a ‘mixed methods design’ that combined both quantitative and qualitative methodologies into a multi-phased study to address the research questions. The first phase addressed research question one and involved a complex and challenging design. Quantitative instruments developed for use with the NSWQTM gathered numeric observation data from single-teacher cohorts repeatedly over time. The analysis of this observation data, through deductive processes provided an opportunity for the first time to describe the pedagogy in Stage 4/5 History and Geography classrooms.

To this end, the second phase of the study involved qualitative methods in an attempt to answer three additional research questions. Unlike quantitative research, qualitative research involves a more ‘emic’ or ‘ideographic’ case-based position with the creative work to assign meaning involving coding and analysing following data collection (L. Ayres, 2007; Charmaz, 2003, 2005; Creswell, 1998; Guba & Lincoln, 1989; Miles & Huberman, 1994). The qualitative methods collected verbal data by undertaking one formal, semi-structured interview undertaken with the seven of the eight HSIE teachers some months after the completion of the classroom observations. Interview questions guided discussion around three themes, the HSIE teacher’s perceptions about quality teaching, their perceptions about preferred professional development and their perceptions about school organisation influences on their classroom instruction. During the interviews, the expectation was that the participants would provide and explore new directions. The analysis of the interviews involved an inductive process to understand relationships emerging from the data.
Therefore, the significance of the current research, while acknowledging the self-reported nature of the interview data, lies not only in the ability to observe classroom practices using an operationalised model of pedagogy, but also to explain these findings from the participants' perspective.
Chapter 4
First Phase Results - Observed Practice in Stage 4/5 HSIE Classrooms

4.1 Introduction

This chapter reports the first phase results. The NSWQTM was the model of choice to investigate the classroom practices of a self-selected cohort of eight Stage 4/5 HSIE teachers from five public high schools in a single education region. The model comprises 18 elements, grouped into three dimensions to promote a pedagogy that is characterised by high levels of Intellectual Quality; a pedagogy that promotes a Quality Learning Environment and a pedagogy that makes explicit to students the Significance of their work (NSWDET, 2003a, 2003d). The results reported addressed the following research question:

What variation in pedagogy is exhibited in classroom instruction in Stage 4/5 HSIE classes in NSW public secondary schools, based on repeated classroom observations using the NSWQTM?

Data collection involved the processes described in Sections 3.3.2, 3.3.3 and 3.3.4. Data relating to the pedagogy in these single teacher-class cohorts was gathered over a ten week period by direct observation on a weekly basis, one observation per week with the same class, same teacher. The instruments (item-rating scales and coding descriptors) to describe the quality of pedagogy were already developed in the document Quality Teaching in NSW public schools: A classroom practice guide (NSWDET, 2003d). These item-rating scales (ordinal scale scored on 1-5 Likert scale) allowed the researcher to make distinctions based on whether or not the quality in question was observed, how many students were engaged in that manner and for how much of the lesson (Ladwig, 2005). For analysis purposes, the dimensional constructs had a theoretical mid-point of 18. That is, with coding using a 5 point observation scale with 1 being the lowest and 5 being the highest, the scores for each of the three dimensional constructs could range between a low of 6 and a high of 30, so the mid-point is 18 rather than 15, as would be expected with a 0-30 range. For the elements, with a rating scale between 1 and 5, the theoretical mid-point was 3. A coding of ‘1’ indicated that the element was not visible in the lesson being observed and a dimensional code of ‘6’ meant that no element of the dimension was visible in the lesson.

Data analysis followed the processes described in Section 3.3.5. These results are reported in Sections 4.2 to 4.5. Analysis involved calculating descriptive statistics with
histograms displaying the frequency distribution of the observation scores for both the dimensions and elements. To determine the symmetry of distribution, skewness and kurtosis are reported. In reporting these results, the coding descriptors from *Quality teaching in NSW public schools: A classroom practice guide* (NSWDET, 2003d) were aligned with the teaching observed to gauge the quality of the students’ learning experiences.

Consistency in coding from lesson to lesson was important with inter-rater reliability undertaken to establish coding validity. These results are reported in Section 4.2.

In Section 4.6 the results of an ANOVA and Scheffe tests are reported. An ANOVA was conducted at a dimensional level to determine if there were any statistically significant differences between the HSIE teachers’ classroom practices. Statistical significant differences were found and a Scheffe test determined which of the HSIE teachers were statistically significantly different from the group.

According to the architects of the NSWQTM, any teaching strategy or instructional approach can be applied in ways to create high or low levels of Quality Teaching (Ladwig, 2005; Newmann & Associates, 1996a). To identify specific teaching strategies supporting student learning in these HSIE classrooms, the researcher’s field notes were analysed using the methods described in Section 3.3.5. The results from this analysis are reported in Section 4.7. Finally, in Section 4.8 the first phase results from this study are summarised.

### 4.2 Inter-rater Reliability

During the observation period reliability ratings were undertaken on three lessons. To assess the size and direction of the linear relationship of the element scores between the researcher and his initial supervisor, Pearson’s product-moment correlation coefficients (or Pearson’s *r*) were calculated. An initial reliability rating was conducted in Mr Reynolds’ Year 10 Geography class (C/04220704). The bivariate correlation between the two researchers was positive and strong: *r*(16)=0.852, *p*<0.001. A second coding reliability rating was conducted in Mr Wilson’s Year 10 Geography class (H/05060804) with the bivariate correlation positive and strong: *r*(16)=0.845, *p*<0.001. The third reliability rating was conducted in Mr Jones’ Year 8 Geography class (B/01060904) with the bivariate correlation positive and very strong: *r*(16)=0.925, *p*<0.001. Overall, in investigating the relationship between the coding scores of the two researchers, the bivariate correlations were positive and strong.
During the inter-rater reliability coding sessions some variations did occur. It was established that these coding variations emanated from the different teaching backgrounds and did not arise from any misunderstandings of the item-rating scales and coding descriptors. In the ensuing discussions between the two researchers agreed scores were established, and these were recorded as the observation score for those elements in the data set.

4.3 Promoting Intellectual Quality in Stage 4/5 HSIE Classrooms

In this section the results from the analysis of the observation data for the Intellectual Quality dimension are reported. The pedagogy of Intellectual Quality dimension focuses on producing deep understanding of important, substantive concepts, skills and ideas; treats knowledge as something that requires active construction; requires students to engage in higher order thinking and to communicate substantially about their learning (NSWDET, 2003d).

4.3.1 Intellectual Quality Dimension

In understanding the pedagogy of the Intellectual Quality dimension in these Stage 4/5 HSIE classrooms, descriptive statistics and measures of central tendency are presented in Table 4.1 to reveal some interesting results. Graphically, the histogram presented in Figure 4.1 describes the frequency distribution of the observation scores with a normal distribution curve superimposed to show asymmetry.

Figure 4.1 Intellectual Quality – Frequency Distribution
Table 4.1  Intellectual Quality–Descriptive Statistics

<p>| | |</p>
<table>
<thead>
<tr>
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<tr>
<td>Mean</td>
<td>14.67</td>
</tr>
<tr>
<td>Std error of mean</td>
<td>0.291</td>
</tr>
<tr>
<td>Median</td>
<td>14.00</td>
</tr>
<tr>
<td>Mode</td>
<td>13\textsuperscript{a}</td>
</tr>
<tr>
<td>Std Deviation</td>
<td>2.271</td>
</tr>
<tr>
<td>Variance</td>
<td>5.157</td>
</tr>
<tr>
<td>Skewness</td>
<td>0.457</td>
</tr>
<tr>
<td>Std error of Skewness</td>
<td>0.306</td>
</tr>
<tr>
<td>Kurtosis</td>
<td>-0.367</td>
</tr>
<tr>
<td>Std error of Kurtosis</td>
<td>0.604</td>
</tr>
<tr>
<td>Minimum</td>
<td>11</td>
</tr>
<tr>
<td>Maximum</td>
<td>20</td>
</tr>
</tbody>
</table>

(N=61, \textsuperscript{a} Multiple modes exist. The smallest value is shown.)

Table 4.1 indicates that the mean score for Intellectual Quality was lower than the mid-point of 18 (mean=14.67, std dev=2.271) with about 68% (41) of the lessons observed within the score range of 11.96 to 17.38. The distribution had a median of 14.00 and was bimodal (13 & 14). The distribution of the data was fairly symmetric with a small positive skew (skewness=0.457) and platykurtic kurtosis (kurt=-0.367). As shown in Figure 4.1, there were four observations with a low score of 11 (6.6%) and only two observations that scored 20 (2%).

Table 4.2  Intellectual Quality – Element Descriptive Statistics

<table>
<thead>
<tr>
<th>Elements (N=61)</th>
<th>Deep Knowledge</th>
<th>Deep Understanding</th>
<th>Problematic Knowledge</th>
<th>Higher-order Thinking</th>
<th>Metalanguage</th>
<th>Substantive Communication</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>3.23</td>
<td>2.74</td>
<td>1.92</td>
<td>2.16</td>
<td>2.10</td>
<td>2.52</td>
</tr>
<tr>
<td>Std error of mean</td>
<td>0.068</td>
<td>0.074</td>
<td>0.103</td>
<td>0.088</td>
<td>0.076</td>
<td>0.076</td>
</tr>
<tr>
<td>Median</td>
<td>3.00</td>
<td>3.00</td>
<td>2.00</td>
<td>2.00</td>
<td>2.00</td>
<td>3.00</td>
</tr>
<tr>
<td>Mode</td>
<td>3.00</td>
<td>3.00</td>
<td>2.00</td>
<td>2.00</td>
<td>2.00</td>
<td>2\textsuperscript{a}</td>
</tr>
<tr>
<td>Std Deviation</td>
<td>0.529</td>
<td>0.575</td>
<td>0.802</td>
<td>0.688</td>
<td>0.597</td>
<td>0.595</td>
</tr>
<tr>
<td>Variance</td>
<td>0.280</td>
<td>0.330</td>
<td>0.643</td>
<td>0.473</td>
<td>0.357</td>
<td>0.354</td>
</tr>
<tr>
<td>Skewness</td>
<td>0.198</td>
<td>0.062</td>
<td>0.352</td>
<td>0.095</td>
<td>0.455</td>
<td>0.148</td>
</tr>
<tr>
<td>Std error of Skewness</td>
<td>0.306</td>
<td>0.306</td>
<td>0.306</td>
<td>0.306</td>
<td>0.306</td>
<td>0.306</td>
</tr>
<tr>
<td>Kurtosis</td>
<td>-0.106</td>
<td>-0.408</td>
<td>-0.801</td>
<td>-0.170</td>
<td>1.262</td>
<td>-0.421</td>
</tr>
<tr>
<td>Std error of Kurtosis</td>
<td>0.604</td>
<td>0.604</td>
<td>0.604</td>
<td>0.604</td>
<td>0.604</td>
<td>0.604</td>
</tr>
<tr>
<td>Minimum</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Maximum</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
</tbody>
</table>

While the dimensional results provided an overall picture of the level of Intellectual Quality in these Stage 4/5 HSIE classrooms, there was a need to understand how each of these six elements; deep knowledge, deep understanding, problematic knowledge, higher-order thinking, metalanguage and substantive communication contributed to the pedagogy observed. The descriptive statistics and central tendency measures are presented in Table 4.2. In Sections 4.3.1 to 4.3.7 the observation results are reported with histograms showing frequency distributions (Figures 4.2 to 4.7).
4.3.2 Deep Knowledge

In the Stage 4/5 HSIE classrooms, deep knowledge is evident when either the teacher or the students provide information, reasoning or arguments that address the central ideas of the lesson; or when complex relations are established to other concepts (NSWDET, 2003d). In the HSIE KLA the deep knowledge or central ideas to be learnt by students are outlined in the Stage 4/5 History and Geography syllabi documents developed by the NSWBoS (2003a, 2003b).

From the results in Table 4.2, deep knowledge had a median and a mode of 3. The mean score (mean=3.23, std dev=0.529) was higher than the theoretical mid-point (3). The relatively low standard deviation indicated consistency in instruction with about 68% (41) of the classroom observations within the score range of 2.70 to 3.76. Overall, the distribution was fairly symmetrical around the mean (skewness=0.198) with platykurtic kurtosis (kurt= -0.106).

Figure 4.2 Deep Knowledge – Frequency Distribution

As shown in Figure 4.2 there were 41 (67.2%) observations that scored 3, where deep knowledge was treated unevenly. There were 17 (27.9%) observations that scored 4, where the knowledge was deep and the focus was sustained. At the other end of the continuum there were 3 observations (4.9%) that scored 2. In these low scoring lessons the key terms and concepts were treated in a superficial manner. There were no lessons observed that scored 1, where almost all the knowledge of the lesson was shallow, or a 5 where there was sustained focus on the key ideas throughout the lesson.
4.3.3 Deep Understanding

In the Stage 4/5 HSIE classrooms, deep understanding involves the students exploring relationships in knowledge, to solve problems and by drawing complex conclusions and relationships (NSWDET, 2003d). Deep understanding can be demonstrated in either oral, written symbolic or performance modes. To determine the level of deep understanding, the researcher had lengthy discussions with students at critical junctures in the lesson. These discussions determined if the students understood the information, could solve problems or could draw conclusions from their written work (NSWDET, 2003d). Further, the discourse undertaken between the teacher and students provided evidence to the researcher that the students understood the knowledge and skills of the lesson.

From the results in Table 4.2, deep understanding had a median and a mode of 3. The mean score (mean=2.74, std dev=0.575) was below the theoretical mid-point (3) with about 68% (41) of the classroom observations within the score range of 2.17 to 3.32. Deep understanding was symmetrical around the mean (skewness=0.062) with platykurtic kurtosis (kurt=-0.408).

Figure 4.3 Deep Understanding – Frequency Distribution

As shown in Figure 4.3 there were 20 (32.8%) observations that scored 2 where understanding by students was shallow for most of the lesson. There were 37 (60.7%) lessons that scored 3, with students demonstrating both shallow and deeper understanding at different points in the lesson. At the high end of the scale, there were 4 lessons (6.6%) that scored 4, with students demonstrating deep understanding for a
substantial portion of the lesson. There were no lessons observed that scored a 1, where students demonstrated shallow understanding, or 5 where all students demonstrated deep understanding for all of a lesson.

4.3.4 Problematic Knowledge

Problematic knowledge involves students in the HSIE classrooms being able to understand knowledge, not as a fixed body of information, but rather as being socially constructed and hence subject to political, social and cultural influences and implications (NSWDET, 2003d). Knowledge that is problematic needs to be explored from multiple perspectives and not open to only one interpretation.

From the results in Table 4.2, problematic knowledge had a median and a mode of 2. The mean score (mean=1.92, std dev=0.802) was well below the theoretical mid-point (3), with about 68% (41 lessons) of the classroom observations within the score range of 1.12 to 2.72. The data was fairly symmetrical (skewness=0.352) with an increasingly platykurtic kurtosis (kurt= -0.801).

As shown in Figure 4.4, over 75% of the lessons observed scored a 2 or less. There were 21 (34.4%) observations that scored 1, where all knowledge was presented as fact and was not open to question. There were 25 (41%) observations that scored 2, with some knowledge open to multiple perspectives. There were 14 (23%) lessons that scored 3, where the knowledge presented was seen as socially constructed and open to question. There was only one lesson that scored 4 (1.6%), where multiple
perspectives were not only presented, but were explored through questioning of their basic assumptions. There were no lesson observations that scored 5, where knowledge was seen as socially constructed.

4.3.5 Higher-Order Thinking

In the Stage 4/5 HSIE classrooms higher-order thinking treats knowledge as something that requires active construction, for students to solve problems, to create new meaning and understandings and to communicate what they are learning (NSWDET, 2003d). Classrooms that focus on instructional approaches that promote higher-order thinking involve students engaging in thinking that requires them to apply, analyse, synthesise and evaluate information to create learning that will almost certainly result in higher levels of deep understanding.

From the results in Table 4.2, higher-order thinking had a median and a mode of 2. The mean score (mean=2.16, std dev =0.688) was below the theoretical mid-point (3) with about 68% (41 lessons) of the classroom observations within the score range of 1.47 to 2.85. The lesson scores were distributed fairly symmetrically around the mean (skewness=0.095) with platykurtic kurtosis (kurt= -0.170).

As shown in Figure 4.5, there were 17 (27.9%) observations that scored 3, where students primarily demonstrated lower-order thinking for most of a lesson. One lesson (1.6%) scored a 4 with at least one higher-order thinking activity or question occupying a significant part of the lesson. There were no lessons that scored 5 where all students, most of the time, demonstrated higher-order thinking. There were 34 observations
(55.7%) that scored 2, where students primarily demonstrated lower-order thinking. There were 9 lessons (14.8%) that scored 1 where only lower-order thinking was observed.

### 4.3.6 Metalanguage

In the Stage 4/5 HSIE classrooms, lessons that scored high on *metalanguage* generated high levels of talk about how language and text works (NSWDET, 2003d). Advanced *metalanguage* includes complex analysis of the structure and symbols in order to structure meaning in a lesson. For example, in Geography classrooms many of the geographical tools (maps, fieldwork, graphs, photographs and statistics) described in the syllabus document (NSWBoS, 2003a, p. 18) when used to develop understanding of why things are where they are (‘spatial’ and ‘ecological’ dimensions), are a form of *metalanguage*. Importantly, specialist terminology is not in itself *metalanguage* unless its use is explained in non-specialist terms (NSWDET, 2003d).

From the results in Table 4.2, *metalanguage* had a median and a mode of 2. The mean score (mean=2.10, std dev=0.597) was well below the theoretical mid-point (3) with about 68% (41) of the classroom observations within the score range of 1.50 to 2.70. The distribution of the data was fairly symmetrical (skewness=0.455) with relatively large tails indicating leptokurtic kurtosis (kurt=1.262).

**Figure 4.6 Metalanguage – Frequency Distributions**

As shown in Figure 4.6, the frequency distribution pattern indicated that over 80% of the lessons observed scored a 1 or 2. There were 7 observations (11.5 %) that scored 1 with no *metalanguage* observed. There were 42 (68.9%) lessons where *metalanguage* was low that scored 2. In these lessons, terminology was only explained
and there was no clarification or assistance provided regarding the structure of the language. There were 11 (18%) observations that scored 3, with some use of metalanguage as the teacher or students stopped to explain some aspect of the language, such as vocabulary or genre. There was only one lesson that scored 4, where commentary was provided, by either the teacher or students, on the structure of language. No lessons scored 5, where metalanguage was frequently used.

### 4.3.7 Substantive Communication

Substantive communication occurred in the Stage 4/5 HSIE classrooms when students were engaged in sustained and reciprocal conversations, whether in oral, artistic, or written forms. Classrooms demonstrating high levels of substantive conversations go beyond the routine teacher directed lessons involving a typical ‘initiate-response-evaluate pattern’ (IRE). IRE patterns involve the teacher asking simple questions to receive predetermined responses from the students. In moving beyond the IRE format, teachers need to develop lines of reasoning by redirecting ideas to other students and by calling upon other students to comment on each other’s responses (NSWDET, 2003d).

From the results in Table 4.2, substantive communication had a median of 3 and a multiple mode of 2. The mean score (mean=2.52, std dev=0.595) was below the theoretical mid-point (3) with about 68% (41) of the classroom observations within the score range of 1.93 to 3.12. The distribution of the data was fairly symmetrical (skewness=0.148) with platykurtic kurtosis (kurt= -0.421).

**Figure 4.7 Substantive Communication – Frequency Distribution**
As shown in Figure 4.7, 96.7% of the lessons observed had some form of substantive communication. There was only one lesson observed (1.6%) that scored 1, where no substantive communication occurred. There were 29 (47.5%) lessons that scored 2, where communication only occurred briefly and involved mainly IRE patterns. There were also 29 (47.5%) lessons that scored 3, with communication involving at least two sustained interactions. Sustained interactions for over half of a lesson only occurred on 2 occasions (3.3%). There were no lessons that scored 5, where sustained interaction occurred throughout the lesson.

4.4 Developing a Quality Learning Environment in Stage 4/5 HSIE Classrooms

In this section the results from the analysis of the observation data for the Quality Learning Environment dimension are reported. The pedagogy of the Quality Learning Environment creates classroom environments characterised by high and explicit expectations to develop positive relationships between teachers and students to work productively together (NSWDET, 2003d).

4.4.1 Quality Learning Environment Dimension

In understanding the pedagogy of the Quality Learning Environment dimension, descriptive statistics and measures of central tendency are presented in Table 4.3 to reveal some interesting results. In understanding the pedagogy of the Quality Learning Environment dimension in these Stage 4/5 HSIE classrooms, descriptive statistics and measures of central tendency are presented in Table 4.5. Graphically, the histogram presented in Figure 4.8 describes the frequency distribution of the observation scores with a normal distribution curve superimposed to show asymmetry.

From the results in Table 4.3, the dimension of the Quality Learning Environment had a mean lower than the theoretical mid-point of 18 (mean=16.02, std dev=2.668) with a median of 15 and a mode of 14. The distribution of scores was symmetric around the mean (skewness=0.347) with relatively small tails indicating platykurtic kurtosis (kurt=-0.963). As shown in Figure 4.8, there were 6 observations (9.8%) with a low score of 12. At the other extreme, there were only 3 (3.3%) observations with a high score of 21. There were 68% (41) of the observation scores in a range from a high of 18.69 to a low of 13.35.
In supporting productive relationships in these HSIE classrooms, there was a need to understand how each of the **Quality Learning Environment** elements; *explicit quality criteria, engagement, high expectations, social support, students' self-regulation* and *student direction* contributed to the pedagogy observed. In understanding the relative importance of each of these elements, the descriptive and central tendency statistics are presented in Table 4.4. Sections 4.4.1 to 4.4 report the results, with histograms showing frequency distributions (Figures 4.9 to 4.14).

**Table 4.3  Quality Learning Environment – Descriptive Statistics**

<table>
<thead>
<tr>
<th>Statistic</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>16.02</td>
</tr>
<tr>
<td>Std error of mean</td>
<td>.342</td>
</tr>
<tr>
<td>Median</td>
<td>15.00</td>
</tr>
<tr>
<td>Mode</td>
<td>14</td>
</tr>
<tr>
<td>Std Deviation</td>
<td>2.668</td>
</tr>
<tr>
<td>Variance</td>
<td>7.116</td>
</tr>
<tr>
<td>Skewness</td>
<td>.347</td>
</tr>
<tr>
<td>Std error of Skewness</td>
<td>.306</td>
</tr>
<tr>
<td>Kurtosis</td>
<td>-.963</td>
</tr>
<tr>
<td>Std error of Kurtosis</td>
<td>.604</td>
</tr>
<tr>
<td>Minimum</td>
<td>12</td>
</tr>
<tr>
<td>Maximum</td>
<td>21</td>
</tr>
</tbody>
</table>

(N=61)
Table 4.4  Quality Learning Environment – Element Descriptive Statistics

<table>
<thead>
<tr>
<th>Elements (N = 61)</th>
<th>Explicit Quality Criteria</th>
<th>Engagement</th>
<th>High Expectations</th>
<th>Social Support</th>
<th>Students’ Self Regulation</th>
<th>Student Direction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>1.49</td>
<td>2.84</td>
<td>2.52</td>
<td>3.84</td>
<td>3.62</td>
<td>1.70</td>
</tr>
<tr>
<td>Std error of mean</td>
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<td>.105</td>
<td>.086</td>
<td>.075</td>
<td>.085</td>
<td>.089</td>
</tr>
<tr>
<td>Median</td>
<td>1.00</td>
<td>3.00</td>
<td>2.00</td>
<td>4.00</td>
<td>4.00</td>
<td>2.00</td>
</tr>
<tr>
<td>Mode</td>
<td>1.00</td>
<td>2.00</td>
<td>2.00</td>
<td>4.00</td>
<td>4.00</td>
<td>2.00</td>
</tr>
<tr>
<td>Std Deviation</td>
<td>.674</td>
<td>.820</td>
<td>.673</td>
<td>.583</td>
<td>.662</td>
<td>.691</td>
</tr>
<tr>
<td>Variance</td>
<td>.454</td>
<td>.673</td>
<td>.454</td>
<td>.339</td>
<td>.439</td>
<td>.478</td>
</tr>
<tr>
<td>Skewness</td>
<td>1.044</td>
<td>.129</td>
<td>.585</td>
<td>.025</td>
<td>-.116</td>
<td>.467</td>
</tr>
<tr>
<td>Std error of Skewness</td>
<td>.306</td>
<td>.306</td>
<td>.306</td>
<td>.306</td>
<td>.306</td>
<td>.306</td>
</tr>
<tr>
<td>Kurtosis</td>
<td>-.082</td>
<td>-1.115</td>
<td>-.228</td>
<td>-.140</td>
<td>-.059</td>
<td>-.809</td>
</tr>
<tr>
<td>Std error of Kurtosis</td>
<td>.604</td>
<td>.604</td>
<td>.604</td>
<td>.604</td>
<td>.604</td>
<td>.604</td>
</tr>
<tr>
<td>Minimum</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
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<td>4</td>
<td>4</td>
<td>5</td>
<td>5</td>
<td>3</td>
</tr>
</tbody>
</table>

4.4.2  Explicit Quality Criteria

In the Sage 4/5 HSIE classrooms explicit quality criteria involves detailed and specific statements or criteria about the quality of work expected from students by their teacher. The criteria, either developed by the teacher or students provides valuable feedback during task completion to support students to reach a shared understanding of what is expected to produce high quality work (NSWDET, 2003d).

From results in Table 4.4, explicit quality criteria had a median and a mode of 1. Explicit quality criteria also had the lowest mean score (mean=1.49, std dev=0.674) of all the eighteen elements, with about 68% (41) of the classroom observations within the score range of 0.82 to 2.16. Explicit quality criteria was highly positively skewed (skewness=1.044) with platykurtic kurtosis (kurt= -0.082).

Figure 4.9  Explicit Quality Criteria – Frequency Distribution
As shown in Figure 4.9, 54 (90.2%) of the lessons observed either scored 1 or 2. There were 37 (60.7%) lessons that scored 1, where no explicit statements were made about the desired quality of students' work. In the 18 (30%) lessons that scored 2, only general statements were made about the desired quality of students' work. There were only 6 (9.8%) lessons that scored 3, with detailed criteria made explicit but there was no evidence in these lessons of students using the criteria to assess the quality of their work. There were no lessons that scored 4 or 5, where students examined the quality of their work in relation to criteria.

4.4.3 Engagement

Many teachers spend a great deal of time attempting to keep students on task by creating lessons that generate interest and enthusiasm. In the Stage 4/5 HSIE classrooms, student engagement is essential in the learning process and goes beyond the concept of students simply being on task. In promoting a Quality Learning Environment student engagement is identified “by on-task behaviour by students that signals a serious investment in class work” (NSWDET, 2003d, p.28). The important question is: how much time is seriously invested by students in a lesson?

Table 4.4 shows a median of 3 and a mode of 2 for student engagement. The mean score (mean=2.84, std dev=0.820) was lower than the theoretical mid-point (3). The standard deviation was the third largest of the 18 elements with about 68% (41) of the classroom observations within the score range of 2.02 to 3.66. The distribution of the data was fairly symmetrical (skewness=0.129) with platykurtic kurtosis (kurt=-1.115).

Figure 4.10 Engagement – Frequency Distribution
As shown in Figure 4.10, there were 23 observations (37.7%) that scored 2. In these classrooms *engagement* was sporadic with students appearing indifferent and only occasionally active in carrying out their class work. There were 22 (36.1%) observations that scored 3, where most students were seriously engaged in parts of the lesson, but were indifferent in other parts; very few students were clearly off task. Widespread *engagement* involving a score of 4, where most students were seriously engaged in the work and were trying hard, occurred in only 15 (24.6%) lessons observed. There was one lesson that scored 5, where students were seriously engaged in the lesson most of the time.

### 4.4.4 High Expectations

*High expectations* are evident in the Stage 4/5 HSIE classrooms when all students are encouraged to participate in challenging work to enhance knowledge and understanding. *High expectations* are not about how many students are participating in the lesson, but involve teachers encouraging the students to take risks and become enthusiastic learners. Expectations are low when the work is not challenging or teachers indicate that students are not expected to be able to do the work asked of them (NSWDET, 2003d).

Table 4.4, shows a median and a mode of 2 for *high expectations*. The mean score (mean=2.52, std dev=0.673) was below the theoretical mid-point (3). The HSIE teachers consistently demonstrated pedagogy to this standard with about 68% (41) of the classroom observations within the score range of 1.85 to 3.19. *High expectations* was moderately positively skewed (skewness=0.585) and platykurtic kurtosis (kurt= -0.228).
As shown in Figure 4.11, there were 32 lesson observations (52.2%) that scored 2, where some students participated in challenging work during at least some of the lesson. There was only one lesson observed that scored 1, where no students participated in challenging work. On the other hand, there were 23 (37.7%) observations that scored 3, where many students participated in challenging work for at least half of the lesson. There were no lessons observed that scored 5, where all students participated in challenging work throughout the entire lesson.

**4.4.5 Social Support**

High levels of *social support* in the HSIE classrooms would see teachers developing strong positive support for learning by encouraging students, in a climate of mutual respect, to try hard and risk initial failure (NSWDET, 2003d). If disagreements or conflict did occur, the teacher would be expected to resolve the conflict in constructive ways for all those concerned.

From results in Table 4.4, *social support* had a median and a mode of 4. The mean score (mean=3.84, std dev=0.583) was well above the theoretical mid-point (3). The mean score for *social support* was the second highest of all the 18 elements. The small standard deviation indicated that about 68% (41) of the classroom observations were within the score range of 3.26 to 4.42. The distribution of the frequency data was fairly symmetric (skewness=0.025) with platykurtic kurtosis (kurt=-0.140).
As shown in Figure 4.12, there were 16 observations (26.2%) that scored 3, where social support was neutral or mildly positive with supportive comments directed at those students most engaged in the lessons rather than those students misbehaving. There were 32 (63.9%) observations that scored 4, where social support was clearly positive, where supportive comments were directed at most students and encouragement provided for reluctant students. There were 6 (9.8%) observations that scored 5, where social support was strong to create a positive learning environment. There were no observations that scored 1, where the comments or actions of teachers or students resulted in a negative classroom environment.

4.4.6 Students’ Self-Regulation

High levels of students’ self-regulation were evident in the Stage 4/5 HSIE classrooms when the lesson proceeded without interruption and when the students were able to demonstrate autonomy in relation to regulating their behaviours (NSWDET, 2003d). On the other hand, in classrooms where students’ self-regulation was low the teacher needed to spend major portions of the lesson redirecting students’ behaviour. If a teacher needs to redirect students’ behaviour, the ability for all to learn effectively is questionable.

From results in Table 4.4, students’ self-regulation had a median and a mode of 4. The mean score (mean=3.62, std dev=0.662) was above the theoretical mid-point (3) with about 68% (41) of the classroom observations within the score range of 2.96 to 4.28.
The frequency distribution was fairly symmetric (skewness = -0.116) with platykurtic kurtosis (kurt = -0.059).

**Figure 4.13 Students’ Self Regulation – Frequency Distribution**

As shown in Figure 4.13, there were 23 observations (37.7%) that scored 3, indicating that many students in these lessons were demonstrating the ability to regulate their own behaviour. There were 32 (52.5%) observations that scored 4. In these lessons most of the students, most of the time, were able to regulate their own behaviour. At the top end of the score range there were 4 (6.6%) lessons that scored 5, with students demonstrating the ability to regulate their own behaviour to enable the lesson to progress without any disruptions.

### 4.4.7 Student Direction

In the HSIE classroom, high levels of *student direction* are supported by instructional practices that give students control over significant aspects of their learning. In coding *student direction*, the degree of control students had in the lesson was scored based on; choice of activities, the pace of the lesson and the criteria by which the quality of their work was to be assessed (NSWDET, 2003d).

From the results in Table 4.4, *student direction* had a median and a mode of 2. The mean score for *student direction* (mean = 1.70, std dev = 0.691) was much lower than the theoretical mid-point (3) and the second lowest score of all eighteen elements. About 68% (41) of the classroom observations were within the score range of 1.01 to 2.39. The distribution of the data was fairly symmetric around the mean (skewness = 0.467) with platykurtic kurtosis (kurt = -0.809).
As shown Figure 4.14, most of the observation scores were at the lower end of the range, with 86.9% of lessons scoring 1 or 2. There were 26 lessons (42.6%) that scored 1, with all aspects of instruction explicitly controlled by the teacher and 27 (44.3%) lessons that scored 2 with students having minimal control over some aspect of the lesson. There were only 8 lessons (13.1%) that scored 3, where students had some control over some significant aspect of the lesson. There were no lessons observed that scored 4, where students, through negotiation, had control over some significant aspects of a lesson, or 5 where there was high student direction.

4.5 Creating Significance in Stage 4/5 HSIE Classrooms

In this section the results from the analysis of the observation data for the Significance dimension are reported. The pedagogy of the Significance dimension helps make learning more meaningful and important to students. To create meaningful learning in classrooms, the HSIE teachers needed to make clear connections with students' prior knowledge and identities, with contexts outside of the classroom and with multiple ways of knowing or cultural perspectives (NSWDET, 2003d).

4.5.1 Significance Dimension

In understanding the quality of pedagogy in the Significance dimension in these Stage 4/5 HSIE classrooms, descriptive statistics and measures of central tendency are presented in Table 4.5. Graphically, the histogram presented in Figure 4.15 describes the frequency distribution of the observation scores with a normal distribution curve superimposed to show asymmetry.
From the results in Table 4.5, the **Significance** dimension had the highest mean (mean=16.31, std dev=2.284) of the three dimensional constructs. Both the median and mode were 17.00 with about 68% (41) of the classroom observation scores within a range of 14.03 to 18.59. As shown in Figure 4.15, there was only 1 observation with a low of 11 and at the other extreme, 1 observation with a score of 21. The distribution of the data was symmetric around the mean (skewness= -0.155) with platykurtic kurtosis (kurt= -0.522).

**Figure 4.15 Significance – Frequency Distribution**

![Histogram showing frequency distribution](image)

**Table 4.5 Significance – Descriptive Statistics**

<table>
<thead>
<tr>
<th>Statistic</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>16.31</td>
</tr>
<tr>
<td>Std error of mean</td>
<td>.292</td>
</tr>
<tr>
<td>Median</td>
<td>17.00</td>
</tr>
<tr>
<td>Mode</td>
<td>17</td>
</tr>
<tr>
<td>Std Deviation</td>
<td>2.284</td>
</tr>
<tr>
<td>Variance</td>
<td>5.218</td>
</tr>
<tr>
<td>Skewness</td>
<td>-.155</td>
</tr>
<tr>
<td>Std error of Skewness</td>
<td>.306</td>
</tr>
<tr>
<td>Kurtosis</td>
<td>-.522</td>
</tr>
<tr>
<td>Std error of Kurtosis</td>
<td>.604</td>
</tr>
<tr>
<td>Minimum</td>
<td>11</td>
</tr>
<tr>
<td>Maximum</td>
<td>21</td>
</tr>
</tbody>
</table>

The descriptive and central tendency statistics for each element are presented in Table 4.6. In Sections 4.5.1 to 4.5.6 the findings are reported with histograms showing frequency distributions (Figures 4.16 to 4.21).
Table 4.6  Significance Dimension - Element Descriptive Statistics

<table>
<thead>
<tr>
<th>Elements</th>
<th>Background knowledge</th>
<th>Cultural knowledge</th>
<th>Knowledge integration</th>
<th>Inclusivity</th>
<th>Connectedness</th>
<th>Narrative</th>
</tr>
</thead>
<tbody>
<tr>
<td>(N=61)</td>
<td>3.18</td>
<td>2.18</td>
<td>1.79</td>
<td>4.30</td>
<td>2.82</td>
<td>2.05</td>
</tr>
<tr>
<td>Std error of mean</td>
<td>0.086</td>
<td>0.137</td>
<td>0.097</td>
<td>0.071</td>
<td>0.113</td>
<td>0.095</td>
</tr>
<tr>
<td>Median</td>
<td>3.00</td>
<td>2.00</td>
<td>2.00</td>
<td>4.00</td>
<td>3.00</td>
<td>2.00</td>
</tr>
<tr>
<td>Mode</td>
<td>3.00</td>
<td>1.00</td>
<td>1.00</td>
<td>4.00</td>
<td>3.00</td>
<td>2.00</td>
</tr>
<tr>
<td>Std Deviation</td>
<td>0.671</td>
<td>1.073</td>
<td>0.755</td>
<td>0.558</td>
<td>0.885</td>
<td>0.740</td>
</tr>
<tr>
<td>Skewness</td>
<td>-0.569</td>
<td>0.298</td>
<td>0.379</td>
<td>-0.011</td>
<td>-0.527</td>
<td>0.432</td>
</tr>
<tr>
<td>Std error of Skewness</td>
<td>0.306</td>
<td>0.306</td>
<td>0.306</td>
<td>0.306</td>
<td>0.306</td>
<td>0.306</td>
</tr>
<tr>
<td>Kurtosis</td>
<td>0.738</td>
<td>-1.233</td>
<td>-1.140</td>
<td>-0.516</td>
<td>-0.262</td>
<td>0.194</td>
</tr>
<tr>
<td>Minimum</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Maximum</td>
<td>4</td>
<td>4</td>
<td>3</td>
<td>5</td>
<td>4</td>
<td>4</td>
</tr>
</tbody>
</table>

4.5.2 Background Knowledge

In the Stage 4/5 HSIE classrooms, exploring background knowledge involves the teacher providing opportunities for students to access prior knowledge to support current and future learning. Background knowledge can include knowledge from prior lessons, other subjects and courses, cultural knowledge, local knowledge, personal experiences and knowledge of the media and popular culture (NSWDET, 2003d).

From the findings in Table 4.6, background knowledge had a median and a mode of 3. The mean score (mean=3.18, std dev=0.671) was around the theoretical mid-point (3) with about 68% (41) of the classroom observations within the score range of 2.51 to 3.85. The observation scores were moderately negatively skewed (skewness= -0.569) with leptokurtic kurtosis (kurt=0.738).
As shown in Figure 4.16, there were 35 (57.4%) lessons observed that scored 3, where student background knowledge was mentioned or elicited briefly. There were 19 (31.1%) lessons observed that scored 4, where student background knowledge was mentioned or elicited several times. In these lessons students’ background knowledge was connected to the substance of the lesson, with some connection made to out of school knowledge. There were 6 (9.8%) lessons observed where students’ background knowledge was mentioned, trivial, or not connected to the substance of the lesson. Only one lesson scored 1, where students’ background knowledge was not mentioned or elicited.

4.5.3 Cultural Knowledge

The extent to which lessons incorporate cultural knowledge of diverse social groupings creates Significance in the classrooms. Cultural knowledge in the Stage 4/5 HSIE classrooms is concerned with the recognition and valuing of the knowledge of different social groups. In classrooms with high cultural knowledge, understanding of the beliefs traditional and traditions skills, knowledge, languages, practices and protocols of diverse social groups is important (NSWDET, 2003d).

From the findings in Table 4.6, cultural knowledge had a median of 2 and a mode of 1. The mean score cultural knowledge (mean=2.18, std dev=1.073) was below the theoretical mid-point (3) with about 68% (41) of the classroom observations within the score range of 1.11 to 3.25. The distribution of the observations was fairly symmetrical around the mean (skewness=0.298) with leptokurtic kurtosis (kurt=1.233).

Figure 4.17 Cultural Knowledge – Frequency Distribution
As shown in Figure 4.17, there were 22 (36.1%) observations with a score of 1 where there was no recognition or valuing of cultural knowledge. There were 14 (23%) lessons that scored 2, where cultural knowledge was evident, but was treated in a superficial manner. There were 17 (27.9%) observations that scored 3 where cultural knowledge was recognised but was treated within the framework of the dominant culture. There were 8 (13.1%) lessons that scored 4, where cultural knowledge was substantially recognised, allowing students to look beyond the stereotypes and challenge aspects of the dominant culture. There were no lessons that scored 5, where cultural knowledge was substantially recognised.

4.5.4 Knowledge Integration

Knowledge integration involves instruction to develop meaningful connections between different topics in a subject and between different subjects (NSWDET, 2003d). Traditionally, knowledge in schools has been divided into subject areas. In NSW the NSWBoS groups subjects into broader Key Learning Areas (KLA). The HSIE KLA mainly involves Stage 4/5 History and Geography courses (NSWBoS, 2003a, 2003b).

From the findings in Table 4.6, knowledge integration had a median of 2 and a mode of 1. Knowledge integration had the third lowest mean score (mean=1.79, std dev=0.755) of the all eighteen elements and the lowest score in the Significance dimension. Of the lessons observed, 68% (41) were within a score range of 1.04 to 2.55 with the data fairly symmetrical (skewness=0.379) and a platykurtic kurtosis (kurt= -1.140).

Figure 4.18 Knowledge Integration – Frequency Distribution
As shown in Figure 4.18, over 80% of the lessons observed involved low levels of knowledge integration. There were 25 (41%) lessons that scored 1, where no meaningful connections were made within or between other topics or subjects. There were 24 (39.3%) lessons that scored 2, where only minor or trivial connections were made. However, while low levels of knowledge integration were common there were 12 (17.7%) lessons that scored 3, with at least one meaningful connection made between other topics or subjects by either the teacher or students. There were no lessons that scored a 4 or 5, where meaningful connections were made on a regular basis.

4.5.5 Inclusivity

Inclusivity in the Stage 4/5 HSIE classrooms involved the recognition and valuing of students from diverse social groups as integral members of the classroom (NSWDET, 2003d). The diversity in student backgrounds is recognised by socio-economic status, gender, ethnicity, race, age, sexuality, disability, language and religion. In the coding of inclusivity the researcher was aware of the subtle ways in which specific groups of students may be excluded from classroom discourse. To this end, the researcher was conscious about gender issues, taking specific note of the treatment of boys and girls.

From the findings in Table 4.6, inclusivity had a median and a mode of 4. The mean score (mean=4.30, std dev=0.558) was well above the theoretical mid-point (3) and had the highest mean of all the eighteen elements. Of the lessons observed, 68% (41) were within a score range of 3.74 to 4.86 with the data fairly symmetric (skewness= -0.011) and a platykurtic kurtosis (kurt= -0.516).

Figure 4.19 Inclusivity – Frequency Distribution
As shown in Figure 4.19, there was significant inclusion of students from different social groups in 95% of the lessons observed (lessons with scores of 4 or 5). There were 21 (34.4%) lessons that scored 5, where students from all groups are included in significant ways. In the 37 (60.7%) lessons that scored 4, all groups and students from different social groups were included in significant ways, but there was some unevenness of inclusion. There were only 3 (4.9%) lessons observed that scored 3, where the inclusion of students from diverse backgrounds could have been considered minor or trivial. There were no lessons observed that scored a 1 or 2.

4.5.6 Connectedness

To create Significance in the Stage 4/5 HSIE classrooms, students’ prior knowledge and understanding needs to have connections to real life situations that have value beyond the classroom. Therefore, high degrees of connectedness are evident when learning values meaning beyond the classroom and school, through either addressing a public problem, or actual experiences or real-life situations that students will confront (NSWDET, 2003d).

Table 4.6, shows a median and mode of 3 for connectedness with a mean score (mean=2.82, std dev=0.885) was around the mid-point (3). Connectedness had the second largest spread of all eighteen elements with 68% (41) of all lesson observations within the score range of 1.94 to 3.71. The observation data was moderately negatively skewed (skewness= -0.527) with platykurtic kurtosis (kurt= -0.262).

![Figure 4.20 Connectedness – Frequency Distribution](image)
As shown in Figure 4.20, there were 6 (9.8%) lessons observed that scored 1, where no connections were made to any real life contexts. In the 12 (19.7%) lessons that scored 2, connections to the real life contexts were superficial and weak. In 30 (49.2%) lessons observed, connectedness scored 3, indicating that students recognised some connections between classroom knowledge and situations beyond the classroom. However, there were only 13 (21.4%) lessons that scored 4, where students recognised and explored connections between classroom knowledge and situations outside the classroom. There were no lessons observed that scored 5, where students recognised and explored connections between classroom knowledge that was significant and strong to influence an audience beyond the classroom.

4.5.7 Narrative

Narratives in the Stage 4/5 HSIE classroom would include histories, biographies, autobiographies, documentaries, personal accounts and case studies to support the understanding of knowledge and learning for students. Teachers in lessons can employ narratives as content (e.g. when students are reading or listening to stories) or as processes (e.g. when students are writing stories or telling stories) to illustrate or bring to life the knowledge that students are addressing in the classroom (NSWDET, 2003d).

From the findings in Table 4.6, narrative had a median and a mode of 2. The mean score for narrative (mean=2.05, std dev=0.740) was well below the theoretical mid-point (3). Further, the spread of scores was larger than most of the other elements, with about 68% (41) of the lesson observations within a score range of 1.31 to 2.79. The data was fairly symmetric around the mean (skewness=0.432) with leptokurtic kurtosis (kurt=0.194).
As shown in Figure 4.21, there were 34 (55.7%) lessons observed that scored 2, where narratives were only occasionally evident or were a minor part of the lesson. There were 12 (19.7%) lessons that scored 3, where narratives were utilised on several occasions to enhance the substance of the lesson. There were only 2 (3.3%) lessons that scored 4, where narratives formed a substantial portion of the lesson to enhance significance and meaning. At the other end of the spectrum, there were 13 (1.3%) lessons where narratives were completely absent, or the stories told were unrelated or detracted from the substance of the lesson.

4.6 Individual Teacher Differences and Differences between Schools

While the classroom observation results provide a unique understanding of the pedagogy in these Stage 4/5 HSIE classrooms, the researcher wanted to know if there were any similarities or differences between the pedagogy of the individual teachers. In exploring teacher differences, when the individual teachers’ dimensional mean scores were compared some were scoring higher, or conversely lower than others. In examining individual differences, Table 4.7 presents the dimensional mean scores and Table 4.8 presents the element mean scores for each of the Stage 4/5 HSIE teachers.
An analysis of the results presented in Table 4.7 found that Mr Dennis had achieved the highest individual mean scores for Intellectual Quality (mean=17.13; std dev=1.642) and Quality Learning Environment (mean=19.00; std dev=2.00). The most successful teacher in creating Significance was Mr Sutton (mean=18.60, std dev=2.074) from the same school as Mr Dennis. The least successful teacher in promoting Intellectual Quality was Mr Brown (mean=13.17, std dev=2.137). In developing a Quality Learning Environment the least successful teacher was Ms Norris (mean=13.22, std dev=1.563) with Ms Smith being the least successful in creating Significance (mean=14.00, std dev=2.271).

In Table 4.8 the element mean scores are reported. Of the eight teachers involved in the study, Mr Dennis had the highest mean scores for deep knowledge, deep understanding, substantive communication, engagement, high expectations, students' self regulation, knowledge integration and connectedness. Ms Smith scored more highly then the other teachers on higher-order thinking metalanguage, explicit quality criteria and engagement. Mr Brown scored the highest for student direction, with Ms Norris having the highest mean score for cultural knowledge. Mr Sutton had the highest scores for problematic knowledge, background knowledge, inclusivity and narrative. Mr Wilson scored highly on social support.
Table 4.8  Element Scores - Individual Teachers

<table>
<thead>
<tr>
<th>Elements/Teacher (N=61)</th>
<th>Ms Norris (N=9)</th>
<th>Mr Jones (N=10)</th>
<th>Mr Reynolds (N=8)</th>
<th>Mr Brown (N=6)</th>
<th>Mr Dennis (N=8)</th>
<th>Mr Sutton (N=5)</th>
<th>Ms Smith (N=8)</th>
<th>Mr Wilson (N=7)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Mean Std Dev)</td>
<td>(Mean Std Dev)</td>
<td>(Mean Std Dev)</td>
<td>(Mean Std Dev)</td>
<td>(Mean Std Dev)</td>
<td>(Mean Std Dev)</td>
<td>(Mean Std Dev)</td>
<td>(Mean Std Dev)</td>
<td>(Mean Std Dev)</td>
</tr>
<tr>
<td>Deep Knowledge</td>
<td>3.11 0.333</td>
<td>3.00 0.471</td>
<td>3.13 0.354</td>
<td>3.17 0.408</td>
<td>3.88* 0.354</td>
<td>3.20 0.837</td>
<td>3.38 0.744</td>
<td>3.00 0.000</td>
</tr>
<tr>
<td>Deep Understanding</td>
<td>2.78 0.471</td>
<td>2.60 0.516</td>
<td>2.63 0.518</td>
<td>2.33 0.516</td>
<td>3.38* 0.518</td>
<td>2.80 0.447</td>
<td>2.75 0.463</td>
<td>2.57 0.535</td>
</tr>
<tr>
<td>Problematic Knowledge</td>
<td>2.00 0.866</td>
<td>1.80 0.919</td>
<td>2.38 0.744</td>
<td>1.67 0.861</td>
<td>2.00 0.926</td>
<td>2.40* 0.548</td>
<td>1.75 0.707</td>
<td>1.43 0.535</td>
</tr>
<tr>
<td>Higher-Order Thinking</td>
<td>1.67 0.707</td>
<td>2.10 0.316</td>
<td>1.75 0.707</td>
<td>1.67 0.516</td>
<td>2.63 0.518</td>
<td>2.20 0.447</td>
<td>1.31* 0.354</td>
<td>2.14 0.538</td>
</tr>
<tr>
<td>Metalanguage</td>
<td>2.11 0.782</td>
<td>2.10 0.316</td>
<td>2.25 0.463</td>
<td>2.00 0.632</td>
<td>2.38 0.518</td>
<td>1.00 0.000</td>
<td>2.50* 0.535</td>
<td>2.00 0.000</td>
</tr>
<tr>
<td>Substantive Communication</td>
<td>2.56 0.726</td>
<td>2.60 0.516</td>
<td>2.25 0.463</td>
<td>2.33 0.516</td>
<td>2.88* 0.354</td>
<td>2.2 0.447</td>
<td>2.63 0.916</td>
<td>2.57 0.535</td>
</tr>
<tr>
<td>Explicit Quality</td>
<td>1.00 0.000</td>
<td>1.30 0.483</td>
<td>1.38 0.518</td>
<td>1.33 0.516</td>
<td>1.63 0.744</td>
<td>1.00 0.000</td>
<td>2.50* 0.756</td>
<td>1.71 0.448</td>
</tr>
<tr>
<td>Engagement</td>
<td>2.11 0.601</td>
<td>2.20 0.422</td>
<td>2.88 0.354</td>
<td>2.67 0.816</td>
<td>3.63* 0.518</td>
<td>3.20 0.837</td>
<td>3.63* 0.518</td>
<td>2.71 0.951</td>
</tr>
<tr>
<td>High Expectations</td>
<td>2.00 0.500</td>
<td>2.20 0.422</td>
<td>2.38 0.518</td>
<td>2.33 0.516</td>
<td>3.50* 0.553</td>
<td>2.20 0.447</td>
<td>3.00 0.535</td>
<td>2.57 0.535</td>
</tr>
<tr>
<td>Social Support</td>
<td>3.67 0.500</td>
<td>3.90 0.568</td>
<td>3.75 0.707</td>
<td>3.33 0.516</td>
<td>4.13 0.641</td>
<td>3.80 0.447</td>
<td>3.75 0.463</td>
<td>4.29* 0.488</td>
</tr>
<tr>
<td>Students’ Self-Regulation</td>
<td>3.00 0.500</td>
<td>3.10 0.568</td>
<td>3.75 0.463</td>
<td>3.67 0.816</td>
<td>4.25* 0.463</td>
<td>4.00 0.000</td>
<td>3.63 0.518</td>
<td>4.00 0.577</td>
</tr>
<tr>
<td>Student Direction</td>
<td>1.44 0.527</td>
<td>1.70 0.675</td>
<td>1.38 0.744</td>
<td>2.17* 0.753</td>
<td>1.86 0.641</td>
<td>1.80 1.095</td>
<td>1.75 0.463</td>
<td>1.71 0.756</td>
</tr>
<tr>
<td>Background Knowledge</td>
<td>3.11 0.928</td>
<td>3.30 0.483</td>
<td>3.38 0.518</td>
<td>2.67 0.816</td>
<td>3.50 0.535</td>
<td>3.60* 0.548</td>
<td>2.75 0.463</td>
<td>3.14 0.690</td>
</tr>
<tr>
<td>Cultural Knowledge</td>
<td>3.33* 0.707</td>
<td>1.90 1.101</td>
<td>2.63 1.061</td>
<td>2.33 0.816</td>
<td>1.63 0.961</td>
<td>3.00 0.707</td>
<td>1.50 0.535</td>
<td>1.29 0.756</td>
</tr>
<tr>
<td>Knowledge Integration</td>
<td>1.89 1.902</td>
<td>1.70 0.823</td>
<td>2.13 0.835</td>
<td>1.17 0.408</td>
<td>2.25* 0.463</td>
<td>1.40 0.548</td>
<td>1.75 0.707</td>
<td>1.71 0.756</td>
</tr>
<tr>
<td>Inclusivity</td>
<td>4.22 0.441</td>
<td>4.10 0.568</td>
<td>4.00 0.535</td>
<td>4.67 0.516</td>
<td>4.38 0.518</td>
<td>4.80* 0.447</td>
<td>4.00 0.535</td>
<td>4.57 0.535</td>
</tr>
<tr>
<td>Connectedness</td>
<td>2.78 0.667</td>
<td>3.20 0.632</td>
<td>2.88 0.354</td>
<td>2.00 0.894</td>
<td>3.63* 0.744</td>
<td>3.20 1.304</td>
<td>2.25 0.886</td>
<td>2.43 0.787</td>
</tr>
<tr>
<td>Narrative</td>
<td>2.33 0.866</td>
<td>1.90 0.568</td>
<td>2.00 0.756</td>
<td>1.83 0.753</td>
<td>2.50 0.535</td>
<td>2.80* 0.794</td>
<td>1.75 0.707</td>
<td>1.57 0.535</td>
</tr>
</tbody>
</table>

(highest mean score*)

From the results presented in Tables 4.7 and 4.8, the mean scores for both the dimensional constructs and elements indicated that the pedagogy of each of the HSIE teachers appeared to differ. At a dimensional level to determine whether this appearance reflects any real teacher differences, an ANOVA was conducted that compare the total variance between the teachers to the total variance of the group. The results of the ANOVA are reported in Table 4.9.

The results reported in Table 4.9 found that for all three dimensional constructs, Intellectual Quality (F=3.283; df=7, 53; p=0.006); Quality Learning Environment (F=7.90; df=7, 53; p=0.000) and Significance (F=6.394; df=7, 53; p=0.000) there were significant differences across the teachers’ mean scores. To determine if there were individual teachers who were significantly different on each of the dimensions of
pedagogical practice, post hoc Scheffe tests were conducted. Tables 4.10 to 4.12 report these results.

Table 4.9  ANOVA Results

<table>
<thead>
<tr>
<th></th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intellectual Quality</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between Groups</td>
<td>93.600</td>
<td>7</td>
<td>13.371</td>
<td>3.283</td>
<td>0.006*</td>
</tr>
<tr>
<td>Within Groups</td>
<td>215.842</td>
<td>53</td>
<td>4.072</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>309.442</td>
<td>60</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quality Learning</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Environment</td>
<td>218.028</td>
<td>7</td>
<td>31.147</td>
<td>7.900</td>
<td>0.000**</td>
</tr>
<tr>
<td>Between Groups</td>
<td>208.956</td>
<td>53</td>
<td>3.943</td>
<td></td>
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</tr>
<tr>
<td>Within Groups</td>
<td>426.984</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>626.945</td>
<td>60</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Significance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between Groups</td>
<td>143.345</td>
<td>7</td>
<td>20.478</td>
<td>6.394</td>
<td>0.000**</td>
</tr>
<tr>
<td>Within Groups</td>
<td>169.737</td>
<td>53</td>
<td>3.203</td>
<td></td>
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</tr>
<tr>
<td>Total</td>
<td>313.082</td>
<td>60</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Significant at the 0.05 level
**Significant at the 0.01 level

Table 4.10  Scheffe test - Intellectual Quality

<table>
<thead>
<tr>
<th>Teacher</th>
<th>N</th>
<th>Subset for alpha = 0.05</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mr Brown</td>
<td>6</td>
<td>13.17</td>
</tr>
<tr>
<td>Mr Wilson</td>
<td>7</td>
<td>13.71</td>
</tr>
<tr>
<td>Mr Sutton</td>
<td>5</td>
<td>13.80</td>
</tr>
<tr>
<td>Mr Jones</td>
<td>10</td>
<td>14.20</td>
</tr>
<tr>
<td>Ms Norris</td>
<td>9</td>
<td>14.22</td>
</tr>
<tr>
<td>Mr Reynolds</td>
<td>8</td>
<td>14.38</td>
</tr>
<tr>
<td>Ms Smith</td>
<td>8</td>
<td>16.13</td>
</tr>
<tr>
<td>Mr Dennis</td>
<td>8</td>
<td>17.13</td>
</tr>
<tr>
<td>Sig.</td>
<td></td>
<td>0.071</td>
</tr>
</tbody>
</table>

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size + 7.302
b. The group sizes are unequal. The harmonic mean of the group sizes is used.
Type I error levels are not guaranteed.

The results from the Scheffe Test for the Intellectual Quality dimension (Table 4.10) indicated one subset, with no significant differences (p<0.05) in the classroom practices of the Stage 4/5 HSIE teachers. The implication is that, despite the overall group difference found, the HSIE teachers, regardless of school, subject or grade level found the promotion of Intellectual Quality approximately equally difficult in their classrooms.

From the Scheffe Test three subsets emerged for the Quality Learning Environment (Table 4.11) indicating significant differences between some of the teachers. For example, Ms Norris (Year 8 History) with a mean score of 13.22 was significantly different (p<0.05) to Ms Smith (Year 10 Geography) with a mean score of 18.25 and Mr Dennis (Year 8 Geography) with a mean score of 19.00. Mr Jones (Year 8 Geography), with a mean score of 14.40 was also significantly different (p<0.05) from Ms Smith with a mean score of 18.25 and Mr Dennis with a mean score of 19.00. There were no significant differences at a dimensional level between teachers from the same school.
Table 4.11 Scheffe test - Quality Learning Environment

<table>
<thead>
<tr>
<th>Teacher</th>
<th>N</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ms Norris</td>
<td>9</td>
<td>13.22</td>
<td>14.40</td>
<td>14.40</td>
</tr>
<tr>
<td>Mr Jones</td>
<td>10</td>
<td>14.40</td>
<td>14.40</td>
<td>14.40</td>
</tr>
<tr>
<td>Mr Reynolds</td>
<td>8</td>
<td>15.50</td>
<td>15.50</td>
<td>15.50</td>
</tr>
<tr>
<td>Mr Brown</td>
<td>6</td>
<td>15.50</td>
<td>15.50</td>
<td>15.50</td>
</tr>
<tr>
<td>Mr Sutton</td>
<td>5</td>
<td>16.00</td>
<td>16.00</td>
<td>16.00</td>
</tr>
<tr>
<td>Mr Wilson</td>
<td>7</td>
<td>17.00</td>
<td>17.00</td>
<td>17.00</td>
</tr>
<tr>
<td>Ms Smith</td>
<td>8</td>
<td>18.25</td>
<td>18.25</td>
<td>19.00</td>
</tr>
<tr>
<td>Mr Dennis</td>
<td>8</td>
<td>0.090</td>
<td>0.078</td>
<td>0.150</td>
</tr>
</tbody>
</table>

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 7.302
b. The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not guaranteed.

The results from the Scheffe test indicated three subsets in the **Significance** dimension (Table 4.12) indicating significant differences between some of the teachers. For example, Ms Smith (Year 10 Geography) with a mean score of 14.00 was significantly different (p<.05) to Ms Norris (Year 8 History) with a mean score of 17.67 and Mr Dennis (Year 8 Geography) and Mr Sutton (Year 9 History) with mean scores of 17.88 and 18.60 respectively. No significant differences were found between Mr Dennis and Mr Sutton who were from the same HSIE faculty at Blue Ridge High School.

Similarly, there were no significant differences between Mr Reynolds (Year 10 Geography) Head Teacher HSIE and Mr Brown (Year 10 History) Head Teacher Administration from the same HSIE faculty at Mountain View High School.

Table 4.12 Scheffe test - Significance

<table>
<thead>
<tr>
<th>Teacher</th>
<th>N</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ms Smith</td>
<td>8</td>
<td>14.00</td>
<td>14.67</td>
<td>14.71</td>
</tr>
<tr>
<td>Mr Brown</td>
<td>6</td>
<td>14.67</td>
<td>14.71</td>
<td>16.10</td>
</tr>
<tr>
<td>Mr Wilson</td>
<td>7</td>
<td>14.71</td>
<td>14.71</td>
<td>16.00</td>
</tr>
<tr>
<td>Mr Jones</td>
<td>10</td>
<td>16.10</td>
<td>16.00</td>
<td>17.00</td>
</tr>
<tr>
<td>Mr Reynolds</td>
<td>8</td>
<td>17.00</td>
<td>17.00</td>
<td>17.67</td>
</tr>
<tr>
<td>Ms Norris</td>
<td>9</td>
<td>17.67</td>
<td>17.67</td>
<td>17.67</td>
</tr>
<tr>
<td>Mr Dennis</td>
<td>8</td>
<td>17.88</td>
<td>17.88</td>
<td>18.60</td>
</tr>
<tr>
<td>Mr Sutton</td>
<td>5</td>
<td>0.200</td>
<td>0.135</td>
<td>0.430</td>
</tr>
</tbody>
</table>

Means for groups in homogeneous subsets are displayed.

da. Uses Harmonic Mean Sample Size = 7.302
b. The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not guaranteed.

In summary, there were no significant differences between the individual HSIE teachers in promoting **Intellectual Quality**, within and across the schools in the study. However, there were significant differences found in classroom practice between some of the HSIE teachers in promoting a **Quality Learning Environment** and in creating **Significance**. There were no significant differences found between teachers from the same school.
4.7 Teaching Strategies Supporting Classroom Instruction – Analysis of the Researcher’s Field Notes

The researcher’s field notes supporting the coding of each lesson provided a further source of data to understand the pedagogy observed in these Stage 4/5 classrooms. Specific teaching strategies were identified by analysing the researcher’s field notes using methods described in Section 3.3.5. Meaning was obtained by assigning each teaching strategy a score of 1, 2 or 3 (1: strategy not present; 2: strategy used for less than half, or a minor part of a lesson; 3: strategy evident for most of the lesson).

Table 4.13 Field Note Analysis - Teaching Strategy Identification

<table>
<thead>
<tr>
<th>Strategy/ Score Ranges</th>
<th>Direct Instruction</th>
<th>Discussion</th>
<th>Group Work</th>
<th>Cooperative Learning</th>
<th>Problem Solving</th>
<th>Student Research</th>
<th>Performance Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0</td>
<td>0</td>
<td>41</td>
<td>40</td>
<td>36</td>
<td>44</td>
<td>48</td>
</tr>
<tr>
<td>2</td>
<td>11</td>
<td>7</td>
<td>6</td>
<td>7</td>
<td>12</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>3 (n=50)</td>
<td>39</td>
<td>43</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>4</td>
<td>1</td>
</tr>
</tbody>
</table>

(a full analysis of individual teacher results is presented in Appendix 7)

The results summarised in Table 4.13 indicated that teaching strategies consistent with Killen’s (2003a, 2007) understanding of ‘direct instruction’ and ‘discussion’ were prominent in these Stage 4/5 HSIE classrooms. Of the 50 lessons coded by the researcher (the other 11 lessons were coded by the researchers’ initial supervisor) ‘direct instruction’ was the prominent teaching strategy in 39 lessons. With ‘direct instruction’ relying heavily on students being able to assimilate information through listening, observing and note taking (Killen, 2004, 2007), it was not surprising that ‘discussion’ was also prominent in 43 of the lessons. Other teaching strategies considered important to support students' learning including: group work, co-operative learning, performance activities and problem solving, were less frequently observed in the HSIE classrooms in this study.

4.8 Summary of Results

The first phase of this study through research question one, investigated the pedagogical practices in eight expert Stage 4/5 HSIE teacher classrooms. To determine the quality instruction, classroom observation data was gathered repeatedly over a 10 week period by direct observation, one observation per week with the same class, same teacher (n=61) using the item-rating scales and coding descriptors from the NSWQTM. In determining the quality of teaching in the Stage 4/5 classrooms, the results presented in this Chapter Four, revealed some significant findings.
Firstly, it was established that high levels of **Intellectual Quality** were not evident to any great extent. In promoting **Intellectual Quality**, *deep knowledge* was the only element that scored above the theoretical mid-point (3). However, while the other five elements all had scores below the theoretical mid-point, these HSIE teachers were better at developing instruction to support *deep understanding* and *substantive communication* than *higher-order thinking* or *metalanguage*. For these teachers, *problematic knowledge* was the least important element with a score well below the theoretical mid-point. Therefore, *deep knowledge* was important in the promotion of **Intellectual Quality** in these Stage 4/5 HSIE classrooms.

Secondly, the **Quality Learning Environment** had the second highest dimensional score. Key elements with scores above the mid-point were *students’ self-regulation* and *social support*. *Engagement* and *high expectations* were treated unevenly during instruction with scores around the mid-point. *Student direction* and *explicit quality criteria* were difficult to promote as they scored the lowest of all eighteen elements. In promoting a **Quality Learning Environment** these HSIE teachers valued student effort in learning and participation in a climate of mutual respect.

Thirdly, these HSIE teachers were more adept at creating **Significance** than developing a **Quality Learning Environment** or promoting **Intellectual Quality**. In creating **Significance**, *inclusivity* had the highest score of all 18 elements with students from all groups included in significant ways in most aspects of the HSIE lessons observed. Elements that were treated unevenly during instruction scored around the mid-point and included *background knowledge* and *connectedness*. Elements with scores considerably lower than the theoretical mid-point included *cultural knowledge*, *knowledge integration* and *narrative*. Therefore, **Significance** was created by developing HSIE classrooms that were free from prejudice and discrimination to support students from all social and cultural groups to participate fully in lessons.

Fourthly, the results indicated that some of the individual teachers rated more highly across the dimensions and elements than others. An ANOVA was conducted to determine if there were any significant differences between the individual HSIE teachers. The analysis found that overall there were statistically significant differences. The ensuing post hoc Scheffe tests revealed that there were no significant differences between the HSIE teachers pedagogy developing **Intellectual Quality**. However, some of the teachers were significantly different from the group in supporting student learning in both the **Quality Learning Environment** and **Significance dimensions**. No significant differences were found between teachers from the same school.
Finally, in revealing the instructional practices of these HSIE teachers an analysis of the researchers' field notes established that ‘direct instruction’ and ‘discussion’ were prominent teaching strategies supporting student learning. It would appear that teacher-centred or traditional/transmissive modes of teaching were preferred by these Stage 4/5 HSIE teachers.

In conclusion, the primary objective of the first phase of the study was to advance research in the field of Quality Teaching by gathering sufficient data to illuminate the quality of pedagogy in classrooms. There are very few such studies that provide direct evidence of what happens in classrooms and thus by using the ranking available via the use of the NSWQTM, some guidance about what areas can be improved is provided. As Ladwig (2005) reminds us, to improve the quality of classroom pedagogy there is a need to determine what the teacher does in the classroom in order to better understand just what kind of teaching we want to deem as high quality. The implications of these findings for education systems and educational researchers are further developed in Chapter Five.
Chapter 5
First Phase Results – Discussion

5.1 Introduction

Chapter Four described the pedagogy of a self-selected cohort of Stage 4/5 HSIE teachers from five public secondary schools by use of NSWQTM coding. This chapter discusses the description that emerged. Sections 5.2 to 5.4 discuss each of the NSWQTM dimensions from four different perspectives: comparison to a mid-point, relative frequency rank, association with specific teaching strategies and comparison with similar studies. Section 5.5 infers a typical pattern of teaching in these classes from the coded observations and the field notes. Section 5.6 elucidates this pattern by comparing individual teacher means, on each NSWQTM dimension. Section 5.7 challenges the emerging pattern through statistical tests of the significance of the apparent differences.

The four perspectives from which the description provided in Chapter 4 will be discussed in Sections 5.2 to 5.5 require some explanation before the discussion begins. Firstly, each of the Intellectual Quality, Quality Learning Environment and Significance constructs are discussed relative to a dimensional mid-point (18). When coding using a 5 point observation scale, with ‘1’ being the minimum (absence of element) and ‘5’ being the maximum (sustained and frequently occurring element), the dimension scores range between a low of 6 and a high of 30, so the mid-point is 18, rather than 15, as would be expected with a 0-30 range. A dimension scoring below 18 was not very visible in the lessons coded, appearance of its elements was uneven or only occurred once in a clear and unambiguous fashion.

Secondly, the results are compared, where possible, to the literature reviewed in Section 2.3. Such a comparison will reveal similarities and differences to support a broader understanding of the pedagogy observed and further directions for research.

Thirdly, the results for each of the 6 elements for each of the three dimensional constructs are grouped into four ranks: ‘high-range’ (mean scores between 4 and 5: element frequent and sustained), ‘mid-range’ (mean scores between 3 and 4: element frequent but not necessarily sustained), ‘low mid-range’ (mean scores between 2 and 3: element visible) and ‘low range’ (mean scores between 1 and 2: element effectively absent). The coding descriptors from Quality teaching in NSW public schools: A
classroom practice guide (NSWDET, 2003d) are aligned with these grouped observation results to clarify the classroom meaning of the scores.

Fourthly, the researcher’s field notes provided qualitative evidence of specific instructional practices supporting student learning. Excerpts of specific instructional practices provide evidence of interconnections between classroom practice and the coding to help in understanding the pedagogy observed. This discussion uses lesson codes (such as 04/D200804) to identify particular lessons. Coding sheets, field notes and student worksheets for a sequence of three Stage 4 Geography lessons are presented in Appendix 5.

An empirically based ‘typical HSIE pedagogy’ emerged from this discussion and this is presented in Section 5.5. The ‘typical HSIE pedagogy’ became evident when the classroom observation results (mean scores) for each of the 18 elements was aligned with the coding descriptors (NSWDET, 2003d). The ‘typical HSIE pedagogy’ as a description of bands of instructional practices is a significant contribution to the research in the field.

The longitudinal design of this study offered a unique opportunity for the pedagogy observed in these Stage 4/5 HSIE classrooms to be presented graphically in Section 5.6. Individual teacher lesson scores (n=61) for each of the three dimensional constructs were graphed over time and a ‘ceiling’ and ‘floor’ effect emerged from the data.

There appeared to be some interesting contrasts within this group of Stage 4/5 HSIE teachers and Section 5.7 discusses the results of application of ANOVA and Scheffe tests to the individual teacher scores to reveal some important group relationships. Section 5.8 summarises this chapter.

5.2 Developing Intellectual Quality in the Stage 4/5 HSIE Classrooms

From the results reported in Section 4.3.1, the mean score (mean=14.67, std dev=2.271) for Intellectual Quality was well below the theoretical mid-point (18). The small standard deviation indicated that the pedagogy observed did not seem to vary much from lesson to lesson. Overall, the pedagogy of Intellectual Quality involving students’ deep understanding of important, substantive concepts; skills and ideas (NSWDET, 2003d) was at low level and not challenging students intellectually in the Stage 4/5 History and Geography classrooms in this study.
While this level of Intellectual Quality was lower than might be expected from such an expert teacher group, the results were consistent with the small body of Australian and international research in the field (Avery, 1999a; Gore, Ladwig, Amosa, Griffiths, et al., 2008; Newmann & Associates, 1996a; QSRLS, 2001; Roelofs & Terwel, 1999). In the parallel SIPA study, researchers reported an even lower score for Intellectual Quality in their participating secondary HSIE classrooms (mean=13.18, std dev=4.30), well below the theoretical mid-point of 18 (Gore, Ladwig, Amosa, & Griffiths, 2008). The larger standard deviation in the SIPA HSIE classrooms indicated greater variability in classroom practice compared to the teachers in this study. It appears that the teachers in the current study provided more evidence of intellectual challenging instruction than their HSIE counterparts from the SIPA study.

Similarly, in the Queensland School Reform Longitudinal Study (QSRLS, 2001) the researchers using Productive Pedagogy model reported a score (mean=2.3) for Intellectual Quality in the Social Sciences below the theoretical mid-point (3). The researchers claimed from interview data findings that this occurred because the Social Science teachers, as well as other teachers in this study, appeared to prioritise basic skill development in students over higher level skill development. Discussion of the views of the teachers participating in the present study occurs in Chapter 6.

In a smaller study undertaken using the Productive Pedagogy model involving pre-service primary and secondary teachers, Gore, et al., (2004) reported a mean score (mean=1.83) for Intellectual Quality well below the theoretical mid-point (3). One reason the researchers put forward for this low score was a reliance by these pre-service teachers on generic teaching methods and strategies to support student behaviour management.

There were a number of International studies using the uni-dimensional Authentic Pedagogy model to determine ‘authentic achievement’ (Intellectual Quality) and authentic instruction. In a larger longitudinal study in the United States, Newmann and Associates (1996a) found that the score for ‘authentic achievement’ for all schools and in the Social Sciences (mean=22.2) were lower than the theoretical mid-point (27). In another smaller cross-sectional study in the United States, Avery (1999a) reported a score for authentic instruction (mean=10.86 with a potential range 4-20) in secondary History classrooms to be below the theoretical mid-point (12). Similarly, using survey data, Roelofs and Terwel (1999) reported that in the Dutch National Curriculum study schools, the characteristics of ‘authentic achievement’ were not found to any real extent. Overall, these comparisons confirm that intellectually challenging instruction is
difficult to promote, not only in HSIE classrooms in NSW public schools, but in classrooms in other countries.

While the Intellectual Quality construct supports a broader understanding of the pedagogy observed, an analysis of the element scores reported in Section 4.3 would provide a clearer picture of the quality of classroom instruction. This analysis involves the procedures described in Section 5.1 with the findings presented in Sections 5.2.1 to 5.2.3.

5.2.1 Mid-Range Elements

1) Deep Knowledge

From the results reported in Section 4.3.2, deep knowledge with a mid-range score (mean=3.23, std dev=0.529) was the central element supporting Intellectual Quality. The mid-range score indicated that in these HSIE classrooms the knowledge and skills outlined in the Stage 4/5 History and Geography syllabi (NSWBoS, 2003a, 2003b) was generally treated unevenly during instruction, was unconnected and the focus was not sustained. The low standard deviation, the lowest of all the 18 elements, suggests that this unevenness was consistent over the observation period. The unevenness in deep knowledge could have been connected to these teachers’ struggle between the ‘depth’ and ‘breadth’ of knowledge (NSWDET, 2003d). The HSIE teachers, in an attempt to complete the syllabus subject knowledge, and skill requirements lost focus, coherence and purpose.

The findings of the other research studies reviewed were similar to these findings. In the QSRLS Social Science classrooms and in the SIPA HSIE classrooms deep knowledge as the central element in the Intellectual Quality dimension scored in low mid-range score. In the QSRLS Social Science classrooms, the low mid-range score was seen as emanating from inconsistent and multiple government mandates relating to curriculum. In the pre-service teacher classrooms, deep knowledge had a low-range score. The researchers reported that the superficial level of coverage was related to these pre-service teachers’ inexperience with syllabi subject knowledge and skills.

Overall, while there was unevenness during instruction, it would seem that these Stage 4/5 HSIE teachers were better at addressing deep knowledge than their counter parts in the other studies. This finding could be related to the depth of mandatory outcomes.
embedded in the NSWBoS syllabi, and the experience and expertise of these Head Teachers as curriculum leaders of their faculties.

5.2.2 Low Mid-Range Elements

1) Deep Understanding

From the results reported in Section 4.3.3, deep understanding scored in the low mid-range (mean=2.74, std dev=0.575). In the HSIE classrooms students’ deep understanding of the knowledge and skills taught in the lessons was uneven and shallow. In many instances the students presented misinformation, repeated fragmented pieces of information or provided limited interpretations of the knowledge presented (NSWDET, 2003d).

The researcher’s field notes provided evidence of interconnections between classroom practice and the coding that might help in understanding the patchiness in student understanding. For example, in one Stage 5 History lesson (04/D200804), Changing Rights and Freedoms (NSWBoS, 2003b, p. 40), deep understanding scored 2 (deep knowledge scored 3). To support student learning, the teacher divided the class into several friendship groups. In these groups, the students answered questions from pre-developed activity worksheets using source materials in textbooks. To determine the students’ deep understanding of the deep knowledge, the researcher over the course of the lesson moved between each of the groups. When the researcher asked the students to explain the key concepts (for example, assimilation, genocide, or paternalism) of the lesson, it was evident that there were many misconceptions. In most cases students just recited what they had copied from the textbooks, others seemed confused. This unevenness and shallowness was further evident in the teacher’s review of student understanding at the end of the lesson.

Similarly, in a Year 8 Geography lesson (03/E060804) that scored 3 and in a Year 10 Geography lesson (05/H030904) that scored 2, there was an unevenness and shallowness of students’ deep understanding. While these were different lessons, the students were required to access information from the Internet to complete pre-developed worksheet activities. Most of the questions were routine and involved lower-order thinking (higher-order thinking in both lessons scored 2). Utilising ICT, these websites provided a ready source of easily accessible information for students. However, similar to textbook use, the majority of students were observed cutting and pasting segments of text when answering questions. In discussions undertaken between the
teacher and the students to review the central ideas of these lessons, students’ deep understanding was shallow and uneven. There were many instances where the teacher provided the correct answers, with the students adjusting their written work accordingly.

On the other hand, there were four lesson observations in which deep understanding scored 4. In these lessons, students demonstrated a deeper understanding of the key concepts and ideas for a substantial portion of the lesson (NSWDET, 2003d). Three of these lessons (03/E300704, 03/E150904 and 03/E230904) involved a Year 8 Geography class (the syllabus Focus Area 4G4: Global Issues and the Role of Citizenship, coding sheets, field notes and worksheets for these lessons are presented in Appendix 5). While the instructional activities in these lessons focused on pre-developed worksheets, the activities seemed to be more challenging with higher-order thinking scoring a three on the NSWQTM coding checklist. The fourth lesson was a Year 8 History lesson (01/A240804) with students challenged by the problematic nature of the tasks and worksheet questions. In this lesson, for this teacher, all but one element from the Intellectual Quality dimension (metalanguage scored 2) scored 3 or 4.

The finding of limited understanding of the knowledge and skills by students in the Stage 4/5 HSIE classrooms is consistent with the findings in the other research studies reviewed. In the QSRLS Social Sciences classrooms and SIPA HSIE secondary classrooms deep understanding had a low mid-range score. The larger standard deviation for deep knowledge in the QSRLS Social Sciences classrooms and in the SIPA secondary HSIE classrooms suggests that student understanding of the key concepts varied more from lesson to lesson than in these Stage 4/5 HSIE classrooms. In the pre-service teacher classrooms, deep understanding had a low-range score. The researchers reported that the unevenness in student understanding was due to the inexperience of these pre-service teachers. Zevenbergen and Lerman (2006, 2007) also reported that, in lessons focusing on ICT use, most of the Productive Pedagogy elements were poorly represented and that students’ deep understanding was shallow and uneven.

These findings do raise questions about the relationships between the breadth of content and a student’s depth of understanding. From the classroom observation data and from the examination of these four classrooms lessons, it would seem that students are more likely to present limited or incorrect understandings of the key concepts when skill or activity worksheets contain routine questions or activities.
Overall, it would seem that regardless of the research study teachers experienced difficulties in developing deep knowledge.

2) Higher Order Thinking

From the results reported in Section 4.3.5, higher-order thinking scored in low mid-range (mean=2.16, std dev=0.688) for 70% of the lessons observed. There were no lessons that scored 5. Therefore, in the majority of the HSIE lessons higher-order thinking where students analyse, interpret and manipulate information framed around higher order tasks or questions to expand their minds was only a minor part of the lesson (NSWDET, 2003d). Overall, these Stage 4/5 students primarily demonstrated lower-order thinking with routine mechanistic application of knowledge building the foundations for learning.

In the current study, in most of the lessons observed, students were only required to demonstrate lower order thinking. The interconnection between higher-order thinking and student learning is complex with the researcher’s field notes providing insights. For example, in a Stage 4 History lesson (01/A111004) about the plague and Black Death in Medieval Europe (topic overview - NSWBoS, 2003b, p. 25) students demonstrate primarily lower-order thinking (higher-order thinking scored 1). To develop deep understanding (lesson scored 3) the teacher employed a round-robin reading strategy with both the students and teacher reading sections from a textbook. At strategic times as the lesson progressed, the teacher stopped to question student understanding of the key concepts (deep knowledge scored 3). Questioning involved a simple initiate-respond-evaluate pattern (IRE) with students recalling factual information from the textbook (substantive communication scored 2). Therefore, in this lesson the students were only required to reproduce pre-specified knowledge by participating in routine practice, with no activities during the lesson going beyond simple reproduction.

Lower-order thinking was also observed in Geography lessons. For example, in one Year 8 Geography lesson observation that scored 2 (01/B260704), students were routinely required to apply Geographical tools to interpret information from topographic maps and to construct climate graphs (refer to NSWBoS, 2003a, p. 18). In this lesson, there was only one higher-order thinking instructional activity. This activity required students to analyse and manipulate some geographical information to solve a problem.

These findings indicate that higher-order thinking was only occasionally used to promote Intellectual Quality in the Stage 4/5 HSIE lessons observed. However, in the
broader context, these HSIE teachers may only be doing what the standards outlined in the syllabi documents require. In Stage 4/5 History and Geography, the components that contribute to teachers’ understandings of syllabus standards include objectives, stage statements, learning outcomes and content (NSWBoS, 2003a, 2003b). The student learning outcomes in these syllabi documents are consistent with Bloom’s Taxonomy of Learning (Anderson & Krathwohl, 2001; Bloom, 1976, 1956). For example, in meeting Stage 4 Geography course outcomes, students need to identify, organise and interpret geographical information; in Stage 5, students need to analyse, organise and synthesise, account for differences, identify and evaluate (Stage 4/5 Geography skills and learning outcomes are presented in Appendix 5). These learning outcomes are comparable with Stage 4/5 History (refer to NSWBoS, 2003b, p. 16).

From this discussion, it would seem that in Stage 4 Geography and History classrooms (Mr Jones, Year 8 Geography; Ms. Norris, Year 8 History and Mr Dennis, Year 8 Geography) the level of higher-order thinking was consistent with meeting course learning outcomes (refer to Table 4.8 for observation scores). However, in the Stage 5 classrooms (Mr Reynolds, Mr Wilson, Year 10 Geography; Mr Brown, Year 10 History; Ms. Smith, Year 9 Geography; Mr Sutton Year 9 History) instructional practices to promote higher-order stage outcomes were not evident to any great extent, although the mandatory syllabus document seems to require them.

Low mid-range scores for higher-order thinking were also observed in the SIPA HSIE classrooms, in the QSRLS Social Science classrooms and in the pre-service teacher classrooms. Internationally, the Dutch National Curriculum study researchers highlighted the difficulties faced by teachers when attempting to use activities that characterised ‘knowledge construction’ (higher-order thinking). Activities specifically designed to support higher-order thinking involved teacher developed scaffolds purported to activate student thought processes. These teachers, the researchers found, attached greater importance to how the students obtained their results rather than just obtaining the correct answers. However, in most lessons lower-order thinking was observed with students completing routine worksheets designed to recall factual information.

Overall, it would seem that higher-order thinking was difficult to promote in classrooms. The relative absence of identifiable higher-order thinking in the Stage 4/5 HSIE classrooms and classroom in the other studies reviewed were associated with the regular use of routine worksheets that only evoked evidence of lower-order thinking in students.
3) Substantive Communication

From the results reported in Section 4.3.7, substantive communication in the Stage 4/5 HSIE classrooms had a low mid-range score (mean=2.52; std dev=0.597). The low mid-range score found that in most of the lessons observed exchanges followed a typical initiate-respond-evaluate (IRE) format with at least two sustained interactions between the teachers and students or between the students (NSWDET, 2003d).

In the current study, the researcher’s field notes provided examples that may help readers to understand how substantive communication looked in practice. For example, in one Year 10 Geography (05/H251004) lesson a typical initiate-respond-evaluate (IRE) pattern (substantive communication scored 3) was evident. The following excerpt exemplifies the interactions and patterns of discussion that continued for at least 15 minutes.

To revise for an upcoming test the teacher wrote the unit topic, Urban Renewal (NSWBoS, 2003a, p. 39) and a focus question about the impact and importance of urban sprawl on the white board. Extract 1 describes a small part of the communication that took place in this part of the lesson.

**Extract 1: Year 10 Geography (05/H251004)**

A student responded – “something to do with population?”

The teacher verbally acknowledged the student’s answer and then asked for other examples to illustrate the impact of urban sprawl on the environment.

Another student responded, “a loss of trees”.

Another student responded “a loss of habitat, a loss of animals and biodiversity”.

The teacher then questioned the students about the impact of urban sprawl on people. He used the Campbelltown case study (a suburb in south western Sydney) undertaken in a previous lesson to illustrate the point.

Questions also explored student understanding about the quality of life, life styles and transport issues in Campbelltown. During these IRE interactions, the teacher developed a mind map on the whiteboard. As there were very few suitable responses from student, the teacher just added the information that he believed the students needed to know.

The discussion concluded, when the teacher believed the students had enough information to complete the questions for the ensuing trial School Certificate Examination.

The students were asked to copy the mind map into their workbooks. Textbooks were also provided for students to review questions from teacher developed activity sheets.

In this Year 10 Geography lesson, while the discourse was focused on the key concepts (deep knowledge scored 4) that were subject and topic based (knowledge integration scored 2) there was no elaboration of these key concepts (deep
understanding scored 2) or reciprocal communication between participants. Neither the teacher nor the student contributions were taken up by other students. The teacher made all the evaluative comments without any extended dialogue between the teacher and students or between students. This mid-range form of substantive communication seemed to be consistently applied across all the Stage 4/5 HSIE classrooms observed.

Additionally, these carefully orchestrated and scripted exchanges between teachers and students did not necessarily support higher-order thinking with 2 scored on the 1 to 5 scale. Such strategies tend to be routine and teacher directed with student direction scoring 1. This could have contributed to the unevenness observed in these Geography students understanding, as deep understanding scored 2.

Low mid-range scores for substantive communication (conversation) were reported in the SIPA HSIE classrooms and in the QSRLS Social Science classrooms. The pre-service teacher study revealed even lower scores as the inexperienced participants were only starting to develop sustained, substantive conversations in their classrooms. Internationally, the Dutch National Curriculum study researchers reported that in determining authentic instruction, verbal explanations by students on the processes they used to solve problems occurred only occasionally (substantive communication). In most situations the teachers took responsibility for verbal explanations. The Dutch teachers indicated that time constraints and completing subject content requirements were mitigating factors in enacting sustained conversations with the students.

Overall, substantive communication mainly involved simple IRE patterns to recall fact-based questions involving textbooks and worksheets. The recalling of knowledge required lower-order thinking involving short utterances or single word responses that could have contributed to the weakness in students' deep understanding. It would seem from these discussions that regardless of the study, experience, subject or year level, teachers have difficulties in moving beyond simple forms of substantive communication.

5.2.3 Low Range Elements

1) Problematic knowledge

From the results reported in Section 4.3.4, problematic knowledge had a low-range score (mean=1.92, std dev=0.802) with 75% of all lessons observed scoring 1 or 2. There were no lessons that scored 5. These results indicate that problematic
knowledge was not a significant element in most classrooms with these HSIE teachers treating the deep knowledge they presented to students as a fixed, static body of information only open to one interpretation (NSWDET, 2003d).

While problematic knowledge was not a significant element in most lessons, there were some lessons that scored in the mid-range. For example, in one Stage 4 History lesson (01/A210904) exploring Topic 2, Societies and Civilisations of the Past (NSWBoS, 2003b, p. 25), problematic knowledge scored 3. Instructional activities involved pre-developed activity worksheets that required students to review case studies about crimes and punishment in the 14th century. The information and questioning allowed students to consider the societal, political and cultural perspectives of 14th century punishments in the context of modern society. In this lesson problematic knowledge and deep knowledge were the only elements that had scores in the mid-range. The other elements including deep understanding (scored 2), higher order thinking (scored 1), metalanguage (scored 2) and substantive communication (scored 2) had low-range scores.

In another example, a Stage 4 Geography lesson (01/B140904) scored 3 for problematic knowledge. In this lesson, to explore the notion of ecological sustainability, (see syllabus Focus Area 4G4: Global Issues and the Role of Citizenship presented in Appendix 5) the teacher asked the students to form friendship groups and to collaboratively develop a sustainable tourism management plan for a Pacific Island resort. As the students discussed the task they realised that the information could be interpreted in many different ways. For example, the information about overfishing and the impact on fish stocks could be interpreted from whatever perspective the writer wanted to take. From one perspective, the information could support a fishing ban or alternatively a case could be made for a sustainable marine reserve around the island. Similarly, other information suggested that sewage, fertiliser and sediments deposited by the rivers were destroying reef habitats and that over fishing was not the real issue. While the focus in this lesson seemed to be on problematic knowledge, the nature of instructional activities also supported higher-order thinking and deep knowledge with scores of 3. However, deep understanding, metalanguage and substantive communication scored 2 on the 1 to 5 scale.

In these History and Geography lessons, the teacher provided the tools for the students to question, to identify and explore the assumptions underpinning the variety of perspectives presented in the topics. However, instructional approaches supporting
students' exploration of the problematic nature of knowledge were the exception in this study.

Low-range scores for problematic knowledge were also evident in the SIPA HSIE teachers' classrooms and in the pre-service teacher classrooms. On the other hand, problematic knowledge in the QSRLS Social Science classrooms had a mid-range score. In these classrooms, while there was a focus on completing subject knowledge and skills, students did have opportunities to explore the multiple perspectives underpinning the knowledge presented to them.

Overall, in the Stage 4/5 HSIE classrooms the focus seemed to be on completing the syllabus knowledge and skills, rather than on understanding the problematic nature of the knowledge. Further, it would seem that the low-range score for problematic knowledge was strongly linked to the low levels of knowledge integration where knowledge was seen as subject specific and in lessons where cultural knowledge was treated in a superficial manner. However, given the opportunity, teachers did provide the instructional support needed for students to challenge and question knowledge in order to identify underlying assumptions.

2) Metalanguage

From the results reported in Section 4.3.6, metalanguage scored the second lowest score (mean=2.10, std dev=0.597) of all eighteen elements. In the HSIE lessons observed, the students were not given the time or opportunity to question the function or structure of the specialist language (NSWDET, 2003d). The terminology presented was explained but teacher emphasis was on students doing relatively simple activities. This is consistent with practice in the SIPA HSIE secondary classrooms, in the QSRLS Social Science classrooms and in the pre-service teacher classrooms with low-range scores for metalanguage recorded in all cases.

It would seem that regardless of the research study, simple forms of metalanguage primarily exist with the teacher and the students defining terms or specialist terminology. For example, in two consecutive Year 8 Geography observations (03/E300707 and 03/E060804: each scoring 3) the teacher introduced terminology such as biodiversity, habitat, cyclone, typhoon, synoptic charts and isobars. These terms were defined in the context of the subject knowledge with little or no clarification or assistance provided to unpack the language in non-specialist terms (NSWDET, 2003d). Further, in these lessons there did not seem to be any relationship between
low level of metalanguage and the scores for the other elements. For example, in lesson 03/E060804 the deep knowledge scored 4; deep understanding scored a 3, while substantive communication and higher order thinking each scored a 2. Problematic knowledge was not part of the lessons and scored 1. On the other hand, in lesson 03/E300707 deep knowledge scored 4; deep understanding scored 4, while the other three elements scored 3.

While simple forms of metalanguage seemed to dominate, there were some lessons observed where the teacher did attempt to ‘unpack’ the specialist terminology. For example, in one Year 8 History (01/A200704) lesson on Ancient Societies (NSWBoS, 2003b) where metalanguage scored 4, the terms were ‘unpacked’ to explicitly build student deep understanding. In this lesson the teacher explained that the word ‘acropolis’ was derived from two Greek words; ‘acro’ - meaning high and ‘polis’ - meaning city. With this focus, there seemed to be higher scores for the other elements than in lessons with lower levels of metalanguage. In this lesson deep knowledge, deep understanding and substantive communication all scored 3, with low range scores recorded for problematic knowledge (2) and higher order thinking (1).

The low level of metalanguage in both History and Geography raises questions about the effectiveness of instructional practices to support the diverse literacy needs of students. In the NSW Department of Education K-10 syllabi documents, specific cross-curricular components are outlined. Literacy is one of these components. Literacy skills in Geography, for example, involve “reading, writing, listening and viewing” (NSWBoS, 2003a, p. 14). The acquisition of these types of skills supports the development of key competencies of collecting, analysing and organising of Geographical information. As such, low levels of metalanguage could be seen as a factor contributing to students’ uneven understanding (deep understanding) of the key concepts (deep knowledge) presented in lessons.

From these findings it would appear that the promotion of Intellectual Quality in these Stage HSIE 4/5 classrooms was a major challenge. From the results reported, there were no elements that scored in the high-range. There was only one element, deep knowledge that scored in the mid-range. Three elements, deep understanding, higher-order thinking and substantive communication scored in low mid-range. The low-range scoring elements were problematic knowledge and metalanguage. These findings are consistent with the other research studies around the world, regardless of student backgrounds, school, subject, year group or the experience of participating teachers.
Further, it is difficult to imagine that many of the elements in the Intellectual Quality dimension as being particularly strong when instructional practices primarily focus on knowledge and skill-based development. That is, the deep knowledge presented in lessons was subject based, defined and quarantined in the Stage 4/5 History and Geography syllabi (NSWBoS, 2003a, 2003b). Further, instructional approaches to deliver deep knowledge, as indicated by the researcher’s field notes, tended to be more teacher-centred, textbook and worksheet focused. There was also an unevenness observed in the students’ deep understanding of the deep knowledge. Overall, it is argued that the focus on knowledge and skill-based development impacted on the ability of these expert teachers to promote high levels of Intellectual Quality in these Stage HSIE 4/5 classrooms.

5.3 Promoting a Quality Learning Environment in the Stage 4/5 HSIE Classrooms

From the results reported in Section 4.4, the score for the Quality Learning Environment (mean=16.02, std dev=2.668) was lower than the theoretical mid-point (18). Given this result it would seem that the Stage 4/5 teachers were just starting to develop a pedagogy that sets high and explicit expectations and positive relationships between students and teachers in an environment focused on learning (NSWDET, 2003d). Again, this finding was unexpected as the teachers in the study were Head Teachers and experienced classroom teachers.

In the research literature there were a number of studies that had similar results (Gore, Griffiths, et al., 2004; Gore, Ladwig, Amosa, Griffiths, et al., 2008; QSRLS, 2001). In the SIPA secondary HSIE classrooms Quality Learning Environment had a score (mean=14.88, std dev=3.62) below the mid-point (18). This score was lower than in the Stage 4/5 HSIE classrooms.

In the research undertaken using the Productive Pedagogy model, the Supportive Classroom Environment construct is equivalent to the NSWQTM Quality Learning Environment dimension. In the QSRLS Social Science classrooms, Supportive Classroom Environment had a mean higher than the theoretical mid-point (mean=3.07, std dev=0.69) with the teachers consistently providing supportive environments for student learning. On the other hand, in the pre-service teacher classrooms, Supportive Classroom Environment had a score below the theoretical mid-point (mean=2.78, std dev=0.36). However, in comparing results it must be remembered that the Supportive Classroom Environments construct only includes
five of the six elements from the NSWQTM Quality Learning Environment dimension. The sixth element, high expectations is unique to the NSWQTM. Notwithstanding this, the different results produced by the different studies indicate that factors other than teacher experience could be influencing a teacher’s ability to create a Quality Learning Environment.

In promoting a Quality Learning Environment the scores reported in Section 4.4 indicated that some elements were more prevalent in the Stage 4/5 HSIE classrooms than others. To assist the researcher to assess the relative importance of each element in promoting a Quality Learning Environment, procedures consistent with those described in Section 5.1 were undertaken. The findings from this analysis are presented in Sections 5.3.1 to 5.3.3.

5.3.1 Mid-range Elements

1) Social Support

From the results reported in Section 4.4.5, social support in the Stage 4/5 HSIE classrooms had the second highest score of all 18 elements coding in the mid-range (mean=3.84, std dev=0.583). Social support was a central instructional approach with the HSIE teachers encouraging the students to try hard and to take risks in a climate of mutual respect (NSWDET, 2003d).

The researcher’s field notes revealed how social support looked in the Stage 4/5 HSIE classrooms. Moderate levels of social support, with a score of 3 on the 1 to 5 scale were evident in a Year 10 Geography lesson (04/C190804). This lesson involved Focus Area 5A4: Australia in Its Regional and Global Contexts and developed students’ understanding of Australia’s role in the Asia Pacific Region (NSWBoS, 2003a, p 42). The lesson developed student understanding of the ANZUS Treaty, the Australian constitution and Australia’s role the Asia Pacific Region (deep knowledge scored 3). The teacher supported student learning by guiding and redirecting answers using a simple IRE approach (substantive communication scored 2). The students gave a variety of responses, had differing views and some misunderstandings (deep understanding scored 2). The teacher clearly encouraged the more reluctant students to become involved in the lesson. In this teacher-centred lesson (student direction scored 1) social support promoted students’ self-regulation (scored 4) and engagement (scored 3) with most students seriously engaged in parts of the lesson and very few students off-task. Other elements including explicit quality criteria (scored 1) and high
expectations (scored 2) were of lesser importance in promoting a Quality Learning Environment in this lesson.

Consistent with the findings of this study, social support with a mid-range score was the second highest scoring element in the SIPA HSIE classrooms and in the QSRLS Social Science classrooms. In the pre-service teacher classrooms social support with a mid-range score was the third highest scoring element. Therefore, regardless of the research study, social support was seen by teachers as an important element in promoting a Quality Learning Environment.

2) Students’ Self-Regulation

From the results reported in Section 4.4.6, students’ self-regulation (mean=3.62, std dev=0.662) had a mid-range score. In most of the lessons observed the Stage 4/5 HSIE students were able to demonstrate autonomy and initiative in relation to regulating their own behaviour (NSWDET, 2003d). Therefore, the lessons proceeded without interruption to allow the class to ‘get on’ with learning.

One way to promote students’ self-regulation is to ensure that learning activities are purposeful and interesting with clear goals that students perceive to be worthwhile (NSWDET, 2003d). For example, in one Year 10 Geography lesson (05/H270804: students’ self-regulation = 4), students were required to complete an in-class assignment relating to the Stage 5 syllabus Focus Area: Australia in Its Regional and Global Contexts (NSWBoS, 2003a, p. 42). Extract 2 contains excerpts from Part A of the assignment sheet.

**Extract 2: Year 10 Geography Lesson (05/H270804)**

<table>
<thead>
<tr>
<th>Focus Question 1: Where do migrants come from?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Task: Copy and paste the two tables from the webpage.</td>
</tr>
<tr>
<td>1. What are the main differences? Write 2-3 lines.</td>
</tr>
<tr>
<td>2. If the trend continues, how will Australia have changed by 2051? Write 2-3 lines.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Focus Question 2: How will migration shape Australia’s Future?</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Copy and paste the projected population chart into your document</td>
</tr>
<tr>
<td>2. What are the series predictions? Write 2-3 lines.</td>
</tr>
<tr>
<td>3. What part will immigration play in future population growth?</td>
</tr>
</tbody>
</table>

(Two other parts of this task sheet contained similar questions and marking criteria)

To complete this task the students were divided into two groups. To complete the tasks one group of students were given textbooks while the other group accessed the
Internet. When the class was divided, the students formed smaller friendship groups to work on the tasks within the two groups.

As the lesson progressed it became increasingly apparent that some students were clearly off-task, especially those using the textbooks. In the main, these students were quiet and were not disrupting the lesson as they were occupied by social conversations about weekend events. When the teacher became aware that students were off-task, he requested that they ‘got on with their work’. However, as the lesson progressed, another group using the textbooks became louder and began to disrupt the class. The teacher responded by checking the students’ work and by separating those who were disruptive. On the other hand, the students involved in the Internet research were engaged with seemingly no off-task behaviours.

The activities students were required to do mainly involved copying information from the textbooks or cutting and pasting text and graphs from the websites into work folders. These routine tasks involved lower-order thinking (higher-order thinking scored 2) and didn’t require high levels of substantive communication (scored 2). As the nature of the work was routine and with students having limited control over the lesson both high expectations, student direction, engagement scored 2. Overall, while students’ self-regulation was high, most students, most of the time, appeared indifferent and were only occasionally active in carrying out the assigned activities.

To determine the students’ understanding of the key concepts (deep knowledge scored 3 and problematic knowledge and metalanguage scored 2) the researcher moved between the groups questioning students. During these conversations the students demonstrated shallow and uneven understanding (deep understanding scored 3) of the key concepts including population pyramids, graphs depicting population trends, natural increases, immigration, migration, fertility and mortality rates. Further, in explaining the shallowness and unevenness in understanding, explicit quality criteria was not evident with a score of 1 on the scale of 1 to 5. With a score of 4, social support was important in promoting students’ self-regulation and a Quality Learning Environment.

Mid-range scores for student self-regulation were also observed in the SIPA HSIE classrooms and in the pre-service teacher classrooms. In the QSRLS Social Science classrooms students’ self-regulation had a high-range score, the highest score of all 19 elements. In the Zevenbergen and Lerman (2006, 2007) study focusing on ICT use, student self-regulation also had the highest score. However, pedagogy remained
similar to normal lessons without ICT use. Clearly, in these Stage 4/5 HSIE classrooms and in the classrooms from the other studies, teachers’ instructional practices enabled students to demonstrate autonomy in regulating their own behaviour. Importantly, these findings suggest that teacher-centred instructional activities reduced student interactions and, therefore, the need for teachers to regulate behaviour.

Overall, student self-regulation in the context of teacher-centred instructional activities seemed designed to support student behaviour management rather than develop Intellectual Quality. The worksheets reduced student interactions and, therefore, the need for teachers to regulate behaviour. On the other hand, the low level intellectual demands of the tasks appeared to generate off-task behaviours. If Intellectual Quality is to be supported, the notion of good classroom management needs to be more than just about encouraging student cooperation and maintaining order.

5.3.2 Low Mid-Range Elements

1) Student Engagement

From the results reported in Section 4.4.3, student engagement in the HSIE classrooms had a low mid-range score (mean=2.84, std dev=0.820). In the lessons observed most students were seriously engaged in parts of the lesson but appeared indifferent to their work in other parts of the lesson (NSWDET, 2003d). Most students were actively carrying out their class work and were trying hard.

At the lower end of the score range a Year 10 Geography (05/H170904) revision lesson for an upcoming examination highlighted the complexity of student engagement. In this Year 10 Geography lesson student engagement scored a 2 with most students, most of the time, appearing indifferent and only occasionally active in carrying out their assigned activities. Some students were clearly off-task. In the first part of the lesson the teacher wrote the review topic on the whiteboard and issued worksheets containing focus questions and textbooks for reference purposes. To support learning, students read the first question from the activity sheet and highlighted key words, e.g. physical, human and environment. From the ensuing discussion, (substantive communication scored 2, on the scale of 1 to 5) the teacher wrote the responses in scaffold on the whiteboard. The scaffolded information provided a structure for the students to develop topic sentences to answering the questions. The students were very unsettled, disinterested and many were clearly off task.
The second part of the lesson reviewed synoptic charts. During this part of the lesson it became increasingly obvious that engagement was sporadic, as most of the students were clearly off-task and did not complete the work required of them. Some students were playing ‘knuckles’, that is, the students with a closed fist and their knuckle touching attempted to hit each other’s knuckles. Other students were talking and disrupting the few students who were taking the revision lesson seriously. It would seem that these instructional approaches were associated with lower levels of student engagement.

Of the other Quality Learning Environment elements in this lesson, student direction scored 1; explicit quality criteria and high expectations each scored 2 and social support scored 4. Importantly in creating Intellectual Quality, all elements except deep knowledge (score of 3) scored 2. Therefore, it would seem that the sporadic nature of student engagement in this lesson had a negative impact on the Intellectual Quality of the students’ work.

In summary, student engagement in these Stage 4/5 HSIE classrooms was variable with some students appearing indifferent to their work, while other students were actively carrying out class work. On the other hand, in the SIPA HSIE classrooms, in the QSRLS Social Science classrooms and in the pre-service teacher classrooms student engagement had a mid-range score. In these other studies, most students, most of the time, were on-task and pursuing the substance of the lesson. The inconsistency between the findings in the current study and these other studies could have occurred because student engagement is multifaceted in nature and involves participation, connection, attachment and the integration or particular settings and tasks (Newmann & Associates, 1996a; Newmann, et al., 1996c).

2) High Expectations

High expectations are not just about students participating in classroom activities, but participating in work that is challenging. From the results reported in Section 4.4.4, high expectations had a low mid-range score (mean=2.52, std dev=0.673) with over half of the lessons (32) observed scoring 2. In the Stage 4/5 classrooms only some students participated in challenging work for some of the lesson with the students encouraged through lesson processes to try hard and to take risks and were recognised for doing so (NSWDET, 2003d). In the field notes of the researcher there were numerous examples of lessons where high expectations were communicated by the teacher to students.
For example, in one Year 8 Geography lesson (03/E150904) where high expectations scored 4 on the scale of 1 to 5, it was obvious that the teacher encouraged all the students to try hard to achieve the desired understanding of certain geographical tools (NSWBoS, 2003a, p.18). The first part of the lesson was teacher-centred with the students completing a worksheet to revise their understanding of geographical tools including grid reference, scale, distance and direction (geographical tools related to Focus Area 4G4 are presented in Appendix 5). As the lesson progressed the work became more challenging. In the second part, the students were required to apply these geographical tools to local area maps and design a triathlon or marathon course. With the intellectual demands (higher order thinking, deep understanding and substantive communication each scored 3; deep knowledge scored 4; metalanguage scored 2 and problematic knowledge scored 1) and high expectations of what students were expected to do increased, student engagement supported high levels of student self-regulation (scored 5 in this lesson). Thus, as most teachers and parents would subscribe, if the work is not challenging there is greater chance that students will be off-task, at least for some part, of a lesson. It is therefore important for teachers to develop a climate of high expectations as teachers’ expectations for students tend to be self-fulfilling (Brophy & Alleman, 1998).

In developing high expectations most students in the Stages 4/5 HSIE classrooms participated in challenging work during at least half of a lesson. The focus on routine instructional activities with low levels of Intellectual Quality, a desire to complete subject knowledge and skills and low levels of student direction all interacting together in concert, support one view to why high expectations was difficult to promote. Importantly, in the SIPA HSIE classrooms, the only comparable study, high expectations had a low-range score with only some students participating in challenging work during some of the lesson. Together, these findings indicate that promoting high expectations in the HSIE classrooms was a difficult task.

5.3.3 Low Range Elements

1) Explicit Quality Criteria

From the results reported in Section 4.4.2, the refinement of student work using explicit quality criteria (mean=1.49, std dev=0.674) was not strong with 90.2% (54) of the 61 classroom observations undertaken scoring a 1 or 2. When explicit quality criteria or standards were provided to students, they were only statements about the quality of
work expected or were related to technical or procedural statements (NSWDET, 2003d). The researcher’s field notes provided numerous examples.

For example, in the Year 8 Geography lesson (03/E150904) discussed in Section 5.3.2, *explicit quality criteria* scored 1 on the scale of 1 to 5. In this lesson technical and procedural criteria were made explicit with the teacher reminding the students that when answering questions they needed to start the paragraph using a topic sentence (T) and then to use examples (E) or ‘TEE’. There was some evidence of students using this strategy. The absence of high levels of *explicit quality criteria* in this lesson could have contributed to the unevenness in the student’s *deep understanding* in the promotion of *Intellectual Quality* with a score of 3 on the scale of 1 to 5.

In another example, *explicit quality criteria* in one Year 10 History lesson observed (03/F221004) scored 2 on the scale of 1 to 5. In this lesson the teacher constructed a scaffold on the board for students to organise their notes. The teacher in this lesson made general statements regarding the desired quality of the work expected from these Year 10 History students (NSWDET, 2003d).

The low level of *explicit quality criteria* observed in these Stage 4/5 HSIE classrooms is an important finding, as the NSW Board of Studies *K–10 Curriculum Framework* is a standards-referenced framework (NSWDET, 2006a). This framework provides a set of broad learning outcomes, that summarises not only the knowledge students need to learn, but also the skills, values and attitudes essential for students to succeed in and support learning beyond their schooling. In such a framework student achievement is judged in relation to the syllabus standards (NSWBoS, 2003a, 2003b; 2005a, 2005b). That is, what is to be learnt by students is linked to learning outcomes through descriptions of levels of achievement of that learning, that is, standards. The lack of explicit quality criteria in participating classrooms is a cause for concern in such a context.

These findings are consistent with the SIPA study findings with *explicit quality criteria* in the HSIE classrooms scoring in the low-range. On the other hand, in the pre-service teacher classrooms and in the QSRLS Social Science classrooms *explicit quality criteria* scored in the low mid-range. In these classrooms more detailed criteria regarding the quality of work were made, although students were not effectively using the criteria to examine the quality of their work. It seems that *explicit quality criteria* were more evident in the pre-service and QSRLS Social Science classrooms.
participating NSW HSIE classrooms only technical or general statements were being made about the desired quality of students' work.

2) Student Direction

From the results reported in Section 4.4.7, student direction scored the second lowest mean (mean=1.70, std dev=0.691) of all the eighteen elements. Of the 61 lessons observed 26 (42.6%) scored a 1 and 27 (44.3%) scored a 2 on the scale of 1 to 5. This low score found that the HSIE teachers explicitly determined the activities undertaken by the students and when they were to do them. Student control over the choice of activities and how they would be assessed was minimal or trivial (NSWDET, 2003d).

Common instructional practices supporting student learning included teacher pre-developed worksheets and activity sheets (for example 03/E15/09/04; 05/H170904; 05/H270804; 04/C190804). Importantly, the research base for student direction suggests that sequencing, pacing and the criteria to evaluate student work are central in supporting student learning (Ladwig, 2007; NSWDET, 2003c; QSRLS, 1998). Students did seem to have control over the pace of the lesson and the time spent on activities. It was obvious that as a lesson progressed the teachers regularly checked to see how much work the students had completed.

Additionally, the low-range score for explicit quality criteria suggests that students had limited opportunity to negotiate the criteria by which the quality of their work would be assessed. At certain junctures in the lesson the teacher routinely reviewed answers to questions and when finished, requested the students to move onto the next activity. Importantly, when students became disengaged or when noise levels increased, the teacher would change activities. These HSIE teachers were able to regulate student behaviour by controlling lessons in this way.

Low-range scores for student direction were also evident in the SIPA HSIE classrooms, in the QSRLS Social Science classrooms and in the pre-service teacher classrooms. Therefore, low levels of student direction were common in all research studies with the classroom teacher explicitly determining what activities students did and how and when they are to do them. The teachers and not students had control of the learning in the classrooms in these studies.

In creating a Quality Learning Environment students need some influence over classroom activities if they are to be more involved in them. However, there were no
elements in **Quality Learning Environment dimension** that scored in the high-range. There were two elements that scored in the mid-range; *social support* and *student self-regulation*. There were two elements that scored in low mid-range; *high expectations* and *student engagement*. *Explicit quality criteria* and *student direction* scored in the low-range. From these findings and the findings from the other research studies there is a clear need for teachers to develop instructional practices that allow students to take greater responsibility for their learning. Higher levels of *student direction* are required so students can see the value and worth of what they are doing to become engaged and active learners.

### 5.4 Creating Significance in the Stage 4/5 HSIE Classrooms

From the results reported in Section 4.5, the **Significance** dimension (mean=16.31, std dev=2.284) had the highest score of the three dimensions, but still below the theoretical mid-point (18). In creating **Significance** in the Stage 4/5 HSIE classrooms, all socio-cultural groups are integral members of the classroom community, with students and teachers working together to make connections with prior and cultural knowledge and with contexts outside the classroom (NSWDET, 2003d).

SIPA is the only study directly comparable to the present investigation in the research literature. This is because the *Productive Pedagogy* model constructs **Recognition of Difference** and **Relevance** were combined to create the **Significance** dimension. However, as there are common elements, comparisons are able to be undertaken at the element level.

**Significance** in the SIPA HSIE secondary classrooms (mean=13.44, std dev=3.71) had a score that was well below the theoretical mid-point (18) and three coding units lower than the score observed in these Stage 4/5 HSIE classrooms. **Significance** was more evident in participating classrooms than it was in their SIPA counterparts. This may be due to differences in teacher sample and suggests that teachers have very different interpretations of the type of instructional approaches to create **Significance** in classrooms and across schools.

As with the **Intellectual Quality** and **Quality Learning Environment** constructs, some elements reported in Section 4.5 were more prevalent in creating **Significance** than others. To assist the researcher to assess the quality of classroom instruction observed, procedures consistent with those described in Section 5.1 were undertaken. The findings from this analysis are presented in Sections 5.4.1 to 5.4.3.
5.4.1 High-Range Elements

1) Inclusivity

From the results reported in Section 4.5.5, inclusivity had the highest mean (mean=4.30, std dev=0.558) of all the eighteen elements with 37 lessons (60.7%) that scored 4 and 21 (34.4%) that scored 5. Therefore, in these Stage 4/5 HSIE classrooms students from all social groups and cultural backgrounds were included in significant ways (NSWDET, 2003d).

While the HSIE teachers clearly saw inclusivity as a high priority in classrooms, there were 3 lessons that scored 3 on the scale of 1 to 5 suggesting unevenness in the inclusion of some groups. For example, in one Stage 4 History lesson (01/A300804), there was evidence of “self-exclusion” (NSWDET, 2003d, p. 47) by the male students. In understanding how this exclusion may have come about, in this school the grading strategy assigned students to History and Geography classes based on elective choices. This grading strategy created an unintentional gender imbalance within this class with 4 male and 22 female students. In this lesson, and in a number of the other lessons observed on this class, the female students dominated discussion and interactions. The teacher was very much aware of the situation and attempted to include the male students at various times during the lesson.

Similar to the current findings, inclusivity in the SIPA HSIE classrooms had a mid-range score and the highest score of all 18 elements. In the QSRLS Social Science classrooms and in the pre-service teacher study representative participation (inclusivity) had the highest score of all 19 elements. Therefore, as all the research studies indicate, students from all socio-cultural groups were encouraged to be integral members of the classroom community (NSWDET, 2003c).

5.4.2 Mid-Range Elements

1) Background knowledge

To create Significance teachers need to be familiar with and actively use the background knowledge of their students to explain and assimilate new information (Newmann & Associates, 1996a; Newmann, et al., 1996c). From the results reported in Section 4.5.2 background knowledge in these Stage 4/5 HSIE classrooms had a mid-range (mean=3.18, std dev=0.671) with 57.4% (35) lessons observed scoring 3 and 31.1% (19) scoring 4. While this element helps to make learning meaningful for
students, the mid-range score indicated that there were limited opportunities for students to explore each other's understandings.

In many of the lessons observed the teachers did provide students with opportunities, although briefly, to make connections between their knowledge and personal experiences and the substance of the lesson (NSWDET, 2003d). There were some connections to out-of-school background knowledge, especially popular culture. For example, in one Year 10 History lesson (03/F221004) which scored 4, the teacher explored students' background knowledge (including cultural knowledge that scored 2 on the scale of 1 to 5) about multiculturalism. Using a simple IRE approach (substantive communication scored 3 on the scale of 1 to 5) students' backgrounds involving surnames, religion, religious festivals, cultural festivals and knowledge of films significant to individual cultures focused discussion. During the interactions the teacher acknowledged student responses and constructed a scaffold on the board to summarise the information. The students defined key terms such as assimilation, integration, nationalism and multiculturalism (metalanguage scored 2). The students were then required to copy these board notes into their work books. In this lesson, inclusivity scored 4; cultural knowledge and connectedness scored 3 and narrative and knowledge integration each scored 2.

In creating Intellectual Quality in this Year 10 History lesson background knowledge supported deep knowledge, deep understanding, problematic knowledge and substantive communication each scored 3. Exploring student's background knowledge did not seem to increase the scores for metalanguage and higher-order thinking with each scoring 2.

In comparison, background knowledge in the SIPA HSIE classrooms had low mid-range score. In these classrooms, students' background knowledge when mentioned or elicited was trivial and not connected to the substance of the lesson (NSWDET, 2003d). Low-mid range scores for background knowledge were also observed in the pre-service teacher study and in the QSRLS Social Science classrooms. In the Dutch National Curriculum study, when explaining the findings in relation to Authentic Pedagogy, the researcher noted that some teachers often choose their instructional content examples from daily life and students were often "given space to discuss their own experiences in relation to the subject" (Roelefs & Terwel 1999, p. 21). However, student contributions to class discussion (substantive communication) based on everyday life occurred infrequently. From these comparisons, there seems to be no
consistency as to the importance given to students’ *background knowledge* in creating *Significance* in classrooms.

### 5.4.3 Low Mid-Range Elements

1) Connectedness

From the results reported in Section 4.5.6, *connectedness* had low mid-range mean (mean=2.82, std dev=0.885). In the main, the Stage 4/5 HSIE students recognised some connections between classroom knowledge and situations outside the classroom (NSWDET, 2003d). However, these connections remained mostly abstract with only some effort to influence audiences beyond the classroom.

There were examples in the lessons observed where students were able to recognise connections between classroom knowledge and situations outside the classroom. For example, in one Year 10 Geography lesson (04/C141004) that scored 3, students discussed Australia’s future and identified key concerns for urban planners in the 21st century (Focus Area 5A2 Changing Australian Communities, NSWBoS, 2003a, p. 39). Issues and concerns relating to transport, housing, crime, social justice, urban sprawl and renewal and pollution were highlighted. With the key issues identified and summarised on the blackboard, the students were then required to form groups to develop an ‘action plan’ for the local area. It was proposed that when the groups reported back to the class their ideas would be written up in a letter and sent to the local Member of Parliament. To create *Significance* in the lesson the teacher attempted to make clear to the students what the value of the lesson was by making connections to real-life contexts outside the school. In this lesson *background knowledge* and *inclusivity* also scored 4. *Narrative* and *knowledge integration* each scored 2.

In another example, students in a Year 8 Geography lesson (03/E270804) explored environmental issues relating to Greenhouse Gases and the Kyoto Protocols (Focus Area 4G3 Global Change, NSWBoS, 2003a, p. 31). One of the tasks students were required to do was to write a letter to a newspaper explaining the issues and their opinions about what should be done. In creating *Significance* in this lesson, *narrative* and *background knowledge* each scored 3. *Knowledge integrations* scored 2, *cultural knowledge* scored 1 and *inclusivity* scored 4.
In examining the findings in the other research studies, connectedness in the HSIE SIPA classrooms and in the pre-service teachers’ classrooms also had a low mid-range score. By way of contrast, in the QSRLS Social Science classrooms Connectedness to the World Beyond the Classroom (connectedness) had a low-range score. In the Dutch National Curriculum study, the researchers reported that teachers, when attempting to support relevance of student learning beyond the school, commonly paid attention to current developments in society. However, “out-of-school tasks” (Roelofs & Terwel 1999, p. 219) requiring students to communicate with a person or institution were extremely rare. They reasoned that the lack of relevance (connectedness) was related to a focus on textbook use and limited time to pursue Authentic Pedagogy in an already overloaded curriculum.

From these findings, there were some connections made by the Stage 4/5 HSIE students between classroom knowledge and situations outside the classroom. However, these connections remained mostly abstract with only some effort to influence audiences beyond the classroom. Textbook use and teacher-centred instructional practices provided limited opportunities to promote connectedness in classrooms. These findings clearly indicate that instructional approaches to make connections to real-life contexts were not supported to any great extent in the classrooms in this study.

2) Cultural Knowledge

From the results reported in Section 4.5.3, cultural knowledge in the Stage 4/5 HSIE classrooms had a low mid-range score (mean=2.18, std dev=1.073) with only 8 (13.1%) lessons with that scored 4 where cultural knowledge was substantially recognised. High levels of cultural knowledge involve understanding, valuing and acceptance of the traditions, beliefs, skills, knowledge, languages, practices and protocols of diverse social groups (NSWDET, 2003d). However, cultural knowledge had the largest standard deviation of all the 18 elements, indicating that there was considerable variation in the way these HSIE teachers addressed cultural knowledge in lessons. The superficial treatment of cultural knowledge by teachers may also create disincentives for some students to participate in classroom discourse.

Even though the score for cultural knowledge was low, there were a few examples where instructional practices supported high levels in lessons. For example, in one Year 10 Geography (04/C290704) lesson on Human Rights from Focus Area 5A4: Australia in Its Regional and Global Contexts (NSWBoS, 2003a, p. 43) that scored 3,
students were required to examine similarities, differences and experiences of Indigenous peoples from Canada and Australia. Students were given segments of text to read to determine any cultural bias. The students were then required to identify similarities and differences in experiences and write a half-page newspaper article (connectedness in this lesson scored 3 with connections mainly abstract) for the school newspaper outlining their issues and concerns. Students from Aboriginal backgrounds were also encouraged to discuss their point of view with the other students. Most of the students were engaged in the task and there were very few off-task behaviours. In this lesson instructional practices in promoting students’ cultural backgrounds, interests and life experiences supported engagement (scored 3) and students' self-regulation (scored 3).

Overall, in these Stage 4/5 HSIE classrooms while cultural knowledge was present, treatment was superficial. This finding is consistent with the teaching observed in the SIPA HSIE classrooms and in the QSRLS Social Science classrooms with cultural knowledge scoring in the low-range. Cultural knowledge had an extremely low-range score on a scale of 1 to 5 (mean=1.12, std dev=1.12) in the pre-service teachers’ classrooms with no valuing or explicit recognition of knowledge other than that of the dominant culture. It would appear that the difficulty in incorporating cultural knowledge is related to the dominance of traditional subject knowledge found in the Stages 4/5 History and Geography classrooms (NSWBoS, 2003a, 2003b). Clearly, awareness needs to be raised about the cultural backgrounds, interests and life experiences of students.

5.4.4 Low Range Elements

1) Knowledge Integration

In lessons with high levels of high knowledge integration meaningful connections are made between different topics and/or between different subjects (NSWDET, 2003d). However, from the results reported in Section 4.5.4, knowledge integration with a low-range score (mean=1.79, std dev=0.755) was not a frequent element in these Stage 4/5 HSIE classrooms. Of the 61 lessons observed there were 49 (80%) that scored 2 or lower. In most lessons only minor or trivial connections were made between the History and Geography topic areas or other subjects by either the teacher or students. Knowledge in the Stage 4/5 HSIE classrooms was mostly defined within the subject areas.
While knowledge integration was not common there were lessons observed that scored 3 (n=12), lessons where at least one meaningful connection was made between topics or subject areas. Connections to other topics or subject are often made through the cross-curriculum perspectives described in the NSW Stage 4/5 syllabi documents. These perspectives include information and computer technology, literacy, numeracy, civics and citizenship, environment, difference and diversity, gender and Aboriginal perspectives (NSWBoS, 2003a, 2003b). For example, in Geography classrooms geographical tools link topics and subjects on a daily or weekly basis. In one Year 8 Geography lesson (03/E200804) students were required to calculate percentages. From a cross-curriculum perspective, the teacher connected the knowledge and skills to recent mathematics lesson. In another Year 8 Geography lesson (03/E230904) the skills students needed to construct graphs from statistical information were linked to a recent mathematics project.

Connections were made to other subjects and topics in the HSIE KLA in some lessons. For example, in two Year 10 Geography lessons (04/C290704, 04/C190804) the teacher connected human rights issues and conciliation to the Stage 5 History Topic 6: Changing Rights and Freedoms (NSWBoS, 2003b, p. 40) when addressing the Focus Area 5A4: Australia in Its Regional and Global Contexts (NSWBoS, 2003a, p. 43). In another example from a Year 8 History lesson (01/A111004), the teacher made connections to the Stage 5 Topic 4: Australia and World War II (NSWBoS, 2003b, p. 36) when investigating the impact of the plague in medieval Europe in Topic 2: Societies and Civilisations of the Past investigation Societies (NSWBoS, 2003b, p. 25).

While there were examples of knowledge integration in these Stage 4/5 HSIE classrooms the connections made between other topics or subjects were minor or trivial in nature. This suggests that there are clearly defined knowledge boundaries between Key Learning Areas (KLAs) or subject areas in schools. The mid-range score for deep knowledge further supports this view with the strength of KLA or faculty boundaries seeming to restrict knowledge transfers across these boundaries.

Similar to the Stage 4/5 HSIE classrooms, knowledge integration in the SIPA HSIE classrooms, in the QSRLS Social Sciences classrooms and in the pre-service teacher classrooms had low-range scores. In the Dutch National Curriculum study, the researchers found that many “learning situations did not contain complex or complete assignments with integrated subject matter” and “teachers rarely asked for research activities that required connections with integrated subject matter” (Roelofs & Terwel 1999, p. 211). The Dutch researchers concluded that neither the teaching nor the
assignments called for subject integration (*knowledge integration*). Therefore across all the research studies, it would seem that instructional practices do not support meaningful connections between topics, within subjects or between different subjects.

2) **Narrative**

From the results reported in Section 4.5.7, *narrative* had a low mid-range score (mean=2.05, std dev=0.740). In the HSIE classrooms, narrative involving stories written, told, read, viewed or listened were only used occasionally as a minor part of the lesson and/or were loosely connected to the substance of the lesson (NSWDET, 2003d). Of the lessons 61 observed, there were 13 (12.3%) that scored 1 where narratives were completely absent.

The ‘story form’ and the recounting of people’s life histories and events were common when Narrative was observed. For example, in one Stage 5 History lesson (03/F300704) that scored 5 the real-life war experiences of World War II (Topic 4 Australia in the Vietnam War Era, NSWBoS, 2003b, pp. 36-37) and Vietnam veterans (Topic 5 Australia and World War II, NSWBoS, 2003b, pp. 38-39) supported the students’ *deep understanding* of key concepts. After the presentation the History students completed an empathy-writing task linking the real life experiences of the guest speaker to the historical events. While narrative scored highly in this lesson, *background knowledge* and *knowledge integration* each scored 1 with *cultural knowledge* and *connectedness* each scoring 4.

In Geography narratives mainly involved personal experiences or stories sourced from travel diaries or holidays of either the teachers or students. For example, in one Year 8 Geography lesson (01/B260704: scored 3), both the teacher and the students described their holiday experiences while visiting destinations including the Great Barrier Reef and Fiji from Focus Area: 4G2 Global Environments (NSWBoS, 2003a, p. 28). In this lesson *inclusivity* and *background knowledge* each scored 4; *connectedness* scored 3 and *knowledge integration* scored 2. Interestingly, with this lesson focusing on South Pacific *cultural knowledge* scored 1.

In examining the pedagogy in these two HSIE lessons (both with mid-range scores) the use of *narrative* seemed to be positively associated with *engagement* and *student self-regulation*. It appears that in lessons with a high *narrative* score, the scores for *cultural knowledge* tended to be higher than average with students given greater opportunities to recognise the perspectives of people from diverse cultural and ethnic backgrounds.
Higher, average scores for substantive communication were also more common in lessons using narrative, as these lessons tend to move communication beyond the simple IRE approach.

Consistent with the findings from the current study, the SIPA HSIE classrooms had a low mid-range score for narrative. Alternatively, in the QSRLS Social Science classrooms and in the pre-service teacher classrooms narrative scored in the low-range. Different to what might be expected was a low mid-range score in the SIPA study secondary English classrooms. Overall, narratives involving stories written, told, read, viewed or listened to help illustrate or bring to life the knowledge that students were addressing played a minor role in creating Significance in classrooms.

In creating Significance, inclusivity was the highest scoring element with a high-range score with students from all groups included in significant ways in all aspects of lessons. Background knowledge had a mid-range score with connectedness and cultural knowledge scoring in the low mid-range. Low range scoring elements were knowledge integration and narrative. Overall, in creating Significance teacher awareness needs to be raised about the importance of cultural backgrounds, interests and life experiences of students and the value of ‘school learning’ within the wider social experience.

5.5 The ‘Typical HSIE Pedagogy’

The findings in the previous sections in this chapter provide strong evidence of the existence of a ‘typical HSIE pedagogy’ in these expert Stage 4/5 HSIE teacher classrooms. In identifying the ‘typical HSIE pedagogy’ each of the element scores were matched (as best as possible) to the coding descriptors from Quality teaching in NSW public schools: A classroom practice guide (NSWDET, 2003d). The ‘typical HSIE pedagogy’ describes what these HSIE teachers decided from day-to-day, and sometimes from moment to moment, about how to best present new knowledge, review old knowledge; to make decisions on how to teach the knowledge, the variety of strategies to be used, how to coordinate questions from students and how to negotiate the transitions from one topic to another. This ‘typical HSIE pedagogy’ is presented in Table 5.1 and is very different from the pedagogy described as high quality by the NSWQTM. The ‘typical HSIE pedagogy’ is a significant contribution of this study to research on quality teaching.
The researchers’ field notes not only provided a rich source of data to support lesson coding, they also offered a comprehensive means of contextualising Table 5.1. Section 4.8 of this thesis includes a quantitative analysis of the field notes that identifies common teaching strategies supporting student learning. Field notes indicate that the participating teachers encouraged students to try hard and to take risks in a climate of mutual respect. ‘Direct instruction’ and ‘discussion’ were very common teaching strategies during the fifty lessons observed by the researcher. Lesson content was treated as a body of textbook-defined information that was used to support completion of simpler outcomes from the Stage 4/5 History and Geography courses (NSWBoS, 2003a, 2003b).

Table 5.1 ‘Typical HSIE Pedagogy’

<table>
<thead>
<tr>
<th>Elements</th>
<th>Mean (Std Dev)</th>
<th>The ‘Typical HSIE Pedagogy’</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intellectual Quality</td>
<td>14.67 (2.27)</td>
<td>Knowledge is treated unevenly during instruction. A significant idea may be addressed as part of the lesson, but in general the focus on key concepts and ideas is not sustained.</td>
</tr>
<tr>
<td>Deep knowledge</td>
<td>3.23 (.529)</td>
<td>Deep understanding is uneven. Students demonstrate both shallow and a deeper understanding at different points during the lesson. A central concept is understood by some students, but may not be understood by other students.</td>
</tr>
<tr>
<td>Problematic knowledge</td>
<td>1.92 (.802)</td>
<td>Knowledge is mostly presented as fact, or a body of truth to be acquired by students. Knowledge is treated as static and open to only one interpretation.</td>
</tr>
<tr>
<td>Higher-order thinking</td>
<td>2.16 (.688)</td>
<td>Students primarily involved in routine lower-order thinking, but at some point during a lesson, at least some students perform higher-order thinking as a minor diversion.</td>
</tr>
<tr>
<td>Metalanguage</td>
<td>2.10 (.597)</td>
<td>During lessons terminology is explained, however, neither the teacher nor the students stop to make judgements or comments on the language. There, is no clarification or assistance provided regarding the language.</td>
</tr>
<tr>
<td>Substantive communication</td>
<td>2.52 (.595)</td>
<td>Substantive communication among students and/or between the teacher and the students occurs only occasionally and involves at least two sustained interactions. Discussion follows a typical ‘initiate-respond-evaluate’ or IRE pattern with low level recall.</td>
</tr>
<tr>
<td>Quality Learning Environment</td>
<td>16.02 (2.67)</td>
<td>Only general statements are made during the lesson regarding the desired quality of student work.</td>
</tr>
<tr>
<td>Explicit quality</td>
<td>1.49 (.674)</td>
<td>Most students are engaged in parts of the lesson, but may appear indifferent during other parts and very few students are clearly off task. Engagement is variable to sporadic.</td>
</tr>
<tr>
<td>High expectations</td>
<td>2.52 (.673)</td>
<td>Some students are involved in challenging work during some of the lesson. They are encouraged (explicitly through lesson processes) to try hard and to take risks and are recognised for doing so.</td>
</tr>
<tr>
<td>Social support</td>
<td>3.84 (.583)</td>
<td>Social support is clearly positive. Supportive behaviours and comments are directed at most students, including clear attempts at supporting reluctant students.</td>
</tr>
<tr>
<td>Students’ self-regulation</td>
<td>3.62 (.662)</td>
<td>Most students, most of the time, demonstrate autonomy and initiative in regulating their own behaviour with minimal interruptions to the lesson. Once or twice during the lesson, the teacher needs to comment on and correct student behaviour or movement.</td>
</tr>
<tr>
<td>Elements</td>
<td>Mean (Std Dev)</td>
<td>The ‘Typical HSIE Pedagogy’</td>
</tr>
<tr>
<td>----------------------------------------------</td>
<td>----------------</td>
<td>------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Student direction</td>
<td>1.70 (.691)</td>
<td>While students exercise some control over some aspect of the lesson choice, time, pace, assessment their control is minimal or trivial. Instead, the teacher explicitly determines what activities students do and how and when they are to do them.</td>
</tr>
<tr>
<td>Significance</td>
<td>16.31 (2.28)</td>
<td></td>
</tr>
<tr>
<td>Background knowledge</td>
<td>3.18 (.671)</td>
<td>Students’ background knowledge is mentioned or elicited briefly, is connected with the substance of the lesson and there is at least some connection to out-of-school knowledge.</td>
</tr>
<tr>
<td>Cultural knowledge</td>
<td>2.18 (1.073)</td>
<td>Some cultural knowledge is evident and is valued in the lesson, but it is treated in a superficial manner.</td>
</tr>
<tr>
<td>Knowledge integration</td>
<td>1.79 (.755)</td>
<td>Some minor or trivial connections are made. Knowledge is mainly restricted to the topic or subject area.</td>
</tr>
<tr>
<td>Inclusivity</td>
<td>4.30 (.558)</td>
<td>Students from all groups are included in a significant way in most aspects of the lesson, but there still appears to be some unevenness in the inclusion of different social groups.</td>
</tr>
<tr>
<td>Connectedness</td>
<td>2.82 (.885)</td>
<td>Students recognise some connection between classroom knowledge and the situations outside the classroom, but they do not explore the implications of these connections. Connections remain largely abstract or hypothetical.</td>
</tr>
<tr>
<td>Narrative</td>
<td>2.05 (.740)</td>
<td>Narrative is used only on occasions as a minor part of the lesson and/or is loosely connected to the substance of the lesson.</td>
</tr>
</tbody>
</table>

Most of the activities supporting student learning focused on pre-developed activity worksheets to answer questions from the textbook and these activity sheets involved routine mechanistic application of knowledge that rarely required students to interpret or analyse. When terminology was explained, the emphasis was primarily on activities involving lower-order thinking with limited time or opportunities to question the function and structure of the specialist language presented. Lessons typically developed around initiate-respond-evaluate (IRE) patterns with the teacher as the central source of evaluation. Other teaching strategies including group work, co-operative learning, performance-based activities and problem solving were of lesser importance and, when they were evident, their apparent purpose was class management rather than student learning.

Further, this ‘typical HSIE pedagogy’ could be described as special form of understanding, a distinctive body of knowledge for teaching that is the province of these Stage 4/5 HSIE teachers. Theoretically, the ‘typical HSIE pedagogy’ could be similar to what Shulman (1987) refers to as ‘pedagogical content knowledge’ a blend of “content and pedagogy into an understanding of how particular topics, problems, or issues are organised, represented and adopted to the diverse interests and abilities of the learners and presented for instruction” (p. 8). However, this ‘typical HSIE pedagogy’ seems neither associated with particularly high quality teaching nor likely to help

(developed using the coding descriptors from The New South Wales Department of Education & Training: Quality teaching in NSW public schools: A classroom practice guide. (NSWDET, 2003d)
students achieve the more complex outcomes set out in mandatory syllabus documents (NSWBoS, 2003a, 2003b).

5.6 Classroom Pedagogy Over time – A Graphical Perspective

The data emerging from this study provides an opportunity to view each of these teachers in action over time. To further understand relationships in the data, the HSIE teachers’ individual dimensional scores for the 61 lessons observed were graphed (figures 5.1 to 5.3). These graphs expose further complexities in these Stage 4/5 HSIE teachers’ pedagogical practices with a ‘ceiling’ and ‘floor’ effect becoming evident in the data.

Figure 5.1 Intellectual Quality - Individual Teachers Scores Over Time
Figure 5.2  Quality Learning Environment - Individual Teachers Scores Over Time
Figure 5.1 shows that the observed scores for **Intellectual Quality** (mean=14.67, std dev=2.271) ranged between a low of 11 (a frequency of 4 lessons) and a high of 20 (a frequency of 2 lessons) with 68% of all observations in the range between 11.96 and 17.33. In promoting a **Quality Learning Environment** (mean=16.02, std dev=2.668) teacher scores (Figure 5.2) varied between a low of 12 (a frequency of 6 lessons) and a high of 21 (a frequency of 3 lessons) with 68% of scores within the range of 13.35 to 18.68. In creating **Significance** (mean=16.31, std dev=2.284) the lowest teacher score was 11 (a frequency of 1 lesson) and highest score was 21 (a frequency of 1 lesson) with 68% of scores in a range from 14.01 to 18.59 (Figure 5.3). Therefore, a statistical ‘floor’ and ‘ceiling’ effect exists with scores for each of the dimensions bouncing in a range of 11-21 from a possible 30.
The ‘ceiling’ effect indicates an upper limit or pedagogical boundary, with no outstanding lessons observed over the 10-12 weeks of the study. The ‘floor’ effect indicates that there was a minimum standard of pedagogy in these HSIE classrooms. There was also evidence of an upward trend in creating Significance over time (see Figure 5.3).

In conclusion, while the pedagogy observed in each of the HSIE lessons for each of dimensions varied from day-to-day, statistically the pedagogy observed was very consistent over time. Importantly, within the statistical upper and lower limits is found the ‘typical HSIE pedagogy’ described in Section 5.5.

5.7 Understanding Teacher Differences – Links to the Element Scores

When reporting the findings either statistically or graphically, it became apparent that some of the HSIE teachers were consistently achieving higher scores, or conversely lower scores than other teachers. To determine significant differences an ANOVA, and then a post hoc Scheffe Test, were conducted.

In Section 4.6, the results indicated that despite the overall group differences, there were no significant differences (p<0.05) in the promotion of Intellectual Quality. The implication was that, regardless of school, subject or grade levels these HSIE teachers’ instructional practices promoted similar levels of Intellectual Quality in their classrooms.

On the other hand, in promoting a Quality Learning Environment the ANOVA revealed significant differences between some of the teachers’ pedagogical practices. The Scheffe test confirmed that Ms Norris and Mr Jones, with dimensional scores below the theoretical mid-point (18), were significantly different to Ms Smith and Mr Dennis with dimensional scores above the mid-point. In creating Significance, Ms Smith, with a dimensional score below the mid-point, was significantly different to Ms Norris, Mr Dennis and Mr Sutton with dimensional scores above the mid-point. For both these dimensions, there were no significant differences found between teachers from the same school.

To identify sources of differences between the teachers at a dimensional level the individual elements scores were compared (refer to Table 4.8). The score ranges provide a measure of differences. That is, different teacher scores for a particular element could be leveraging the statistically significantly difference at the dimension
level. For example, in identifying sources of difference in the Quality Learning Environment, both Ms Norris and Mr Jones had low-range scores for explicit quality criteria with Ms Smith scoring in the low mid-range. In promoting engagement and high expectations, both Mr Dennis and Ms Smith had mid-range scores, while Ms Norris and Mr Jones had low mid-range scores. For social support, Mr Dennis had a high-range score, while Ms Norris and Mr Jones had mid-range scores. From these comparisons it would seem that teacher differences were associated with scores for explicit quality criteria, engagement and high expectations.

In identifying sources of difference in creating Significance, Ms Smith had a low-range score for background knowledge while Ms Norris, Mr Dennis and Mr Sutton had mid-range scores. Secondly, Ms Norris and Mr Sutton had mid-range scores for cultural knowledge, while Ms Smith had low-range score. Thirdly, while Mr Dennis and Mr Sutton had mid-range scores for connectedness, Ms Smith had a low mid-range score. Finally Ms Norris, Mr Dennis and Mr Sutton had low mid-range scores for narrative, while Ms Smith had a low-range score. From this comparison, Ms Smith had lower scores for background knowledge, cultural knowledge, connectedness and narrative than the other teachers. These lower scores could have created the statistically significant differences.

In the other research studies, school and teacher differences were also found (Newmann & Associates, 1996a; QSRLS, 2001). In the QSRLS (2001) the researchers reported that some of the teachers, including the teachers in the Social Science curriculum area, rated highly across the elements and constructs of the Productive Pedagogy model, with a very large number rating substantially lower. These researchers reported that the statistical differences were greater between individual teachers than across-schools. Similarly, Newmann and Associates (1996a) reported that regardless of the level of success in promoting authentic teaching, there was tremendous variation in Authentic Pedagogy, with both individual teachers and schools varying relative to each other. There was also considerable variation between the schools.

In this study, significant differences were found between some of the HSIE teachers in promoting a Quality Learning Environment and creating Significance but there were no significant differences found between teachers from the same school. The individual teacher differences seemed to emanate from different approaches to classroom instruction. Therefore, it could be argued that differences were due to the way each HSIE teacher saw classroom pedagogy meeting the learning needs of their students.
5.8 Summary of Findings

The first phase of this study investigated the pedagogical practices of eight Stage 4/5 HSIE teachers using the NSWQT model item-rating scales. In determining the quality of classroom instruction, classroom observation data relating to these single teacher class-cohorts was gathered repeatedly over a 10 week period by direct observation on a weekly basis, one observation per week with the same class, same teacher (n=61). In Sections 5.2 to 5.4, the classroom observation results were discussed from a number of different perspectives. A major contribution of this study to research in the field is the identification of a ‘typical HSIE pedagogy’ (refer to Table 5.1) consisting of reliance upon text resources and low demand worksheets. This ‘typical HSIE pedagogy’ has consequences made evident by the ‘ceiling and floor effect’ exposed by NSWQTM coding. The ‘typical HSIE pedagogy’ suggests that these HSIE teachers were being very careful in their pedagogy and taking a controlling role in the classroom interactions. That is, they appeared to be ‘teaching defensively’ (by analogy with ‘driving defensively’) or ‘playing it safe’.

To understand why these HSIE teachers’ were ‘playing it safe’; their perceptions of influences on teachers and teaching were researched in the second qualitative phase of this study. These results are presented in Chapter 6.
Chapter 6
Second Phase Results - The HSIE Teachers’ Perceptions of Influences on their Classroom Instructional Practices

6.1 Introduction

The quantitative and qualitative data reported in Chapter Five to describe the pedagogy observed in the Stage 4/5 HSIE classrooms indicated a complex situation. The work of complexity theorists such as Mason (2008a) and Santonus (1998) assists in identification of the multiple contexts and interrelationships amongst teachers and the organisational structures within and outside schools. Therefore, a second phase of the study was developed to explore these Stage 4/5 HSIE teachers’ perceptions of influences on their classroom instructional practices. This suggested three additional research questions, for which qualitative methods appear most appropriate. The additional questions are:

Research Question 2

*How do teachers’ perceptions of good teaching influence their implementation of the NSWQTM?*

Research Question 3

*How do teachers’ perceptions about forms of professional learning influence their response to NSWQTM?*

Research Question 4

*How do teachers’ perceptions about the organisational design of schools influence their choice of classroom instructional practices?*

Formal, semi-structured interviews were undertaken with seven of the eight HSIE teachers involved in the classroom observations in an attempt to understand the interplay of some of the many factors that may have influenced the teaching observed. The interviews took place over a four-week period after the HSIE teachers had received feedback on their classroom observation results. Each interview took about 45 minutes to complete and was conducted at either the researcher’s or the participant’s school at the conclusion of the school day. An interview schedule supported the teachers in recounting their experiences around a set of open-ended questions (see Appendix 6).
The interviews were recorded, transcribed and the transcriptions checked by the participants (see Section 3.4.8). The agreed text was analysed in a manner consistent with Strauss and Corbin’s (1998) grounded theory approach to ‘open coding’. Coding involved the researcher scrutinising segments of text, line-by-line and even word-by-word. Several rounds of analysis developed a good fit between the text and emergent themes. Four broad areas or ‘domains of influence’ emerged from the coding process as being perceived by the participants to have a strong influence on their pedagogy. The results reported in Sections 6.2 to 6.5 provide insights into why the teaching observed in the Stage 4/5 HSIE classrooms looked the way it did.

6.2 Teacher Perceptions of Good Teaching - ‘Good Teaching Principles’

Research Question Two suggests investigation of these HSIE teachers’ perceptions of good teaching to identifying underlying reasons for the teaching observed in these Stage 4/5 HSIE classrooms. The research reviewed in Section 2.4 focused on investigating teacher beliefs, both individually and collectively and how these beliefs affect curriculum implementation and decisions about classroom instruction. Overall, the literature indicates strong connections between teacher beliefs and classroom instruction and interactive and ongoing relationships between beliefs and practice (Chan & Elliott, 2004; Clark & Peterson, 1986; Fang, 1996; Hofer & Pintrich, 2002; Kagan, 1992; Kang, 2007a, 2007b; M. M. Kennedy, 2004; Olafson & Schraw, 2002, 2006; Prestridge, 2009; Sato & Kleinsasser, 2004; Schraw & Olafson, 2002). Therefore, in understanding these HSIE teachers’ perceptions of good teaching connections can be made to the teaching observed in their HSIE classrooms.

Interviews with six of the HSIE teachers revealed clear perceptions of what good teaching looked like in their classrooms. These perceptions were portrayed through five ‘good teaching principles’, which were consistent with NSWQTM but also somewhat independent of it. In identifying these principles, the coding of the textual material from the transcripts provides exemplar excerpts. In the teachers’ conversations these principles were sometimes explicitly linked to the NSWQTM, in which case the elements referred to in the following excerpts are highlighted in bold italic text. Researcher inferences and explanations appear in parentheses in the quotations. Places where a connection with NSWQTM is inferred are indicated by inclusion of the element label in bold italic text within the parentheses.
Principle 1: Facilitation; Good teaching involves teachers as facilitators of student-centred learning

Both Ms Smith (Cherry View High School) and Mr Reynolds (Mountain View High School) shared a common belief that teachers should be facilitators of learning in classrooms. In these classrooms, it was necessary for students to take an active part in the learning process, with teaching supporting learning through student-centred or active-learning approaches. This view is consistent with a Quality Learning Environment having high levels of student direction. For example, Ms Smith commented:

... I think it has a lot to do with whether you are a facilitator of the learning process or whether you are actually totally controlling...I think quality learning is about being student-centred (student direction) and the teacher has the role of the facilitator ...

... I think to me quality teaching is very much about sharing the teaching and learning process and particularly the active involvement of the students or learners in ways that they are responsible for (student direction, students' self-regulation, engagement) to contribute to a Quality Learning Environment ...

Similarly, Mr Reynolds advocated that good teaching involves students having an input or say into their own learning. Such pedagogy immerses and engages students. Mr Reynolds commented:

... I believe that a high level of quality teaching involves a pedagogy that completely immerses the kids in what they are doing (engagement, student direction) ...

... the more say the students (student direction) have in their own learning, the better the learning ...

In supporting his views, Mr Reynolds described how the students in his Year 10 Geography class were involved in an assessment for learning project with students developing the marking criteria to assess the quality of their work (explicit quality criteria). In establishing how Mr Reynolds saw this approach supporting student-centred learning, he made a number of links to NSWQTM elements. These included connectedness, deep knowledge and deep understanding, cultural knowledge and background knowledge. Mr Reynolds commented:

... certainly, in an area such as assessment for learning made us (the HSIE Faculty) concentrate on the type of holistic activity that would really give students
the opportunity to develop their understanding (deep understanding) in broad areas in the syllabus (deep knowledge) rather than picking out the dot points …

… the students were then asked to prepare basically their own project (explicit quality criteria, student direction) which was centred around them and compare themselves and what they were doing in their environment to here (at Mountain View High School) and compare it to what may be happening with kids of the same age in another country (connectedness).

Further, Mr Reynolds believed that by giving students more responsibility for their own learning (student direction) they would become engaged in their work (engagement). Increasing engagement in turn, was seen to reduce off-task behaviours (self-regulation) enabling the students in his Year 10 Geography class to develop a deeper understanding of the lesson’s concepts (deep knowledge). Mr Reynolds commented:

… the greater potential for attention, to stay on task (self-regulation, engagement) and to develop a deeper understanding (deep knowledge) …

Principle 2: **Background factors;** Good teaching involves activating student background knowledge

Two other teachers, Ms Norris and Mr Jones (Cedar Ridge High School), thought that it was important to explore student background knowledge. Background knowledge can come from just about anywhere and utilising it involves teachers providing opportunities for students to access prior knowledge from lessons, other subjects or courses, cultural knowledge, local knowledge, personal experiences, knowledge of the media and popular culture experiences to support current and future learning (NSWDET, 2003a). These perceptions are prominent in the following excerpts:

*Mr Jones commented … I think that the start of all teaching is knowing the kids, (inclusivity) and understanding what they can and cannot do (background knowledge, deep understanding) …*

*Ms Norris commented … I think essentially it comes down to one component, that is being able to make connections with the students and to make whatever content (deep knowledge) you are doing relevant to them and their experiences (background knowledge) …*

While both Mr Jones and Ms Norris shared a common view that student background knowledge supported good teaching in their classrooms, they had differing views about how background knowledge supported student learning. According to Ms Norris, using discussion (substantive communication) to explore student background knowledge (including cultural knowledge) ultimately develops a deeper understanding (deep
understanding) of the subject knowledge and skills (deep knowledge). With this deeper understanding, students would be better able to apply new knowledge to solve current and future problems in and outside the classroom (connectedness). Ms Norris indicated that when these elements acted together engagement increases and students are less likely to demonstrate off-task behaviours (self-regulation). Ms Norris commented:

... why, because I think that it is really important to have some sort of hook that connects the students and their backgrounds (background knowledge, cultural knowledge, knowledge integration) with issues that you are trying to get discussions going on (substantive communication) ...

... and getting them to think in terms of what is relevant to them now or could be relevant to them in the future (connectedness) ...

... I think, once you can make the connections the whole learning process is at a much higher level (deep understanding) ...

According to Mr Jones, understanding the background knowledge of his Year 7 Geography students when starting high school was particularly important because most teachers have a limited understanding of the knowledge and skills that students bring with them to high school. That is, the Board of Studies NSW in its K–10 Curriculum Framework identified in the Stage 4/5 History and Geography syllabi (NSWBoS, 2003a, 2003b) provides a set of broad learning outcomes that summarise the knowledge, understanding, skills, values and attitudes essential for all students to succeed in and to support learning beyond their schooling. Therefore, in exploring background knowledge, Mr Jones indicated there was a need to build on old knowledge (knowledge integration) from the Stage 3 HSIE syllabus strands Changes and Community, Cultures, Environments and Social Systems and Structures (NSWDET, 2003d) to develop new understandings to support student engagement and self-regulation. The following excerpt reflects these perceptions:

We (teachers) think they (students) know all the stuff (syllabus content knowledge and skills, deep knowledge) but we do not even know what they know (deep understanding, background knowledge, knowledge integration) but they seem to get here and hope we do not switch them off (engagement, student self-regulation).

Similar to Ms Norris, Mr Jones found that accessing student background knowledge showed students that teachers were interested in their learning (inclusivity). Therefore, accessing student background knowledge supported student engagement, created a
positive learning environment and promoted classroom relationships (social support, inclusivity). Mr Jones commented:

… and I guess understand how they (students) operate as well. For me it comes back to the relationship between the student and teacher (inclusivity, social support) … without that you will not have anything happening, you can still have lots of goods sort of things, but without relationships it will not be as good.

Principle 3: **Subject knowledge**; Good teaching involves teachers having a deep understanding of their subject content knowledge

For example, two teachers, Mr Brown (Mountain View High School) and Mr Dennis (Blue Ridge High School) explicitly acknowledged the need for teachers, including themselves, to have a deep understanding of their subject content knowledge and skills. The proposition was simple: if teachers themselves do not have a deep understanding, then deep understanding by students would be uneven. These views are most pronounced in the following interview excerpts:

Mr Brown commented … You need to be across your subject area (subject content knowledge and skills) …

Mr Dennis commented … It all comes back to one thing and you can tie it to the Quality Teaching model with deep knowledge, you have got to have deep knowledge of your subject content …

Principle 4: **Professionalism**; Good teaching involves teachers having high personal and professional qualities

While Mr Brown (Mountain View High School) and Mr Dennis (Blue Ridge High School) indicated that teachers needed to have a deep understanding of subject knowledge and skills, there was also a view that the personal and professional qualities of teachers promoted good teaching. Qualities needed were a dedication to the teaching profession, high expectations of one’s self and of students, a sense of humour, enthusiasm for teaching, a sense of fairness and a consideration for the welfare needs of all students (social support and inclusivity). These personal and professional qualities supported student engagement and deep understanding of subject knowledge and skills (deep knowledge). The following excerpts express these perceptions:

Mr Brown commented … I also think it involves committed and passionate individuals that put in the hard yards to prepare their lessons … You need to have a sense of humour and you need to be passionate about the learning and the kids in your classroom …
Mr Dennis commented … *quality teachers are interested in their subject, have an interest in the kids, an interest in the actual process of teaching, a willingness to become engaged in their subject (deep knowledge) and a willingness to engage with the students (inclusivity).*

Principle 5: **Physical resources**; Good teaching involves teachers having access to adequate physical resources and adequate working conditions

Only one of the teachers interviewed, Mr Brown (Mountain View High School), identified a need for educational leaders to provide adequate physical resources in schools as characteristic of good teaching. According to Mr Brown, there is a collective responsibility of all concerned, including schools, district and national policy makers to provide adequate physical resources. The following excerpts support his views:

… *I think about the sorts of environment we work in, in the staff room, I have been in a private school staffroom and the facilities show concerns by the employer for their employees and their working conditions …*

… *We are given archaic, turn of the last century equipment and desks. Most people in private enterprise would not cop that sort of environment.*

6.2.1 ‘*Good Teaching Principles’ – Links to the NSWQTM*

In an attempt to show their understanding of the NSWQTM and in essence what good teaching should look like in classrooms, these HSIE teachers made frequent links to the dimensions and elements of the model. Firstly, one group of teachers indicated that teachers needed to be facilitators and support student-centred learning. These teachers made clear connections to the importance of student direction in improving other aspects of classroom pedagogy, including deep understanding, engagement and self-regulation. A second group of teachers believed that accessing student background knowledge positively supported student engagement, self-regulation, provide social support and inclusivity and students’ ability to apply deep knowledge to different contexts beyond the classroom (connectedness). The third group of teachers advocated that good teaching involved teachers having a sound understanding of their subject content knowledge and skills to support deep knowledge and deep understanding for students. In statements four and five these teachers also indicated that high professional qualities and adequate physical resources were needed to support good teaching.
6.2.2 Summary – Teachers Holding Multiple Views of Good Teaching

Five ‘good teaching principles’ emerged from conversations with the HSIE teachers. In attempting to show their understanding of the NSWQTM, the teachers linked these principles to the dimensions and elements of the model. The Stage 4/5 HSIE teachers in this study considered good teaching in their classrooms to be associated with:

1. student-centred learning (teachers as facilitators)
2. student background knowledge (background factors)
3. deep teacher knowledge of subject content (teacher subject knowledge)
4. high teacher personal and professional qualities (professionalism)
5. adequate physical resources and working conditions (physical resources)

These findings suggest that these HSIE teachers had differing and possibly multiple beliefs about good teaching and this is potentially important in understanding their teaching practices. This view is consistent with Perry's (1968) conception of individuals, including teachers, holding multiple views to define their own work settings.

6.3 Research Question 3 – Teacher Perceptions of Professional Learning and Change Experiences Associated with the Introduction of the NSWQTM

Research question three investigated these HSIE teachers’ professional learning experiences over the course of their careers and change experiences associated with the introduction of the NSWQTM. The literature indicates that the purpose of professional development and learning is to enhance the individual capacity of teachers and as a consequence, the collective capacities of schools to improve learning outcomes for all students (D. Clarke & Hollingsworth, 2002; Elmore, 2002; Fraser, et al., 2007; Guskey, 1986; Hoban, 2002; Hunter & Beveridge, 2002; A. Kennedy, 2005; M. B. King & Newmann, 2000; A. Lieberman, 1999; J. Lieberman, 2009; McRae, et al., 2001; Stein, et al., 1999). Teacher professional learning is a very complex process with many competing factors interacting together to support or constrain teacher learning and change.

Section 6.3.1 reports these HSIE teachers’ understandings of complexity of the NSWQTM and what it meant to the teachers and their teaching. In Sections 6.3.2 and 6.3.2 the HSIE teachers’ past professional learning experiences and professional learning associated with the NSWQTM are reported in terms of Chin and Benne’s (1976) schema involving empirical-rational and normative-re-educative strategies.
6.3.1 The Complexity of the NSWQTM

A strong feeling that the NSWQTM pedagogy was complex and very different to what most teachers had experienced during their teaching careers emerged from the interviews with two of the HSIE teachers, who were concerned about their capacity and the capacity of other teachers to translate the NSWQTM into everyday classroom practice. Such concerns are consistent with a type of personal or self-concern described by van den Berg (2002). Personal or self-concerns are evident in the following excerpts:

Mr Jones (Cedar Ridge High School) commented … it just looks so overwhelming just too many items. When you ask, what will go with what that is fine, but when you go to some specific areas it becomes, far out! So how am I going to teach it? How I am going to learn? The model looks too scary for people.

Mr Brown (Mountain View High School) commented … I think that the unfortunate thing about the model, you say I have this great idea, it is called the Quality Teaching model, and is going to be part of the Quality Teaching program and all you need to know is that there are 3 dimensions with 18 elements ...

... you have to remember what the first dimension is and then you have to remember all the elements. Then you have to remember all the other dimensions and how they are linked. Of course, you say no one addresses all of these in every single lesson …

While there were concerns about the complexity of the NSWQTM, there was a very clear indication in the teachers’ conversations of very different understandings within and across the schools in this study. The following excerpts from four of the HSIE teacher’s conversations support this view:

Mr Brown (Mountain View High School) commented … I have worked in very different school settings and I can guarantee you that I can go to each of those settings and every teacher will have a different interpretation … there would probably be two or three different interpretations within different faculty areas …

Mr Dennis (Blue Ridge High School) commented … there are people in this school, there are people in this staffroom (HSIE staffroom) that will say, Yep I know all about the Quality Teaching model. There are other people will say, “What is Quality Teaching?” as though they had never heard of it …

Importantly, according to two of the HSIE teachers these different understandings were linked to the different professional development approaches in schools, to teacher learning generally and to teacher learning about the NSWQTM. The following excerpts support this view:
Mr Brown (Mountain View High School) commented ... *How has the Quality Teaching model been implemented across different schools?* In my experience, there were very different training and development processes across schools ... Having said that, I do not know how you go about it ...

Mr Reynolds (Mountain View High School) commented ... *you speak to some teachers who have had only 3 days devoted to Quality Teaching and other teachers, like I have said, some have had weeks, months or 18 months in some cases and the understanding across schools and even within schools is still variable* ...

From these findings these HSIE teachers expressed concerns about their ability and the ability of other teachers to translate the NSWQTM effectively into everyday classroom practice. These concerns were due to the perceived complexity of the model. It was also evident that the professional learning experiences of teachers associated with the NSWQTM were very different and that the different learning created a variety of interpretations and consequently, confusion about what the NSWQTM actually meant in classrooms.

### 6.3.2 Traditional Approaches to Teacher Professional Development and Learning

These HSIE teachers’ past professional development experiences and learning about the NSWQTM were mainly consistent with Chin and Benne’s (1976) empirical-rational strategies. Underlying empirical-rational strategies is a linear process of change focusing on traditional paradigms of teacher professional development, learning and change (Richardson & Placier, 2001). As discussed in Section 2.5.1, within this paradigm the traditional training model or skills-based view of learning can best explain the quality and nature of the professional learning experienced by these Stage 4/5 HSIE teachers.

Professional learning contexts consistent with empirical-rational strategies were common in these HSIE teachers’ conversations. Common professional learning contexts inside schools were faculty and staff meetings, at the beginning or end of the school day and school development days (SDD). Team meetings, conferences and workshops outside school supported individual teachers and groups of teachers in specialist professional learning. In many instances, experts in the field from Universities, or personnel from district/regional offices delivered the content in these sessions. The following excerpts support these understandings:
• Inside School - faculty meetings and school/staff development days

  Mr Brown (Mountain View High School) ... How was Quality Teaching talked about? It was talked about at the end of the day in a faculty meeting when most people's circumstances are not really conducive to learning ...

  Ms Norris (Cedar Ridge High School) ... Initially, the first time we were exposed to the Quality Teaching model, was at a school professional development day using the Department of Education videos ...

• Outside School - conferences and workshops

  Ms Smith (Cherry View High School) ... I have really enjoyed some of the conferences that I have been to such as ‘Pedagogy in Practice’.

  Mr Dennis (Blue Ridge High School) ... it was introduced at a staff development day. I remember we did a session over at Kings View High School (not the original school name) that was basically a tie in with the two schools. I think we had the presentation of the Queensland model by Sue Holmes (pseudonym)?

These comments indicate that one-off workshops of one, two or three days duration conducted either in school or outside school are able to provide new knowledge and skills. However, there were six factors these HSIE teachers’ perceived as constraining teacher professional learning generally and teacher learning about the NSWQTM in particular. The points they raised are usually associated with empirical-rationale strategies and the traditional training approaches and included:

1) A culture of inertia and resistance to change

Two of the HSIE teachers clearly pointed out that the ‘top-down’ or ‘outside-in’ approach described by Hoban (2002) created a culture of inertia and resistance to change. According to Mr Wilson (Ridge High School), workshop approaches do not allow experimentation with new ideas or encourage teachers to change classroom practice. He even felt that the NSWQTM would not become part of everyday classroom practice because all a teacher needed to do was to attend a workshop to fulfil the requirements. Mr Wilson commented:

  ... a lot of established staff thinking, a top-down (directed by somebody else besides the teachers concerned) professional development about the new ideas and initiatives coming in (NSWQTM) ...

  Mr Wilson added ... go to the workshop, read a book, tick it off and do a few exercises and then it disappears into the evening …
Mr Brown also suggested as most professional learning involved a ‘top-down’ approach, many teachers, especially more experienced teachers, only attended the professional learning sessions because they were compelled to do so and saw these sessions as not being very useful. Indeed, there was a genuine feeling that some teachers took the opportunity to do very little in these sessions – they were opportunities to disengage. Mr Brown commented:

… Invariably there would be people who would say, oh, this is a good chance to do nothing ...

2) A lack of on-going support and provision of time after attending workshops to introduce innovations into classroom practice

While the teachers indicated that one-off workshops provided new knowledge about practice, they were concerned that there was no detailed consideration given to how they would implement innovations into classrooms when they returned to school. Time, reflection and on-going support were seen as important to introduce new ideas learned. The following excerpts support these views:

Mr Brown (Mountain View High School) commented ... I'm talking about general training and development of the past. There is never any follow-up. That is, I can go to all the courses under the Sun, maybe one hour of follow-up and what, one day at training development and two days back at school trying to implement what you may have learned. Invariably what happens is I go away and come back and I'm on class. Now there is no time to incorporate ideas except outside of school.

Mr Reynolds (Mountain View High School) commented ... My experience with past professional development is that it quite often did not last much longer than the day after you actually went. If something was learnt on the first day of term, quite often, it was the last time you saw or heard of it.

Ms Norris (Cedar Ridge High School) commented ... It all comes down to what everyone's gripes are about in the system as having the time to sit down and be able to reflect on what happens in a particular lesson or a particular program you are trying to get together and applying that principle …

These conversations indicated a perceived need for follow-up professional learning and the provision of time for teachers to work with colleagues for innovations and changes to be adopted. Time to experiment and reflect on classroom practice was seen as especially important given that these HSIE teachers perceived the NSWQTM as complex. Further, teachers could become isolated in classrooms with only those highly motivated teachers likely to make an effort to evaluate and change classroom
practices. Without on-going support, real changes in classroom practice seemed remote.

3) Inadequate funding to support on-going teacher learning

These HSIE teachers highlighted a need for adequate funding to support on-going teacher learning. Educational administrators need to have access to adequate funding for individual teacher learning and subsequently collective learning in schools (Louis, et al., 1996a). The following excerpts link funding issues to improving classroom practice.

Ms Norris (Cedar Ridge High School) suggested that funding was the key factor in determining the professional development undertaken in her school. Ms Norris argued that rather than attending workshops, a more effective allocation of funds would be to support teachers in observing each other’s classroom practices using the NSWQTM. Therefore, according to Ms Norris, effective professional learning needs to have a classroom focus. She commented:

... it all comes down to funding and classroom relief and obligation to your own classes. There are people within the school who have implemented the Quality Teaching model and are doing great things with it. If we had the opportunity to go and observe some of their classes then I think that would be a more effective way than sending a whole bunch of us off to an intensive day. It would be more beneficial seeing it (Quality Teaching) in action.

Mr Dennis (Blue Ridge High School) went one step further arguing that there was a need to adopt a more business centred approach to the funding of professional learning to improve practice. Mr Dennis commented:

... to me if we were in private enterprise and trying to introduce an entire change in business culture, there is no way it would be down to one days training or at the end of one day’s training say, well, good you have now been trained, we will expect to see that new business culture in our business from now on ...

... if you were talking about the way businesses do carry out their core business or to changing their whole business culture, it is a long ongoing process and you have to chuck an awful lot of money at it... I think when private enterprise is trying to bring a change to their business culture then, we are probably woefully under resourced.

Therefore, the limiting of funding by the bureaucratic structures that overlay schools was perceived by these HSIE teachers as seriously circumscribing their scope of action to evaluate and change classroom practice. The adoption of more business centred approaches and funding to support teacher professional learning seemed a solution.
4) Professional learning routinely involved school administrative matters and the implementation of education department directives

Two of the HSIE teachers indicated that most of professional learning they had undertaken focused on routine school matters and on completing NSWDET compliance requirements. School staff meetings usually dealt with student welfare matters and everyday routine school management issues. School development days (SDD) scheduled at the beginning or end of each term were seen mainly as a vehicle to deliver and review new education policies, curriculum developments and assessment practices and undertake compliance training. School development days where faculties worked together had little to do with teachers reflecting on classroom practice. These views were pronounced in the following excerpts:

Mr Wilson commented ... at staff meetings we are more focused on the nitty gritty of what we are doing in schools, student's behaviour and resources so really the opportunities or the drive that we ought to have or the devotion of time is not there ...

Mr Brown commented ... departmental directives took up a lot of the time on most of those days ...

The research literature suggests that the content or knowledge learnt is an important variable in determining the nature and quality of professional learning (D. K. Cohen & Ball, 1999; Guskey & Sparks, 1996; Huffman, et al., 2003; Loucks-Horsley & Matsumoto, 1999) and participant interviews indicated that the content was predominantly procedural.

5) Tensions between on-going teacher learning and expectations by educational stakeholders

Even with the provision of time and funding, the norms of a teachers’ everyday work seem to create dilemmas unique to the educational enterprise. Mr Brown (Mountain View High School) indicated that members of the school community, including other teachers, parents and the principal, have expressed concerns about how the absence of teachers engaging in on-going professional learning could adversely impact on student-learning outcomes. Furthermore, the concern of criticism by others can often make teachers think twice about becoming involved in on-going professional learning that would take them away from their core business of teaching and learning. These dilemmas can restrict the professional learning of teachers and subsequently the
implementation of innovations such as the NSWQTM into everyday practice. The following excerpt from Mr Brown's conversation supports this view:

… the curse of schools is that all your keen enthusiastic teachers are always off doing professional development and always out of the classroom which means you create a problem because you have a high degree of teacher absenteeism, not necessarily because they are not there, they are on training. For every class to incorporate these new ideas (Quality Teaching), other teachers need to be sent off, it is a self-perpetuating cycle …

6) Teachers career stage and receptiveness to pedagogical change

Interviews with Ms Norris (Cedar Ridge High School) and Mr Wilson (Red Ridge High School) indicated that receptiveness to change was associated with a teacher’s career stage. Within the literature, numerous models and theories describe the stages a teacher progresses through during their career. According to Huberman (1989), a teacher can follow a common sequence of career life cycle stages, including a survival and then a discovery stage, stabilisation, experimentation and activism, stocktaking, self-doubts and finally disengagement.

Both Ms Norris and Mr Wilson suggested that the more experienced teachers in their faculties had become set in their ways, were sceptical about innovations and were more likely to resist change. These traits were seen as consistent with Huberman’s self-doubt or disengagement stage. For example, in contrast with resistance to NSWQTM on the basis of its complexity (refer to Section 6.3.1), the teachers at Red Ridge High School saw it as something that they were already doing. That is, the NSWQTM was ostensibly a ‘rebadging or relaying of what they already knew’. Subsequently, while not rejecting the model outright, professional learning about the NSWQTM by these teachers was minimal. The following excerpts suggest that teachers in the later stages of their careers are less receptive to innovation.

Mr Wilson commented … The question about this issue (Quality Teaching model) is particularly with the staff here are very well established teachers and have been teaching a long time the majority of teaching staff are in their 50s and they probably have 20 - 30 years teaching experience …

Mr Wilson continued … The overall feedback of most of the staff (emphasis, HSIE as well as whole school) seems like a rebadging or relaying of what they already knew. They have not rejected the model outright but they haven’t warmed to it either and as I said before they are saying…we don’t have the time to rebadge and reinvent what we are already doing.
Ms Norris commented ... It was non-existent professional dialogue about the Quality Teaching model, no it is more than non-existent it is extremely negative. This is because, in the particular faculty that I am in, there are people that have been teaching for 30 years or more ...

Ms Norris continued ... The overriding attitude by these teachers is, oh not another one of these models that is going to tell us in different terms and in different language exactly what we are doing anyway, so that is their perception of it.

Ms Norris had been teaching for 15 years and, while reflecting on her colleagues’ reactions, she also seemed hesitant to use the NSWQTM to guide her own classroom practice. As an experienced teacher, she argued that the teaching strategies and supporting resources that she had developed over the years had consistently supported students to reach their learning potential. To develop teaching practice consistent with the NSWQTM was time consuming and untested in her view. Ms Norris commented:

… It is especially difficult when it is the material you have taught for several years and you are comfortable with the content and how you presented it in the past has been effective. It is a time consuming process to go back and reinvent the wheel ...

It appears from these HSIE teachers’ accounts that Chin and Benne’s (1976) empirical-rational strategies, consistent with more traditional training model approaches, have characterised teacher professional development generally and teacher professional learning about NSWQTM in particular. This is consistent with the research in the field indicating a pervasiveness of traditional training model approaches and identifying factors that reduce the effectiveness of teacher professional learning (Ancess, 2000; Darling-Hammond & McLaughlin, 1995; Elmore, 2002; Fraser, et al., 2007; Hartas, et al., 2009; Hoban, 2002; M. B. King, 2002; A. Lieberman, 1995; Newmann, et al., 2000; Richardson, 1994; Richardson, 1994a; Wilson & Berne, 1999).

6.3.3 Effective Teacher Professional Development and Learning and the NSWQTM

From these expert HSIE teachers’ conversations there was a clear recognition of the value of Chin and Benne’s (1976) normative-re-educative strategies in promoting the type of professional learning needed to support teacher learning about the NSWQTM. Normative-re-educative strategies appear to link theory and practice in understanding how individuals make sense of and contribute to the situations in which they live and work (Richardson & Placier, 2001). Such an approach seeks to avoid the manipulation
and indoctrination that appears to be manifest in empirical-rational strategies (Warrican, 2006).

While the direction for change and learning under normative-re-educative strategies often comes from the individual teachers, it also encompasses situations where groups of teachers work together to implement new ideas in a myriad of ways. Of particular interest to this study is the type of socio-cultural learning that occurs in a Community of Practice or in Professional Learning Community (Lave & Wenger, 1991; Louis, et al., 1996b; Louis, et al., 1996a; Stoll, et al., 2006; Wenger, et al., 2002). In education, socio-cultural learning focuses on both the individual teacher as well as collective professional learning situated within the community context (Stoll, et al., 2006).

In the HSIE teachers’ conversations normative-re-educative strategies involving socio-cultural approaches to situate teacher learning in the classroom were identified. These strategies included teachers individually and collectively reflecting on classroom practices (‘reflection-on-action’ and ‘reflection-in-action’), networking and teaming approaches. These normative-re-educative strategies are discussed below.

6.3.3.1 Reflective Practice

The interviews indicated clear recognition of the value of reflective practice, collegial dialogue and the ability of NSWQTM to create a culture of inquiry where professional learning is expected and becomes an on-going part of teaching and school life. The notion of reflective thought supporting teacher learning is not new. A large amount of educational literature indicates that professional dialogue and reflective practices are the cornerstones of high quality professional development (Dewey, 1933; Grushka, et al., 2005; Killen, 2003b; M. B. King, 2002; Ottesen, 2007; Schon, 1983; Song & Catapano, 2008). Dewey (1933) for example, described five phases in his seminal work to support one understanding of teacher reflection. From Dewey’s work, Schon (1983) developed the notions of ‘reflection-on-action’ and ‘reflection-in-action’ to resolve the essential tensions created by everyday practice. In education, ‘reflection-on-action’ involves individual teacher reflection or groups of colleague teachers reflecting on classroom practice. Schon’s notion of the ‘reflective practitioner’ and ‘reflection-on-action’ provides a theoretical context to report the findings in this section.
1) Individual teacher ‘reflection-on-action’

In understanding the importance of situating professional learning in the context of the classroom, Mr Brown (Mountain View High School) argued that teacher professional learning should not be ‘trickle-down’ or ‘top-down’ but ‘trickle-up’. Mr Brown commented:

… but it has to be to be trickle-up, not trickle-down, so what we need to be saying is today, which is not the case, your faculty is going to be in there doing professional learning in the classroom …

Three of the HSIE teachers highlighted the ability of the NSWQTM to provide a structure for individual teacher ‘reflection-on-action’ as the art of classroom practice unfolds.

Mr Jones commented … Again, I am getting a lot of information that I actually did not have before using the Quality Teaching model. Having time to reflect on practice and especially participating in your research and actually getting to look at the results from the classroom observations (reference to quantitative study). I have actually gone, Wow …

Mr Reynolds commented … it (Quality Teaching model) allowed me to reflect on the types of things I was doing. It has really, I guess been a catalyst to improve reflection and therefore improve preparation and understanding in what Quality Teaching in the regards to Stage 4 & 5 Geography …

Mr Wilson commented … Definitely the ultimate crux, when using Quality Teaching is when I was seeing those things happening in the classroom…It tweaked to me some of those things that I can look at for self-improvement …

The teachers identified specific NSWQTM elements that they felt needed action. Firstly, Mr Jones identified explicit quality criteria as an element for improvement in his Stage 4 Geography class, commenting:

… so it makes you reflect on your own assessment tasks and on what you are asking the kids to do. Therefore, explicit quality criteria has been an immediate sort of challenge, I feel that it is a weakness that needs addressing …

Secondly, Mr Reynolds identified the need to develop practices in his classrooms to support higher order thinking in his Year 10 Geography class, commenting:

… having the opportunity to be involved in the research project allowed me to reflect on the types of things I was doing. For example, understanding higher - order thinking and the other important elements has really made me reflect and therefore to focus when preparing to teach …
Thirdly, Mr Wilson found that student engagement, knowledge integration and narrative were elements needing improvement in his Year 10 Geography class. Reflective practice seemed to increase Mr Wilson’s efficacy levels and subsequently his capacity to use the NSWQTM to improve his classroom practice. He commented:

… It has made me think of the things that I am doing...It helped me to define some of those indicators that I have been looking for in terms of student engagement and learning, what a settled classroom looks like, how to use some tools of knowledge integration and significance which is what I am concentrating on. I found myself focusing on using narrative a great deal more as an envelope in the teaching context.

It appears that these HSIE teachers were very much aware of the individual benefits of the NSWQTM to support teacher ‘reflection-on-action’ and ‘reflection-in-action’. However, further analysis of the interviews suggested that collective ‘reflection-on-action’ by groups of teachers using the NSWQTM to generate professional dialogue was difficult to implement.

2) Collective ‘reflection-on-action’

While individual teacher ‘reflection-on-action’ seemed to work for some of the HSIE teachers in this study, reflective practices involving groups of teachers seemed more difficult to implement. Of the six Head Teachers interviewed only Mr Wilson (Red Ridge High School) attempted collective ‘reflection-on-action’ using the NSWQTM.

• Self-coding to develop an understanding of the NSWQTM pedagogy

To situate teacher learning in the classroom Mr Wilson proposed a teaming approach in his faculty using a self-coding strategy. This collective strategy required the HSIE teachers to use NSWQTM descriptors to identify strengths/weaknesses in classroom instruction. Professional discourse during faculty meetings would support teacher learning about the NSWQTM and the identification of professional learning needs. However, the notion of ‘reflection-on-action’, using NSWQTM to open the classroom door to the outside observer, created tensions and concerns amongst the teachers and a dilemma for Mr Wilson. In the end, the teachers, concerned about how the information could be used to judge their professional competence, as a group, rejected the strategy. Mr Wilson commented:

At a faculty level...I was using the opportunity to have dialogue using the Quality Teaching model dimensions and as a way of negotiating their own professional development needs to see what it would look like.
... I would rather reframe our language rather than use it (Quality Teaching model) as a means of assessment. I made it very clear at the beginning that it was not a means of assessing their competence in the classroom.

Across the school … there has been a poor collegial engagement in the process in terms of when we had discourse with other people. Few teachers in the school are aware of the elements and dimensions.

- Self-coding was seen as a means of supervision, assessment and monitoring questioned teachers’ professional identities...

... when I floated the idea of self-coding at the faculty level my initial indications to staff was…I would like it to be one of the basics of our teacher assessment review schedule (TARS). Not to use Quality Teaching to assess their classroom performance, but to see how they were using it as of a way of evaluating their own professional practice and their own profession learning as teachers.

... It was never meant to be like that. It was a means of identifying ways that they could refresh and renew their classroom practice. I made it quite clear at the beginning the initial fear was that some people would see Quality Teaching as being a supervision tool and I made it clear it was not the case, but it did not get off the ground. They saw it as something else they had to learn ...

Ms Norris (Cedar Ridge High School) in her conversations also indicated that there were difficulties in generating professional dialogue framed around the NSWQTM in her HSIE faculty. Ms Norris commented:

… because like, I said, there was no dialogue about it or about what works or does not work in our faculty. It is just one of those things people in other faculties seem to be doing stuff with it (Quality Teaching model). We do not really seem to be doing anything that will affect us.

6.3.3.2 Networking

In the conversation with Ms Smith (Cherry View High School) there was an acknowledgment of the central role both inside- and outside-school networks play in supporting teacher learning. The research literature suggests that networking promotes learning within and between schools by collaborative inquiry to share and transfer new knowledge (Hargreaves, 2003; Leonard & Leonard, 2005; Stoll, et al., 2006). What is important for schools is that networks support a culture that fosters a belief that all teachers could benefit from such new knowledge.

Ms Smith highlighted how networks established between the Mathematics faculty and her HSIE faculty and between other schools supported professional learning. Ms Smith indicated that the networks created discourse communities to build ‘momentum in the
school’ because people were working together as ‘things [are] were not being done in isolation’. Networking, by building momentum in Cherry View High School, was able to reduce the inertia exhibited by more experienced and at times cynical teachers who were suspicious of change, especially involving the NSWQTM. The following extended comment by Ms Smith expresses her understanding:

... I mean doing some very simple things in our faculty such as visual literacy. I showed a couple of things to the Maths Head Teacher and knocked up something for them using the same sort of initiative from a Maths textbook. I mean, Maths traditionally is not a faculty that embraces many of these things, so I think selling it was a little bit of a success story ...

... Such an approach builds the momentum even within staff that probably are a little bit cynical and suspicious but ultimately they have to say “yeah”.

... I think some of the networks in various forms have been very good in our school for example across faculty groups and networks beyond school ...

Networking can change the culture of schools through the creation of such discourse communities, as such interactions gradually become part of everyday practice (Bidwell, 2001; Bidwell & Yasumoto, 1999; Grossman, et al., 2001; Park & Burgess, 1921; Putnam & Borko, 2000) but principals also rely heavily on teaming approaches to contribute to effective professional learning. In schools where teaming approaches are adopted, “team leaders become the catalyst for learning through modelling an approach that empowers the whole team to learn” (Cardno, 2002, p. 212).

6.3.3.3 Teaming Approaches

Four of the HSIE teachers identified teaming in their schools as an organisational approach to support professional learning using the NSWQTM. According to Supovitz (2002), team based learning involves small learning communities designed to “improve the culture of schooling, enhance the instructional practices of groups of teachers and bring together higher levels of student learning” (p. 1591). However, for teaming approaches to be effective in promoting higher levels of student learning there is a need for traditional roles of teachers and organisational structures of schools to change (V. Friedman, 1997). Reported in this next section are the teaming approaches identified by these HSIE teachers and their understandings of the effectiveness of these approaches in supporting teacher learning.

Firstly, Mr Reynolds described a positive teaming experience with the involvement of his school, Mountain View High in an Australian Government Quality Teaching Project
or AGQTP (Commonwealth of Australia, 2000, 2003, 2005). Project funding provided on-going support for an innovative program with teachers and students coming together to explore new ideas and concepts associated with the NSWQTM. The professional learning involved a University partner as a critical friend/mentor to support both teacher and student learning. Mr Reynolds commented:

... we were fortunate in our school to get a grant (AGQTP) and we had prolonged time and resources to put into the Quality Teaching model...

... The students came in at the ground floor when the model was introduced into schools. The students were there with the school executive and went through the basic training with staff. We literally spent long periods-of-time in days set aside to dissect the model and the terminology and put it into practice ...

... they (the students) did not seem to have that much trouble understanding the terms when you went through the process of unpacking it and looking at different elements and looking at the videos to see how those elements were reflected in teaching.

Interestingly, Mr Brown, a Head Teacher Administration at Mountain View High School and in the HSIE faculty indicated that teaming approaches were ineffective in previous schools where he had worked and such approaches were usually a last resort strategy to support professional learning. He suggested that inadequate or poorly scheduled planning time and role conflicts all played a part in reducing the effectiveness of teaming approaches. Mr Brown commented:

... I could not count the number of schools that, in fact the one I am in currently, that has a teaming approach. I have only ever heard of a couple of places that out of desperation create a team and are prepared to invest time and the money to make them work and they work. Most other places say, gee that is a good idea and they create a team, but they don't invest either the time or the money and the team is an abject failure because it is not a team it is not following the model that was initially set up ...

Secondly, Mr Dennis (Blue Ridge High School) described a whole school teaming approach similar to Mountain View High School. This involved the formation of across school groups with different faculties to generate collegial dialogue using the NSWQTM. Similar to Mountain View High School, this whole school approach was supported by funding from an AGQTP. However, from Mr Dennis’ conversations he and Mr Sutton were not directly involved in the project.

According to Mr Dennis, the teaming approach embodied a paradigm of professional learning very different from what most teachers in the school had previously
experienced. In implementing the program, the Head Teachers were given responsibility as team leaders to manage the professional learning. For those interested, teacher participation in the professional learning was voluntary with one-off training days with AGQTP University partner developing the teacher’s skills and knowledge about the NSWQTM. In an attempt to situate learning in the classroom, relief time was provided so the teachers involved could observe each other’s lessons and engage in reflective dialogue. Mr Dennis commented:

... the school as a whole tried to make Quality Teaching a priority. We have had an ongoing program with different teachers encouraged to take part and to get to know more about the model and to act as teams within the school with people who have already been through the Quality Teaching process ...

... it was introduced at the executive level and from there it was a responsibility of each of the Head Teachers to disseminate (Quality Teaching) through their faculty. So, I guess you will get varying degrees of success because you are depending upon the attitude taken through the various Head Teachers ...

...we have had seven, eight or nine people at a time go off and do the training for the day (with the University partner) and what has been encouraging is that you team up with someone else that has been through the training and going through the package in those pairs, with encouragement to go and observe lessons and so on ...

Mr Dennis said that, in his view no changes in practice had occurred, as nobody really knew what was happening, the process was he said seemed like “encouraged osmosis”. While, the intention of the teaming approach was to make the NSWQTM a priority, the commitment of school executive seemed variable and the voluntary and fragmented nature of the program did not encourage teacher learning. The teaming approach as viewed by Mr Dennis was less than effective in supporting teacher learning to develop Quality Teaching pedagogy across the school.

Thirdly, at Cedar Ridge High School a teaming approach similar to Mooney Simmie’s (2007) conception of teacher design team (TDT) was introduced by the school senior executive to support teacher learning about the NSWQTM. Mr Jones and Ms Norris acknowledged the value of the teaming approach to provide opportunities for groups of teachers to consider the teaching of their subject, both within faculty departments and across the school. However, they had reservations about the effectiveness of the teaming approach to support professional learning.

According to Mr Jones and Ms Smith the effectiveness of the teaming approach was reduced because members of the team, perhaps motivated by self-interest, had formed
a clique or subculture to exclude others from the professional discourse. As such, the perceived inability of this team to work for the good of all teachers and learn about the NSWQTM created tensions, disharmony and destabilised professional relationships amongst teaching staff.

Ms Norris commented ... There is a Quality Teaching and Learning Committee consisting of two or three teachers from different KLA areas. However, I cannot say there is a lot of evidence of what is going on at those meetings being communicated to the rest of the staff; or the opportunity to invite one of those people to a lesson to get feedback.

Mr Jones commented ... a small group of trampolines (teachers who were active in introducing change) if you like, who are classroom teachers and some executives who are committed teachers and do good stuff...

... pushing it (Quality Teaching), a certain barrow and maybe they would gain from promotion, so why should we do something for them. I am not going to change just to get them promoted, because of this there is a lot of resistance ...

6.3.4 Summary – Teachers Professional Learning Influencing Response to the NSWQTM

The interviews indicated that the HSIE teachers in this study perceived NSWQTM as complex, with several concerned about their ability to translate the pedagogy into classroom practice. The many interpretations of the NSWQTM pedagogy believed to exist, in the schools in this study and in other schools, were a further complication that added to this concern. These HSIE teachers’ concerns and confusion seemed related to the professional development undertaken to support teacher learning over the course of their careers and professional learning experiences involving the NSWQTM.

Most of the professional learning undertaken by these HSIE teachers and their colleagues were located within Chin and Benne’s (1976) empirical-rational approach, dominated by the traditional training model. Teachers mainly attended workshops to develop knowledge and skills about the work of teaching, with very little professional learning seeming to focus on what was happening in the classroom. Importantly, these HSIE teachers identified six independent factors as constraining teacher learning and, therefore, learning about the NSWQTM: inertia, post-workshop support, funding, administrative compliance focus, tension between stakeholders and teacher career stage.

There was evidence of Chin and Benne’s (1976) empirical-rational strategies supporting teacher learning. Common strategies involved individual and collective
teacher ‘reflection-on-action’ to generate professional discourse, networking and teaming approaches. However, while there was acknowledgement by some of the HSIE teachers of the value of these strategies, they were difficult to implement across schools and within faculties.

Collectively, this qualitative data suggests a need for a paradigm shift away from the isolated and disconnected learning associated with empirical-rational strategies supporting teacher professional learning. If such a paradigm shift does not occur, the NSWQTM as Knight (2002) argues, could have a “transfer value and life expectancy directly proportional to its fit within the community of practice, which provides a way of understanding why non-continuing professional courses have such limited influence an activity” (p. 232). Therefore, effective leadership at the school, state and district/regional levels is desirable to support teacher professional learning generally and learning about the NSWQTM.

### 6.4 Research Question 4 – Teacher Perceptions about the Organisational Design of Schools and Classroom Practice

Research question four focuses attention on other factors in the educational enterprise that may contribute to the teaching observed in these Stage 4/5 HSIE classrooms. A complex picture emerged of educational leadership, curriculum and assessment as influences on these HSIE teachers’ instructional decisions.

Section 6.4.1 deals with these HSIE teachers’ perceptions of the effectiveness of educational leadership within schools and at state and district/regional levels in promoting teacher learning about the NSWQTM. In Section 6.4.2 these teachers’ perceptions of the pedagogical influence of curriculum and teacher accountability for student public examination performance is revealed. Participant views of the pace and timing of educational change (Section 6.4.3) also appear to influence both their professional identities and their ability to cope with such change.

#### 6.4.1 The Quality of Educational Leadership

The findings in this section are reported in two parts. In Section 6.4.1.1 these HSIE teachers’ perceptions of the effectiveness of educational leadership across-schools is reported. In Section 6.4.1.2 the teachers’ perceptions of the effectiveness of state and district/regional levels supporting teacher learning about NSWQTM is revealed.
6.4.1.1 The Effectiveness Across-school Leadership in Supporting Teacher Learning about the NSWQTM

In these HSIE teachers’ conversations the effectiveness of across-school leadership was seen as important in the systematic transformation of classroom practice involving the NSWQTM. These HSIE teachers considered the aspects of both transformational and instructional leadership embodied in the notion of shared instructional leadership (Section 2.6.2) to be important in preparing teachers in public schools for the challenges associated with the NSWQTM. Two ingredients perceived as being essential for innovation in the schools in this study were:

- **Creating a shared vision and sense of purpose about Quality Teaching**

Three of the HSIE teachers indicated that leadership in their schools needed to create a shared vision for teachers to transform practice. Creating a shared vision is a trait of transformational leadership to foster a long-term orientation towards change, an imperative for learning (Hallinger, 2003; Mulford, 2005; Senge, 1990). In the schools in this study, creating a shared vision provided a sense of purpose and core values to support and guide change, especially with the introduction of the NSWQTM. The following excerpts support these views:

> Mr Jones (Cedar Ridge High School) commented ... *I am talking about the value of school based generated professional development. No I don’t feel it was valuable because there is never been any plan or any school commitment from them (school executive) saying well this is where we are going to go, it is just like we have been told we have to do something, so something happens …*

> Mr Wilson (Red Ridge High School) commented ... *I still think if it were broadly promoted (Quality Teaching model) within the whole school I think it will pick up, but it does need a little more push. If the powers that be are genuinely sincere about Quality Teaching being imbedded in our professional practice I think they need to push it, that is the deputy principal and principal …*

- **Developing coherence between professional learning and school management plans**

From an instructional leadership perspective, four teachers in the study believed that there was a need for greater coherence between school professional learning programs and management plans. Program coherence involves the extent to which all school programs are effectively coordinated, focused on clear learning goals and are sustained over a period-of-time (Dinham, 2008; Newmann, et al., 2000). As such, the task of instructional leadership in schools is to design and re-design the professional
learning processes so that people throughout the organisation can deal productively with the critical issues they face (Senge, 1990). Professional learning needs to be creative in meeting the learning needs of all teachers. These understandings were most pronounced in the following extended excerpts:

Mr Wilson (Red Ridge High School) ... Therefore, I think, someone should be outlining what we should be doing in Quality Teaching, hence the need for a good professional programs to improve the ability of teachers to engage students and strategies to teach them. Even our professional development programs are incomplete. It should be a part of the whole school plan!

Mr Norris (Cedar Ridge High School) ... The deputy principal was very involved in the whole Quality Teaching implementation, who also happens to be from our faculty area (HSIE) and so there was probably some dialogue, but outside of the faculty. The deputy principal also put together a Quality Teaching handbook for all staff in term 4 of last year (2004). When the book was issued I was away at HSC marking. I did not even find out that it existed until the beginning of this term (Term 3, 2005). I think this exemplifies probably a lack of communication between faculties, administration and planning.

Mr Brown (Mountain View High School) also suggested that capacity constraints associated with professional learning created concerns, confusion and inertia to reduce the schools ability to promote the NSWQTM into everyday classroom practice. Mr Brown commented:

... I do not think it was very well translated and people thought, here we go again, I've got all these things to do and how am I going to do that (Quality Teaching). Put it another way, what teachers do is put the shutters up and hope it goes away, let's get into the bunker and we will see what the new world looks like. Perhaps there was too much information ...

In summary, these HSIE teachers believed there was a need for school principals and executives to act as transformational leaders, to inspire teachers and create a shared vision and sense of purpose if NSWQTM was to become part of everyday classroom practice. Importantly, from an instructional leadership perspective, there was a need to develop coherence between school plans and teacher professional learning to meet the needs of all teachers from novice to the experienced, to the expert.

6.4.1.2 Effectiveness of State and District/regional Leadership in Supporting Teacher Learning about the NSWQTM

It was apparent that a number of these HSIE teachers placed a high priority on leadership from the (then) NSWDET to create equitable learning opportunities and to motivate teachers to take advantage of these opportunities. Effective leadership from
state and district/regional offices requires sustained, efficient communication between schools and provision of both physical and human resources for use according to the individual needs and practices of schools and teachers (Darling-Hammond & McLaughlin, 1995). Fullan (2006) refers to this process as ‘lateral capacity building’. Essential leadership qualities identified, by the HSIE teachers involved:

- **Creating a shared vision and purpose about Quality Teaching**

Mr Jones (Cedar Ridge High School) and Mr Reynolds (Mountain View High School) clearly perceived that a more systematic and structured approach by state and district/regional offices was required to support teacher learning and to communicate a vision and purpose about Quality Teaching. These views are most pronounced in the following excerpts:

*Mr Jones commented ... The main thing, the problem, I guess...the department (then NSWDET) does not seem to be communicating anything and they do not give any answers. I think teachers are looking for much stronger leadership from the department. That is, what are we going to do? How are we going to do it? - rather than just throwing it out there and let people flounder with Quality Teaching and leave spaces where they try it or whatever.*

*Mr Reynolds commented ... I think a more structured approach would ensure that all teachers would know what it is all about, a more systematic approach needed ... I think a systematic approach across all schools would ensure when you go to functions or you go to an across-school training development day everyone would be on the same page ... I think the ad hoc approach in different schools resulted in a knowledge gap between teachers ...*

- **State and district/regional personnel need to have a sound knowledge and understanding of the NSWQTM pedagogy and professional learning**

In delivering the training programs in schools, state and district/regional personnel were seen as displaying a limited knowledge and understanding of the NSWQTM and the type of professional learning needed to support teachers to implement such pedagogy. The following excerpts reflect this perception:

*Mr Jones commented ... from the Department’s (NSWDET) point of view, I really do not think they understand it; they do not seem to support it very well. If that is what they want to do, if they are fair dinkum about it they must demonstrate it with their actions. I think I mentioned the Regional Project. They (the regional consultants) who work for the department...did not given me anything useful, they don’t understand it (Quality Teaching model) ... the professional development was very haphazard, there was not any understanding and the department does not really understand it.*
Mr Brown commented ... to some extent, this is my biggest gripe and it is not with the Quality Teaching model per se, it is with the training and development. I actually think the State government or the Department of Education or the people who constructed the model, have a view in their head of what it is all about, this is what it is ...

- **Provision of on-going professional learning and support by state and district/regional offices**

Mr Wilson (Red Ridge High School) and Mr Jones (Cedar Ridge High School) indicated they felt that state and district/regional offices were distant players providing limited support for teacher learning about the NSWQTM. These views are highlighted in the following excerpts:

Mr Wilson commented ... *I do not think that there was any visible follow through at a regional or state level with all the professional development sessions this year. There does not seem to be much follow-up and it (professional learning about the Quality Teaching model) seemed to drop off the horizon a bit.*

Mr Jones commented ... *Past professional learning, I am trying to think that last time I had any professional learning that was supported through my employer? It would have been as a beginning teacher in Western Sydney. This was the last time I got any systematic support to professional learning.*

On the other hand, Mr Reynolds (Mountain View High School) indicated that the NSWDET was doing a good job in providing professional development to support teachers understanding of the NSWQTM. This comment was probably prompted by the school’s involvement in the AGQTP reported in Section 6.3.3.1. Mr Reynolds commented:

*... I think the stand out of this particular Quality Teaching model is how the Department has handled the release. That is, it seems to be consistent and persistent with it. Certainly in my career there has been a lot of theory and models in professional development that have not really had the legs or been supported for any great length of time. I think most people now believe, including me that this is something we will have with us for some time and really, the government has done a reasonable job, at least in allowing scope for professional development in the area of the NSWQTM.*

In summary, while the HSIE teachers acknowledged the central role of transformational leadership, there was a persistent view that the state and district/regional offices were distant players, unable to provide the organisation, vision, sense of purpose and on-going support for teacher professional learning. In addition, from an instructional leadership perspective district personnel delivering professional learning were perceived as having both a limited knowledge of the NSWQTM and professional
learning to support schools to translate the pedagogy into everyday classroom practice. These perceptions are important because, as Fullan (2006) reminds us, effective leadership at state and district/regional levels is a central mechanism for school improvement.

6.4.2 Curriculum and External Accountability for Student Performance in Public Examinations

Two of the teachers identified aspects of education as impinging on teacher autonomy and subsequently on the quality of teaching. Ms Smith (Cherry View High School) and Mr Jones (Cedar Ridge High School) indicated that external assessment and accountability concerns for student performance in public examinations and a preoccupation with completing mandated curriculum requirements had strongly influenced their instructional practices. Accountability concerns for student performance in external examinations such as NSW Higher School Certificate and School Certificate are most pronounced in the following extracts:

Ms Smith commented ... I think there is a big concern with most teachers about whether or not they are jeopardising School Certificate and Higher School Certificate results if they pursue Quality Teaching and learning and letting go of the content ...

Mr Jones added ... I mean someone is saying, here is a good teaching and learning strategy (Quality Teaching), but on the other hand we have all these external assessments ... It is sort of accountability of covering your backside and getting the content down. I think the focus on teaching and how students learn is gone. Quality Teaching is the first time, in a long time that anybody has really thought about it.

The following extracts give a clear indication that completing the mandated syllabus knowledge and skills (deep knowledge) was a priority in Mr Jones' Stage 4 Geography classroom. Mr Jones further indicated that the instructional practices outlined in the Stage 4 Geography and History (NSWBoS, 2003a, 2003b) faculty programs were unlikely to promote the NSWQTM as these strategies were primarily designed to help teachers complete the mandated knowledge and skills. Mr Jones commented:

... I need to stop looking at content (deep knowledge) and ask what these kids are really learning. Look at the four final questions from the Quality Teaching documents. What content do we have to know? Why do we want to know it? How are we going to do it? How well are we doing the work? Forget about milestones.

... There are teaching strategies that are good, that are not guided by content and all this sort of pressure we are putting ourselves under. This all becomes and
acts like a machine that operates your thinking. The challenge is trying to get away from that and come up with a plan so that every kid will be able to do a range of skills without it being the same old stuff that we throw at them...

While the development of teaching programs consistent with the NSWQTM was appealing to Mr Jones, he indicated that such a notion was only in the planning phase when this study was undertaken, adding:

… I have not done a program like that yet where people register not content but register learning activities and strategies. That to me would be the way I would like to go. However, I do not know I am still feeling my way on that.

Mr Jones also maintained that for changes in classroom practice to occur a different deployment of teacher’s professional abilities was required. He advocated an immediate need to evaluate current curriculum structures and to eliminate public examinations and accountability frameworks. He apparently believed that if these changes occurred and teachers’ workloads were reduced the quality of pedagogy would improve in NSW public schools, as teachers would become facilitators of student learning. Mr Jones commented:

… Yes and there are many constraints that teachers keep coming against ... Think about a plan of getting rid of the School Certificate, or get rid of the HSC and if you feel about actually teaching and getting rid of subjects, don’t break us up into little blocks of time scattered over the fortnight, if you really want to do stuff. … Everything should be up for grabs, syllabi, exams and teacher’s workloads the whole lot if they really want to restructure. Now everything has become too assessment orientated.

Ms Smith also identified a need to align syllabus knowledge and skills and assessment with teaching. Such an approach evolved from whole school concerns about student performance in both internal school assessments and in externally administered School Certificate (SC) and Higher School Certificate (HSC) examinations.

In Ms Smith’s HSIE faculty, teacher designed worksheets were developed to deliver syllabus knowledge and skills (deep knowledge) consistently across all years. Marking rubrics containing standards for students to individually and collectively assess the quality of their work were also developed and displayed in rooms (explicit quality criteria). Ms Smith claimed that by focusing on explicit quality criteria, students would develop a deep understanding of the subject knowledge and skills (deep knowledge) in lessons. She also maintained that addressing these elements would enhance the Intellectual Quality of student’s work. Ms Smith described this initiative:
... programs are aligned with the Quality Teaching framework and what is happening on a day-to-day basis in the classroom is also aligned with certain instructional tasks ... some other things, we have also used, because the school is concerned about SC & HSC side of things we designed some rubric posters using the SC & HSC rubrics ...

... We also put together some resource folders together so that teachers are teaching the curriculum much more consistently and what we are trying to do is much more explicit (deep knowledge) ... not just for the students but also for the teachers, so there is much more consistency and the resource folders designed to align content and assessment ...

The influence of completing syllabi requirements in the HSIE KLA on the implementation of the NSWQTM is summed-up in the following comment made by Mr Brown (Mountain View High School):

... but the Quality Teaching model was probably hobbled a bit anyway because of the very nature of new HSC and Year 7 to 10 syllabi requirements (introduced in 2003) implemented in the last 5 years ...

Further, Mr Brown (Mountain View High School) found that increasing teacher workloads associated with accountability affected his ability to implement the type of pedagogy described by the NSWQTM. Mr Brown commented:

...there is an increasing level of paperwork and administration within any faculty for anybody and the paper trails created for accountability. You throw another thing on top of it (Quality Teaching), I am doing my lesson preparation and all the other things I have to do and then you say right now this is something and everybody seems keen and enthusiastic about, it is bound to meet some hostility.

From these findings, it would seem that these HSIE teachers were internally aligning curriculum, assessment and classroom instruction in response to meeting what they understood of externally mandated curriculum requirements and predetermined testing benchmarks in externally administered assessments including the NSW School Certificate and Higher School Certificates. This finding is consistent with the influence on teachers and teaching of ‘constructive alignment’ and ‘curriculum alignment’ (refer to Section 2.6). As such, these teachers were finely tuning instructional practices to meet perceived external accountability requirements. The researcher termed this process ‘Classroom Pedagogical Alignment’ or CPA. This will be discussed further in Chapter 7.
6.5 Summary – Teacher Perceptions of Influences on Classroom Instruction

The second phase of this study investigated through the second research question these HSIE teachers’ perceptions of influences on their classroom instructional decisions. The results identified four broad areas as general influences on teacher and teaching. These include:

- ‘Good teaching principles’ - multiple beliefs about good teaching
- Teacher professional learning
- Educational leadership across schools and by state and district/regional offices
- ‘Classroom Pedagogical Alignment’ (CPA)

These four broad areas as general influences form ‘domains of influence’ that influence teacher decisions and their recognition makes an important contribution to the school effectiveness research. However, these ‘domains of influence’ are complex enough to ensure their differing impact on teaching can be difficult to resolve. Nevertheless, each domain provides a broad qualitative basis on which to draw inferences, not only to explain why these HSIE teachers delivered the pedagogy observed, but through the ‘typical HSIE pedagogy’ to assess their overall pedagogical impact.
Chapter 7
‘Domains of Influence’ and Pedagogical Impact

7.1 Introduction

The NSWQTM provides a lens through which the work-life of teachers may be fruitfully examined and the perspective it provides can be enriched by considering participant points of view. In Chapter Six, participating HSIE teachers identified four ‘domains of influence’ as pushing their instructional decisions.

Sections 7.2 to 7.5 discuss these ‘domains of influence’ in terms of the literature reviewed in Chapter Two. The quantitative and qualitative data sets are then linked as each of the ‘domains of influence’ provides a qualitative basis for the researcher to draw inferences to assess the extent of the impact on classroom instruction through the ‘typical HSIE pedagogy’ (following a process suggested by Onwuegbuzie and Teddlie 2003). ‘Classroom Pedagogical Alignment’ and the ‘good teaching principles’ are further interrogated in Section 7.6, in an attempt to understand why some of the HSIE teachers were found to be statistically significantly different in promoting a Quality Learning Environment and creating Significance.

7.2 Understanding Instructional Decisions – Linking Teacher Perceptions of ‘Good Teaching’ to Models of Epistemology

Section 6.2 identified five perceptions of ‘good teaching principles’: while the NSWQTM focuses on observable classroom phenomena, these HSIE Head Teachers and experienced teachers considered good teaching in their classrooms to be associated with:

1. student-centred learning (teachers as facilitators)
2. student background knowledge (background factors)
3. deep teacher knowledge of subject content (teacher subject knowledge)
4. high teacher personal and professional qualities (professionalism)
5. adequate physical resources and working conditions (physical resources)

These five ‘good teaching principles’ not only represent what these teachers believe good teaching looks like in their classrooms, but may also represent the views of other teachers in different teaching contexts. Additionally, it could be argued that these, as multiple views of good teaching, form what Harvey (1986) refers to as a ‘belief system’ to guide personal thoughts and actions about classroom practice. Considering these
‘good teaching principles’ to be a ‘belief system’ provides an opportunity to explore these HSIE teachers’ epistemological orientations.

In understanding these HSIE teachers’ epistemological orientations the research literature reviewed in Section 2.4 indicated that teacher beliefs, including epistemological beliefs, influence planning and decision making in relation to instructional approaches and the general behaviour of teachers in classrooms. As such, the models of epistemology reviewed in Section 2.4.3 provide a theoretical framework to link these teachers’ espoused theories, as depicted by the five ‘good teaching principles,’ to their classroom practice. It is worth recalling that the interviews on which determination of their beliefs is based happened after NSWQTM had been explained to them, after their classes had been observed weekly for 10 weeks and after the results of the observations had been presented to them.

Section 7.2.1 determines teacher epistemological positions by comparing what each teacher said (‘espoused theories’) in the ‘good teaching principles’ to the theoretical frameworks provided by the models of epistemology. However, some of the ‘good teaching principles’ were not present in their classroom practice. Therefore, Section 7.2.2 compares the teachers’ ‘espoused theories’ to observed classroom practice (‘theories-in-use’). Such a comparison enabled the researcher to hypothesise an overall epistemological position for each participating teacher. The pedagogical impact of the overall epistemological position on classroom practice is assessed through the ‘typical HSIE pedagogy’ in Section 7.2.3.

### 7.2.1 Establishing Individual Epistemological Positions – Links to Models of Epistemology

The models of epistemology reviewed in Section 2.4.3 provide a theoretical framework for the determination of these HSIE teachers’ individual epistemological positions by comparing what each of the teachers said about teaching in the five ‘good teaching principles’ (‘espoused theory’) with Schommer’s (1990, 1992, 1993a, 1993b, 1994) epistemological orientations and with the three different epistemological world-views described by Olafson and Schraw (2002, 2006).

Principles 1 and 2 (teachers as facilitators and background factors) indicate that these HSIE teachers’ perceptions of ‘good teaching’ led them to value teaching that went beyond the transmission of isolated facts and skills. Two of the teachers Ms Smith (Cherry View High School) and Mr Reynolds (Mountain View High School) espoused
the belief that for ‘good teaching’ to occur in their classrooms, teachers needed to be facilitators who encouraged students to take an active part in the learning process. Two other teachers, Ms Norris and Mr Jones (Cedar Ridge High School) indicated that exploring student background knowledge was important in their classrooms. While these two groups of teachers espoused different views, they appeared to be consistent with Schommer’s ‘sophisticated’ epistemological orientations and with Olafson and Schraw’s ‘contextualist/relativist’ world-views.

Teachers with sophisticated epistemologies view knowledge as complex and uncertain, as constructed by the learner and learned gradually through the reasoning processes. Chan and Elliott (2004) linked the notion of sophisticated epistemologies to more progressive or constructivist modes of teaching and learning. Similarly, teachers holding a contextualist worldview believe that learners construct a shared understanding of knowledge in supportive contexts in which teachers serve as facilitators; or as relativists where each learner constructs a unique knowledge base that is different, but equal to the other learners’ knowledge (Schraw & Olafson, 2002). Therefore, it is probable that those HSIE teachers holding sophisticated epistemological orientations or contextualist/relativist world-views would be more likely to embrace and to transform classroom practice consistent with the NSWQTM.

On the other hand, Mr Brown (Mountain View High School) and Mr Dennis (Blue Ridge High School) espoused different perceptions of ‘good teaching principles’, placing more emphasis on Principles 3, 4 and 5 (teacher subject knowledge, professionalism and physical resources). These two teachers indicated that for ‘good teaching’ to occur in their classrooms, they and other teachers needed to have a deep understanding of subject content, that teacher professionalism and the provision of adequate physical resources by schools was essential. This understanding is consistent with Shulman’s (1987) and Borko and Putman’s (1995) perspective of ‘quality teaching’ involving the on-going development of a teacher’s knowledge and skills (‘pedagogical content knowledge’). Thus, it would appear that they consider that teachers who know their subject material, are professional and work in good physical conditions are better placed to teach well. As such, these teachers’ perceptions of ‘good teaching’ seemed to be associated with Schommer’s naive epistemological orientation and Schraw and Olafson’s realist world-view perspective.

Teachers with naive epistemological orientations would generally believe that knowledge resides in unchanging authorities and that concepts are learned quickly or not at all; that the ability to learn is innate, knowledge is simple, clear and specific.
Teachers with a realist epistemological world-view perspective tend to view students as passive receivers of information, believe in a pre-established knowledge base best acquired by students via transmission and reconstruction from textbooks and by completing worksheets (Chan & Elliott, 2004; Howard, et al., 2000; Olafson & Schraw, 2002, 2006; Schraw & Olafson, 2002). Assuming a link between what these HSIE teachers said and these epistemological positions, it would appear probable that they were less likely to embrace and transform classroom practice consistent with the NSWQTM.

It seems apparent that participating HSIE teachers identified with two different epistemological positions. Teachers who emphasised Principles 1 and 2 were consistent with Schommer’s sophisticated epistemological orientations and with Schraw and Olafson’s contextualist/relativist epistemological world-views. On the other hand, teachers who espoused Principles 3, 4 and 5 appeared consistent with Schommer’s naive epistemological orientation and Schraw and Olafson’s realist world-view perspective. These findings suggest that some of the HSIE teachers had more complex understanding of ‘good teaching’ than others and this could have affected how they translated the NSWQTM into everyday practice.

7.2.2 Determining an Overall Epistemological Position – Consistency between what the Teachers said and their Observed Classroom Practice

Determining these HSIE teachers’ overall epistemological position involved comparing the ‘good teaching principles’ representing what each teacher said (‘espoused theory’) about ‘good teaching’, either stated or inferred, to their element scores in Table 4.8 (‘theories-in-use’). This was seen as important as research indicates that espoused beliefs/theories about what is happening, or what teachers want others to believe is happening, in their classrooms, may be very different from actual practice (Raymond, 1997; B. C. White, 2000; Wilcox-Herzog, 2002).

Principle 1 - Teachers as Facilitators

Both Ms Smith (Cherry View High School) and Mr Reynolds (Mountain View High School) espoused a view that teachers needed to be facilitators with students taking an active role in their learning. However, in creating a Quality Learning Environment, student-direction in both Ms Smith’s and Mr Reynolds’ classrooms had a low-range score. As the teacher explicitly determined activities, student-centred learning was not common in either of these teachers’ classrooms. This ‘espoused theory’ of the teacher
as a facilitator of active student learning appeared to be inconsistent with observed practice.

Principle 2 – Background Factors

Two other teachers, Ms Norris (Year 8 History) and Mr Jones (Year 8 Geography) from Cedar Ridge High School indicated in their conversations that exploring student background knowledge was an important NSWQTM element in their classrooms. However, as both teachers had a mid-range score, background knowledge was only mentioned or elicited briefly in their classrooms. The ‘espoused theory’, that background knowledge was important, was only tentatively enacted in their classes.

Further, to elicit students’ background knowledge Ms Norris highlighted the importance of substantive communication. However, in her Year 8 History classroom a low mid-range score for substantive communication indicates that there were very few sustained interactions. Therefore, what she said was not consistent with observed practice. Other inconsistencies between what she said in the interview and what was observed in her classroom included connectedness, knowledge integration and deep understanding. On the other hand, her support for the elements social support, inclusivity and deep knowledge in the interview (either inferred or mentioned) appeared consistent with her classroom practice.

Mr Jones said that accessing student background knowledge supported student engagement and increased student deep understanding of subject knowledge. Yet, over a ten week period student engagement appeared to be sporadic in his Year 8 Geography class, with off-task behaviours signalling boredom and student effort directed away from class activities. Additionally, his classes produced a low mid-range score for deep understanding, indicating unevenness in student understanding of the central ideas and concepts.

Principle 3 – Teacher Knowledge of Subject Content

Another group of teachers that included Mr Brown (Mountain View High School) and Mr Dennis (Blue Ridge High School) expressed the belief that deep understanding by students could only occur if the teachers themselves had a deep understanding of the subject knowledge and skills they were teaching and so brought deep knowledge to their classrooms. With both teachers scoring in the mid-range for deep knowledge, this ‘espoused theory’ appeared consistent with observed practice. Interestingly, the low
mid-range score for deep understanding in Mr Brown’s Year 10 History class indicated that while he may have a deep understanding of the subject knowledge and skills, student understanding of the key concepts remained shallow and uneven. The mid-range score for deep understanding in Mr Dennis’ Year 8 Geography class suggests a more consistent enactment of this ‘good teaching’ principle.

Principle 4 – Teacher Professionalism

There was a perception that the personal qualities of teachers and ‘good teaching’ were connected. This is in clear distinction from NSWQTM, which focuses on classroom activity rather than teacher attributes. Interviews with both Mr Brown (Mountain View High School) and Mr Dennis (Blue Ridge High School) indicated the shared belief of teacher professionalism, a sense of humour, enthusiasm, a sense of fairness and a consideration for the welfare of students were all important for ‘good teaching’ in classrooms. Inclusivity and social support were both explicitly identified by Mr Brown and Mr Dennis during their interviews. Their ‘espoused theory’ was consistent with observed classroom practice as both teachers’ classes scored in the high-range for inclusivity and social support. Mr Brown linked these qualities to high expectations but was less consistent in enacting this belief as his class exhibited a low-range score for that element.

Principle 5 – Physical Resources

Only one of the teachers interviewed, Mr Brown (Mountain View High School) supported a view that adequate physical resources in schools and in classrooms were important for ‘good teaching’ outcomes. In espousing this ‘good teaching’ principle, Mr Brown gave no indication of how the provision of physical resources would support quality teaching. Consequently, no comparison could be undertaken.

In determining these HSIE teachers’ overall epistemological position, the comparison of the two data sets found both inconsistencies and consistencies between the espoused beliefs of these HSIE teachers as depicted by the ‘quality teaching principles’ and observed classroom practice. The sophisticated epistemological orientations or contextualist/relativist world views put forward in Principles 1 and 2 were only ‘espoused theory’ and were not supported by the observation results. On the other hand, Principles 3 and 4 seemed to be consistent with observed practice. This consistency suggested that a naive epistemological orientation/realist world-view could be influencing these HSIE teachers’ instructional decisions.
7.2.3 Overall Epistemological Position - Pedagogy Impact

In Section 7.2.2 it was hypothesised that naive epistemological orientations/realist world-views influenced these HSIE teachers’ instructional decisions. As discussed in Section 2.4.3 teachers with this epistemology tend to believe that knowledge is simple, clear, unchanging and resides with authorities. Further, according to Chan and Elliott (2004) and Schraw and Olafson (2002, 2006) teachers with this epistemology tend to use more traditional, teacher-centred modes of teaching to transmit knowledge to learners with tests focusing on specific expected student learning outcomes. The pedagogical impact of naive epistemological orientations/realist world-views on these HSIE teachers’ instructional decisions is now examined through the ‘typical HSIE pedagogy’.

In developing Intellectual Quality deep knowledge was the highest scoring element with a mid-range score. The deep knowledge that students were to learn was outlined in the Stage 4/5 Geography and History syllabi developed by the NSWBoS (NSWBoS, 2003a). As such, this subject knowledge and skills resided with authorities, was mandatory and unchanging. With these teachers required to deliver an unchanging knowledge and skill-base, problematic knowledge scored in the low-range. The low level of metalanguage, higher-order thinking and substantive communication indicated that instruction mainly involved routine practice. To demonstrate deep understanding, all students were required to do in lessons was to reproduce the deep knowledge taught with deep understanding of the key concepts shallow and uneven.

In promoting a Quality Learning Environment teacher-centred instruction was common with student direction scored in the low-range. In the HSIE classrooms the teacher explicitly determined what activities students were to do and how and when they were to do them. These teacher-centred strategies tend to be routine with a focus on worksheet and text book use. The focus on teacher-centred instruction was further evident with the analysis of the researcher’s field notes (refer to Section 4.7) indicating that ‘direct instruction’ and ‘discussion’ were favoured strategies to deliver the subject knowledge and skills. Further, the low mid-range scores for high expectations and engagement indicated that the work students were required to complete was not very challenging, and as result only some students were seriously engaged in lessons. With teacher-centred learning a focus and social support scoring in the mid-range, students were better able to manage behaviours with student self regulation scoring in the mid-range. Explicit quality criteria scored in the low-range as the focus was on completing the subject knowledge and skills.
In creating Significance, connectedness between classroom knowledge and situations outside the classroom was not a priority as students were only required to know the subject knowledge and skills. As this knowledge was unchanging, background knowledge, cultural knowledge and knowledge integration were treated in an uneven and superficial manner. Narratives were seemingly unimportant with inclusivity the main element to create Significance in teacher-centred lessons.

Overall, this analysis suggests that naive epistemological orientations or realist worldviews do indeed influence the pedagogical decisions that these HSIE teachers make. Lessons exhibited a clear focus on completing an unchanging, static body of subject knowledge and skills (lack of problematic knowledge). Further, these HSIE teachers seemed to be transmitting knowledge through teacher-centred strategies. In the broader context, while the NSWQTM provided the cognitive tools for teachers to understand classroom practice, the progression from a level of thought about pedagogy to ‘espoused theory’ and then to enactment was difficult and problematic.

7.3 Teacher Professional Learning and the NSWQTM

In order to further clarify factors influencing the gap between espoused teacher beliefs and their classroom practice, research question three guided exploration of the professional learning experiences of these HSIE teachers. In Section 7.3.1, the perceived complexity of the NSWQTM and these HSIE teachers’ concerns about implementation are discussed. In Sections 7.3.2 and 7.3.3 the professional learning experiences of the teachers over their careers is reported to understand how professional learning supported the implementation of the NSWQTM. In Section 7.3.4 these findings provide a qualitative basis to draw inferences and establish links to assess the impact of teacher professional learning on classroom instruction.

7.3.1 Perceived Complexity of the NSWQTM and Teacher Concerns

The findings in Section 6.3.1 indicated that the NSWQTM was complex and very different to what these HSIE teachers had experienced during their teaching careers. Mr Jones (Cedar Ridge High School) and Mr Brown (Mountain View High School) indicated that, with such complexity, they were concerned about the capacity of themselves and other teachers to translate the pedagogy into everyday practice. Mr Jones summed up the overall sentiment, commenting that ‘the model looked too scary for a lot of people’. These teachers clearly believed the NSWQTM, with its three dimensions and 18 elements was too complex for everyday classroom practice.
It would appear that these HSIE teachers were displaying what van den Berg (2002) described as personal or self-concerns as they were feeling unable to fulfil the demands to introduce Quality Teaching into everyday classroom practice. With motivation and efficacy levels reduced, teachers can become prone to stress and often avoid new pedagogical practices and react defensively to new ideas and theories (Bandura, 2000; Goddard, et al., 2000). There was also evidence of many different approaches to teacher professional learning and that these generated very different understandings of the NSWQTM within and across the schools in this study. Overall, the findings suggest that these HSIE teachers were in what stage theorists such as Berliner (1994) and Dreyfus and Dreyfus (1986) would describe as a novice or advanced beginner stage of understanding of the model, although not of teaching in general. Therefore, the ability of teachers to implement the NSWQTM into everyday practice appears related to teacher professional learning.

7.3.2 Pervasiveness of Empirical-rational Strategies

The results in Section 6.3.2 identified a pervasiveness of Chin and Benne’s (1976) empirical–rational strategies consistent with traditional training model approaches in teacher professional learning. According to Richardson and Placier (2001) strategies in this approach involve a conventional transfer process of knowledge and skills by those who perceive that such knowledge is important for teachers to know.

While empirical–rational strategies may have been common in supporting teacher professional learning, these HSIE teachers questioned the effectiveness of this form of teacher engagement. In Section 6.3.3 the HSIE teachers identified six independent factors as impacting on the nature and quality of professional learning and so learning about the NSWQTM. These factors were within the empirical–rational approach and included:

- A lack of on-going support and provision of time after attending workshops to introduce innovations into classroom practice
- Inadequate funding to support on-going teacher learning
- A culture of inertia and resistance to change
- Professional learning routinely involved school administrative matters and the implementation of education department directives
- Tensions between on-going teacher learning and expectations by educational stakeholders
- Teachers career stage and receptiveness to pedagogical change

Overall, these findings indicated that empirical–rational strategies were less than effective in supporting teacher professional learning generally and teacher learning
associated with the NSWQTM. In understanding the influence on classroom practice, this approach to professional learning rarely provided opportunities for the HSIE teachers to explore Quality Teaching or apply new knowledge in day-to-day classroom settings. That is, teacher skills and knowledge was separated from classroom practice (Dall’Alba & Sandberg, 2006). Therefore, by treating knowledge in isolation from teaching contexts and with limited time for reflection or to experiment with new ideas in classrooms, encouraged teachers who see their teaching world in terms of recipes of “tried and true practices” (Dall’Alba & Sandberg, 2006, p. 385).

7.3.3 Normative Re-educative Strategies

In Section 6.3.4, some of the HSIE teachers identified individual and group ‘reflection-on-action’, networking and teaming as supporting teacher learning and learning involving the NSWQTM. This approach to teacher learning is characterised in the literature by Chin and Benne’s (1976) normative-re-educative strategies and is consistent with a more reflective, contextually focused approach to teacher professional learning where teachers work individually or in groups to improve classroom practice.

1) Reflective Practice

In Section 6.3.3.1, teachers’ individually and collectively reflecting on classroom practice was seen as an effective professional learning strategy. These HSIE teachers’ perceptions of the usefulness of this normative-re-educative strategy in supporting teacher learning are discussed.

- Individual teacher ‘reflection-on-action’

Two of the teachers, Mr Jones (Cedar Ridge High School) and Mr Reynolds (Mountain View High School), recognised the ability of the NSWQTM to provide a structure for individual teacher reflection. The notion of teacher reflection is consistent with Schon’s perception of a reflective practitioner and involves ‘reflection-in-action’ by teachers as the art of teaching unfolds and ‘reflection-on-action’ to understand the knowledge inherent in practice to resolve the everyday tensions created by practice. Individual ‘reflection-on-action’ by some of the HSIE teachers enabled them to identify specific NSWQTM elements for further development in their classroom observation data profiles. In this way, instead of making decisions based on a personal sense of what was working and what was not working in their classrooms these HSIE teachers began
to reflect on day-to-day practice using the NSWQTM. However, while the benefits of individual ‘reflection-on-action’ was recognised by some, the notion of teachers working collectively together to discuss classroom practice was more difficult to implement at the faculty level.

- **Collective ‘reflection-on-action’**

Collective ‘reflection-on-action’ using the NSWQTM was a professional learning strategy evident in the Red Ridge High School HSIE faculty. This normative-re-educative strategy was undertaken as the Head Teacher (Mr Wilson) believed that the quality of students’ work needed to improve and to do this he wanted to see evidence of Quality Teaching ‘in every teacher’s daybook’. This professional learning strategy effectively opened these HSIE teachers’ classroom doors to the outside observer, essentially a ‘de-privatisation of practice’ (Louis, et al., 1996b).

To understand practice, Mr Wilson asked the teachers to self-code some lessons and make personal judgments about the quality of classroom instruction using the NSWQTM descriptors. To generate self-awareness, reflective dialogue with colleagues was to occur during faculty meetings. However, while this professional learning strategy seemed simple, the proposition was more difficult to implement than Mr Wilson had envisaged.

Firstly, Mr Wilson indicated that most of the HSIE teachers in his faculty believed that NSWQTM was just a ‘rebadging of some old issues’ and therefore, ‘just something else that they had to learn’. As such, the self-coding strategy would have challenged the “we already do that response” (Ladwig 2005, p. 73) to create uncertainty in the teachers’ minds about what was required for task completion. Secondly, while Mr Wilson viewed the self-coding as a way of improving classroom practice, the teachers were concerned that it was a supervision practice to assess ‘their competence in the classroom’. They believed, and were concerned, that the self-coding as perceived by Mr Wilson would become part of the faculty’s ‘Teacher Assessment Review Schedule’ or TARS process (NSWDET, 2011). In NSW public schools, TARS requires teachers to demonstrate professional competence through a set of performance standards. The TARS process involves conferencing between the teacher and Head Teacher and observation of educational programs and documentation. Therefore, in the absence of collaborative cultures, when the HSIE teachers in Mr Wilson’s faculty were confronted with the self-coding strategy believed to be part of the TARS process, they became concerned that their professional identities were being questioned and reacted defensively.
In understanding these HSIE teachers' reactions, research suggests that the implementation of innovations into teaching are strongly influenced by the needs, concerns and emotions of the teachers (F. F. Fuller, 1969; Hall & Loucks, 1977; Louis & Marks, 1998; van den Berg, 2002; Van der Vegt, Smyth, & Vandenberghe, 2001). With the self-coding approach, the HSIE teachers in Mr Wilson’s faculty exhibited a type of personal or self-concern described by van den Berg (2002). If teachers, including Mr Wilson and those in his HSIE faculty believe that their professional identities are under question, changes in classroom practices are unlikely as their capacity to perform at a given level of competence is constrained (Goddard, et al., 2000). Further, the research conducted by Ross (1995) indicates that in such situations teachers are more prone to stress have low levels of efficacy, low levels of motivation and often avoid, or react defensively, to new ideas and theories. Van der Vegt and his co-workers (2001) also found that when introducing innovations, the behaviour of each teacher needs to be considered within the context of the organisation, the task and the school culture. As such, if teachers' needs, concerns and emotions are not addressed through professional learning, then NSWQTM pedagogy may become beyond their reach.

The difficulties experienced by Mr Wilson in enacting the self-coding approach could also be explained through organisational theory, specifically, Siskin’s (1994) notion of high school departments or faculties as occupationally ‘ethnocentric’ social worlds. Faculties as ‘ethnocentric’ social worlds are supported by social interactions that encourage stability to reinforce the legitimacy of normatively preferred instructional practices. As such, faculties are powerful discourse communities that can either legitimise or resist change. As a group, the teachers in Mr Wilson’s HSIE faculty resisted the self-coding approach and were inclined to think in terms of my kids, my classroom and my subject (Darling-Hammond & McLaughlin, 1995). Therefore, it was not easy for Mr Wilson to achieve a Community of Practice (CP) to situate teacher professional learning in the classroom.

2) Networking

In Section 6.3.3.2, Ms Smith (Cherry View High School) highlighted the importance of networking as a professional learning strategy to support Quality Teaching. The purpose of networking was to promote learning through collaborative inquiry by transferring and sharing the co-creation of new knowledge (Hargreaves, 2003; Leonard & Leonard, 2005; Stoll, et al., 2006). At Cherry View High School networking supported the formation of new collegial ties between faculties and teachers. In this way,
networking increased the pool of ideas to extend and enlarge the school community with enormous potential benefits (Hargreaves, 2003) that provided a structural base for the formation of a collective understanding about the NSWQTM. Therefore, Ms Smith viewed networking as supporting a culture of individual learning to enrich and enhance the collective learning of the school organisation as a whole (O'Neil, 1995; Senge, 1990). Importantly, while these collegial ties may have enabled Ms Smith and her Cherry View High School HSIE faculty to ground teacher judgment in sound pedagogical practices, as previously suggested, faculty based paradigms and subcultures while being powerful agents to support change can fragment teacher learning, reinforce traditional cultural norms and instructional approaches (Bidwell & Yasumoto, 1999).

3) Teaming

It was apparent from the HSIE teachers’ conversations in Section 6.3.3.3 that teaming approaches operating within schools were common mechanisms supporting teacher learning and learning involving the NSWQTM. Teaming approaches provided opportunities for groups of teachers to consider the teaching and the intellectual stimulus of working together and to challenge and move thinking forward. The literature suggests that teaming has the capacity to bridge the gap between isolated individual learning and collective learning (Senge, 1990).

However, while teaming was common, the promotion of this type of professional learning in the schools in this study was more difficult than the proponents may have envisaged. A number of interrelated factors, as perceived by the HSIE teachers, were identified as reducing the effectiveness of teaming in supporting teacher professional learning.

Firstly, at Cedar Ridge High School, Ms Norris and Mr Jones indicated that a whole school teaming approach, under the banner of Quality Teaching, created tensions and disharmony between those involved and other teachers in the school. Grossman et al., (2001) reported when investigating a teacher community, a combination of underlying conditions including teacher personalities, interests, backgrounds, differing levels of experience and subject expertise generated conflict and tension between teachers in a professional learning team. According to Ms Norris and Mr Jones these tensions occurred because of a lack of communication by the Quality Teaching team and other staff members about what they were doing. In effect, even though the team was seen to be doing good work, it had become the domain of a few self-selected teachers that
were perceived to have formed a clique, seeking promotion and motivated by self-interest. The QT team provided limited opportunities for other teachers in the school to become involved or for a team member to come and observe their lessons and engage in professional dialogue. These tensions at Cedar Ridge High School weakened ties, destabilised professional relationships and subsequently reduced the collective capacity of the teachers to introduce NSWQTM into everyday classroom practice.

Secondly, at Blue Ridge High School the level of teacher participation, commitment and motivation was seen as determining the effectiveness of teaming approach within the school. According to Mr Dennis, the across-school teaming approach involved interested teachers meeting with colleagues to observe and discuss classroom practice using the NSWQTM. Australian Government Quality Teaching Project (AGQTP) funding provided support for interested teachers to attend workshops and to work collaboratively with a University partner.

However, while the professional learning involving the AGQTP seemed to be working, many of the participants were not totally dedicated to the vision with commitment and participation variable. Mr Dennis described the process as ‘encouraged osmosis’ with some teachers giving the impression to the others of being interested in reframing practice using the NSWQTM. In explaining this situation, Lave and Wenger (1991) acknowledge that different levels of participation in communities exist with some actively participating, while others will have peripheral involvement. In many circumstances, what Grossman et al., (2001) described as a ‘pseudocommunity’ of practice forms with participants wanting to give the impression to others that they are conforming to group norms without making any real changes. In Blue Ridge High School, it appeared that some teachers were giving the impression of adjusting classroom practice without making any real changes.

Thirdly, Mr Brown and Mr Reynolds (Mountain View High School) indicated that they were involved in an across school teaming approach associated with an Australian Government Quality Teaching Project (AGQTP). The professional learning involved a University partner and was conducted over a 12 month period. According to Mr Reynolds, the professional learning had a positive effect, with both teachers and students working collaboratively to explore the new ideas and terminology of the NSWQTM. Further, Mr Reynolds indicated that the students seemed to have less trouble than the teachers in understanding Quality Teaching and were able to link the different elements to the teaching they received in their classrooms. Conversely, Mr Brown, while acknowledging his involvement and the value of the professional learning
indicated that in the schools in which he had worked, teaming was a last resort strategy because of the costs in terms of teacher's time and casual relief payments for teacher release. His experiences at Mountain View High School seemed not to be any different.

Therefore, while the professional learning at Blue Ridge High School and Mountain View High School was similar, these teachers’ perceptions of the effectiveness of the teaming approach to increase the professional autonomy through peer coaching/mentoring and action research (Borko & Putnam, 1995; Boyle, et al., 2005; Boyle, et al., 2004; Dinham, 2008; Fraser, et al., 2007; A. Kennedy, 2005; J. Lieberman, 2009; Lydon & King, 2009; Ostermeier, et al., 2010; Timperley, et al., 2009) were very different. It would seem that teaming approaches, as opposed to the usual professional learning provided at a school or regional level, are difficult to implement in schools, even with funding and on-going support of an AGQTP.

7.3.4 Teacher Professional Learning - Pedagogical Impact

To create effective learning and change, it is necessary to build a knowledge base that links professional learning to pedagogy. The professional learning experiences of these HSIE teachers and the finding of strategies likely to promote Quality Teaching provided a qualitative basis to draw inferences to link teacher professional learning and pedagogy.

Firstly, from the findings it was argued that the pervasiveness of empirical-rational strategies and associated difficulties of empirical-rational strategies in promoting collaborative cultures in schools isolated these HSIE teachers in their faculties and classrooms. In understanding classroom practice this isolation supported individualism, with the HSIE teachers developing their own ‘personal subjective educational theories’ (Dall'Alba & Sandberg, 2006; van den Berg, 2002) about teaching. These ‘personal subjective educational theories’ are visible in the classroom observation results (refer to Table 4.6) of each of the HSIE teachers and as a group by the ‘typical HSIE pedagogy’ (refer to Table 5.1). Therefore, isolated in classrooms and with professional learning separated from classroom practice these HSIE teachers found the development of Quality Teaching in their classrooms difficult.

Secondly, and paradoxically, some of these HSIE Head Teachers and experienced teachers viewed the NSWQTM as complex and very different from what they had experienced over their teaching careers, while others put forward a strong view that NSWQTM was simply a ‘rebadging’ of what teachers already knew and were doing in
their classrooms. If this perception was correct, regardless of the professional learning, it would be reasonable to expect high levels of Quality Teaching would have been observed in the Stage 4/5 HSIE classrooms. From the classroom observation results this was obviously not the case. Therefore, there appears to be a lack of relationship between these HSIE teachers’ professional learning and NSWQTM.

Thirdly, the interplay between teacher professional learning and the perceived complexity of the NSWQTM impacted on teacher efficiency resulting in teacher disengagement. These HSIE teachers and their colleagues felt unable to fulfil the demands being imposed as professional identities became an issue with a strong HSIE discipline identity being obvious. As such, teacher disengagement created resistance and an omniscient feeling that the NSWQTM was unimportant, temporary and as such destined to go the way of past initiatives.

Fourthly, an unexpected link between teacher professional learning and pedagogy was established when qualitatively investigating the statistically significant differences between some of the HSIE teachers in promoting a Quality Learning Environment and in creating Significance (refer to Section 5.7). In Section 7.3.2, Mr Brown and Mr Reynolds (Mountain View High School) described their direct involvement in an AGQTP. This effective professional learning, which was completed before the commencement of the first phase of this study, is consistent with normative-re-educative strategies involving more reflective, contextually focused approaches where teachers work individually or in groups to reflect on classroom practice. The involvement of these teachers in the AGQTP project is important when assessing the relationship between effective professional learning and the pedagogy observed in their classrooms.

With Mr Brown’s and Mr Reynolds’ involvement in the AGQTP it would have been reasonable to have expected that Quality Teaching would have been more prominent in their classrooms as none of the other six HSIE teachers, including Mr Dennis and Mr Sutton (Blue Ridge High School), were involved in similar programs. However, when reporting on group differences (refer to Section 5.7) no statistically significant differences were found between the pedagogy observed in Mr Brown’s and Mr Reynolds’ classrooms and the other six HSIE teachers. It would seem from these findings that the effective, on-going professional learning provided by the AGQTP did not promote Quality Teaching in Mr Brown’s or Reynolds’ classrooms that was any different to the other HSIE teachers in the study. It would appear from this finding, that both Mr Brown’s and Mr Reynolds’ instructional practices were firmly entrenched in
their belief systems (refer to ‘good teaching principles’) and were highly resistant to change. Avery and Palmer (2001) also concluded that even with effective professional learning involving the Authentic Pedagogy model and the teachers’ desire to make substantive changes, improvement in pedagogy was difficult as “teachers’ practices are deeply rooted in their training and belief systems and are highly resistant to change” (p. 27). On the other hand, it could be argued that the AGQTP improved the quality of these HSIE teachers’ pedagogical practices to a level equivalent to the other HSIE teachers in this study.

In summary, in linking teacher professional learning and pedagogy, the professional learning undertaken in the schools in this study did not seem able to develop the beliefs, knowledge and habits to promote instructional practices consistent with NSWQTM. Importantly, even with the effective professional learning offered by an AGQTP enabling the teachers involved to reflect on their values and attitudes and on the changes needed for them to succeed, did not translate into a level of Quality Teaching any different from those teachers that experienced more traditional approaches to professional learning. These findings further suggest that these HSIE teachers were moving through a number stages in cognitively understanding Quality Teaching and that on-going professional learning is needed in the classroom context to allow teachers to evaluate and change attitudes, beliefs, norms and values about what is possible.

To facilitate the professional learning of teachers there is a need not only to understand the processes by which teachers grow professionally, but also the conditions that support and promote that growth. The participants pointed towards educational leadership as important promote that growth through effective professional learning.

7.4 The Quality of Educational Leadership and Professional Learning about the NSWQTM

The importance that these HSIE teachers placed on educational leadership was reported in Section 6.4.1. These HSIE teachers indicated that across-school leadership practices by principals and senior executive and outside schools by state and district/region offices were crucial in supporting teacher professional learning generally and learning about the NSWQTM in particular. These findings indicate that quality educational leadership is essential in delivering the changes, improvements and performance society increasingly expects of schools (Dinham, 2007a, 2007b). These
7.4.1 The Effectiveness of Across-school Leadership in Supporting Teacher Learning about the NSWQTM

The need for quality across-school leadership to support pedagogical improvement was highlighted in the conversations of two of the HSIE teachers in Section 6.4.1.1. To support teacher professional learning generally and professional learning associated with the introduction of the NSWQTM Mr Jones (Cedar Ridge High School) and Mr Wilson (Red Ridge High School) identified two leadership traits as being essential ingredients for innovation. That is, leadership in schools need to create program coherence and a shared vision and sense of purpose. However, from these teachers’ accounts these instructional and transformational leadership practices were not working effectively inside their schools.

- Creating a shared vision and sense of purpose about Quality Teaching

In supporting this finding, Mr Jones and Mr Wilson indicated that in their schools' teacher professional learning was ineffective because there was never any vision or commitment by the school executive. Mr Wilson added that the principal and deputy principal in his school did not promote professional learning about, or support Quality Teaching. According to Louis et al., (1996b) a shared vision and sense of purpose is important in schools as it forms the basis of the “moral authority in a school community” (p.760) to create the language, actions and underlying assumptions about teaching and student learning. Therefore, without a shared vision and sense of purpose it is unlikely that Quality Teaching will become part of everyday classroom practice, instead becoming as Mr Wilson believed, a ‘flash in the pan’ model.

- Creating coherence between professional learning and school management plans

From the accounts of Mr Wilson (Red Ridge High School) and Mr Jones (Cedar Ridge High School) coherence between school management and professional learning plans was fundamental in meeting the learning needs of teachers to improve practice. Program coherence involves the extent to which school programs are effectively coordinated and focused on clear learning goals, sustained over time to stimulate teacher learning about new pedagogical knowledge and skills (Dinham, 2008; Garet, et
Importantly, the emphasis was not only on the principal’s instructional leadership, but also on teachers as members of professional learning teams to make certain management plans and professional learning were aligned in schools. With leadership distributed across the school, a change in classroom pedagogy is more likely when teachers collectively create conditions for effective professional learning.

In summary, these HSIE teachers identified two ingredients of across-school leadership essential for Quality Teaching to be part of everyday classroom practice. That is, creating a shared vision and purpose and coherence between school plans and professional learning to support program diffusion. These findings are especially potent since they provide insights into what these teachers want and find helpful from their educational leaders in supporting professional learning and change.

7.4.2 The Effectiveness of State and District/regional Leadership in Supporting Teacher Learning about the NSWQTM

In the accounts of the HSIE teachers in Section 6.4.1.2, there was a common view that state and district/regional offices were central to improved teaching. However, in relating their NSWQTM professional experiences, three of HSIE teachers indicated that state and district/regional offices were distant players and were less than effective in supporting teacher learning. Three leadership traits embodied in the notions of transformational and instructional leadership were identified at this level to support schools to promote Quality Teaching into everyday classroom practice.

• Creating a shared vision and purpose about Quality Teaching

In the conversations with Mr Jones (Cedar Ridge High School) and Mr Reynolds (Red Ridge High School) there was a clear indication that the NSWDET, through district/regional offices, were not communicating effectively with schools or creating a clear vision and sense of purpose about the NSWQTM. There was a common view that the professional learning delivered at the district/region level was ‘ad hoc’ and this created a knowledge void between teachers’ understanding of the NSWQTM in schools and between schools. What was needed was a systematic approach to teacher learning across all schools to ensure a consistent understanding. Mr Jones suggested, that if this void continued there would be limited change to instructional practices and schools would ‘continually get what they [we] already currently have’ in terms of classroom pedagogy.
• State and district/regional personnel need to have a sound knowledge and understanding of the NSWQTM pedagogy and professional learning

In the conversations of two of the HSIE teachers, Mr Brown (Mountain View High School) and Mr Jones (Cedar Ridge High School) concerns were raised about the ability of NSWDET personnel and personnel from district/regional offices to deliver professional learning and their knowledge and understanding of the NSWQTM. Mr Jones (Cedar Ridge High School) indicated that the NSWDET consultants ‘did not really understand it’ and that the professional learning was ‘very haphazard’. Therefore, by the accounts of these teachers the district/regional personnel presenters were unable to provide instructional leadership to translate Quality Teaching into classroom practice.

Correspondingly, the SIPA study researchers (Gore & Ladwig, 2006a, 2006b) reported that in some schools when professional learning sessions were conducted by external consultants (regional personnel), their presentations bore little resemblance to Quality Teaching. In other schools, when staff members, such as school executives conducted professional learning, they also displayed limited knowledge and understanding of Quality Teaching. Clearly, in order to improve professional practice, instructional leaders, at all levels, need to have an understanding of current pedagogical and curriculum theory (Glatthorn, et al., 2006; Hallinger, 2003).

• the provision of on-going professional learning and support by state and district/regional offices

In two of the HSIE teachers’ conversations there was a clear indication that state and district/regional offices provided limited on-going professional learning support. Mr Wilson (Red Ridge High School) argued very strongly in his conversation that after the initial Quality Teaching professional learning, there had not been any visible follow through or provision of on-going support at the state or district/regional level. Similarly, Mr Jones (Cedar Ridge High School) claimed that in the past, the only effective professional learning he received was as a beginning teacher in a disadvantaged area in Western Sydney and all this stopped when he arrived at his current school. By way of contrast, Mr Reynolds (Mountain View High School) indicated that compared to any other professional learning that he had undertaken the NSWDET had more strongly supported teacher learning about Quality Teaching. This comment was prompted by the involvement of Mountain View High School in the AGQTP initiative discussed in Section 7.3.2.
In summary, while the HSIE teachers acknowledged the central role of state and district/regional offices, there was a consistent view that they were distant players, unable to provide the organisation, vision and sense of purpose to promote through professional learning Quality Teaching into schools. As such, the idea of schools and district offices developing collaborative cultures grounded, conceptually in Fullan’s (2006) the notion of “lateral capacity building” (p. 10) to implement Quality Teaching was challenging. These findings are important because effective leadership at state and district/regional levels is a central mechanism for school improvement (Fullan, 2006).

7.4.3 Educational Leadership - Pedagogical Impact

Most school reform initiatives assume that educational leadership has the capacity to implement change for schools and teachers (Leithwood & Jantzi, 2000a, 2000b). However, the findings reported in this section indicate that these HSIE teachers perceived certain leadership behaviours in schools and at a state and district/regional levels to have impacted negatively on the implementation of the NSWQTM into NSW public schools.

It would seem that participating teachers did not perceive the links between schools, state and district/regional offices to support teacher professional learning about the NSWQTM as particularly strong. That is, schools were ‘loosely coupled’ (Goldspink, 2007; Orton & Weick, 1990; Weick, 1976) with weak ties existing between leadership goals at a state and district/regional level and professional learning. Participation of teachers in the planning of professional development appears to be of particular importance, especially if the aim is to support program coherence. However, the findings suggest that educational leaders were neglecting the opportunity to harness the collective capacity of teachers to influence the critically important issues of teacher quality. The need to support educational leadership in schools to promote the professional growth of school staff was acknowledged by the NSWDET with the introduction in 2004 of the NSWDET Professional Learning Policy (NSWDET, 2004). More recently, the newly formed Australian Institute for Teaching and School Leadership has defined standards for school principals and the role of quality school leadership (AITSL, 2011). Finally, educational leadership at all levels needs to be supported and encouraged to ‘share’ their leadership for schools and teachers to organise themselves in ways to support Quality Teaching.
7.5 ‘Classroom Pedagogical Alignment’ (CPA)

In Chapter Six, Section 6.4.2 identified ‘Classroom Pedagogical Alignment’ or CPA as an influence on these HSIE teachers’ pedagogy. CPA involves the purposeful alignment of subject content, instruction and assessment in classrooms in response to teacher perceptions of mandated curriculum requirements and testing benchmarks in externally administered assessment. CPA is apparently consistent with the notion of ‘curriculum alignment’ (Rowan, 2002) involving standardised systems of input and output controls over curriculum goals and ‘constructive alignment’ (Biggs & Tang, 2007) emphasising instructional and assessment alignment to meet intended student learning outcomes. However, CPA rests on teacher perceptions of external pressures rather than on the actual nature of those pressures.

The timing of this study was referred to earlier in this thesis. The first new syllabi in decades had been released in 1999 and involved a re-assertion of curriculum control by central authorities. These over-crowded new syllabi had been revised and re-issued in 2003, eighteen months before this study took place. Issues of curriculum control were being contested in a context of increased teacher accountability. This is particularly evident in the case of Red Ridge High School, mentioned above, where teacher fears of TARS impeded the implementation of NSWQTM. The participant responses surfacing in the interviews are easy to understand in such a context.

Ms Smith (Cherry View High School) indicated that she and other teachers in her faculty had purposefully aligned teaching programs, teaching strategies and assessment to meet externally mandated curriculum requirements. Fearful of letting go of syllabus content, resource folders were developed to support the explicit delivery of content for effective course completion. To address accountability for student performance in examinations, marking rubrics were developed so both the Stage 5 students and teachers would understand what was needed to do well. However, even with explicit quality criteria validating this approach, there seemed to be some confusion by Ms Smith about the complexity of the teaching required to support this Quality Teaching element. Simply, Ms Smith and the other teachers in her HSIE faculty expressed reluctance to take risks in the pursuit of Quality Teaching as they believed they would jeopardise student results in the School Certificate and Higher School Certificate examinations.

Similarly, Mr Jones (Cedar Ridge High School) recognised that ‘external assessments since 2000 had increased accountability for student performance that restricted
peoples’ willingness to have a go and take risks with new teaching strategies’, even though he believed Quality Teaching involved good teaching. Completing syllabus content was seen as central in Mr Jones’ HSIE faculty to address accountability concerns. Mr Jones indicated that faculty programs were syllabus content and skills driven. Classroom instructional practices focused on standardised textbooks controlling what was taught in classrooms. Artefacts including program registration, student bookwork and teachers notes were presented as evidence validating the completion of course content. Further, Mr Jones indicated that in the main teaching strategies were not aligned with NSWQTM and acknowledged that there was a need to stop focusing on content delivery and develop instructional practices that promoted Quality Teaching.

Underpinning the Stage 4/5 History and Geography courses is a standards-referenced framework, where syllabus content, instruction and assessment need to be aligned for students to be able to demonstrate learning (NSWBoS, 2003a, 2003b; 2005a, 2005b). In understanding the relationships between student learning and examination performance the syllabi documents explicitly advocate higher-order thinking (for examples see NSWBoS, 2003a, p.23 and NSWBoS, 2003b, p. 13) to enable students to successfully demonstrate their learning experiences at higher levels in both internal and external examinations. However, from these teachers’ accounts, there was a fear that low performances was unacceptable (‘floor’ effect) and this fear seemed to impede the use of teaching strategies that would encourage higher-order thinking (in both Ms. Smith’s and Mr Jones’ classrooms students primarily demonstrated low-order thinking) to produce the ‘ceiling’ effect and so make high level performances in externally administered exams unlikely. Therefore, CPA ‘linking’ or ‘tight coupling’ (Bidwell, 1965, 2001; Goldspink, 2007; Rowan, 1990, 2002) of education policy, curriculum and assessment to external examinations to promote efficiency, the educational authorities, perhaps unwittingly, focused these HSIE teachers’ instructional practices on risk-averse strategies to address accountability concerns.

Mr Brown (Mountain View High School) and Mr Jones also indicated that the ‘increasing level of paperwork and administration’ associated with ‘accountability’ impacted on the take-up of the NSWQTM. Mr Jones argued that with increasing administrative loads, instructional practices would not actually change and teachers would ‘just keep on doing the same old thing’. Van den Berg (2002) foreshadowed these concerns claiming that increasing administrative loads can lead teachers to feel ineffective, frustrated, stressed and even to experience that reduction in motivation and
effectiveness known as ‘burnout’. Mr Jones advocated a need to reduce teachers’ workloads for the NSWQTM to become part of everyday classroom practice.

In summary, ‘Classroom Pedagogical Alignment’ appears to be an important restraining influence on teachers and teaching. These HSIE teachers seemed bound by their perceptions of external demands and their apparent fear of underperformance seemed to impede teaching for excellence. Such ‘defensive teaching’ leads to ‘defensive school documentation’ which then limits them more than the syllabus itself. It would, therefore, seem that these teachers had become what Windschitl (2002) refers to as technicians “called upon to implement classroom objectives that are tightly controlled and defined by others higher up on the administrative chain of command” (p. 145).

7.5.1 ‘Classroom Pedagogical Alignment’ – Pedagogical Impact

CPA emerges from the participant interviews as an influence on participants’ teaching. Through the ‘typical HSIE pedagogy’ the impact of CPA on classroom instructional decisions can be assessed.

In promoting Intellectual Quality the mid-range score for deep knowledge and the low-range score problematic knowledge indicated that these HSIE teachers were focusing on the prescribed syllabi knowledge and skills (NSWBoS, 2003a, 2003b). In the delivery of this knowledge and skills the low-mid range scores for higher-order thinking, substantive communication and metalanguage indicate that instructional activities routinely involved students in lower-order thinking, the recalling of factual information and in defining subject specific terminology. Therefore, in promoting Intellectual Quality the influence of CPA was evident with these HSIE teachers’ instructional practices primarily designed for the efficient and timely delivery of prescribed syllabus knowledge. However, these instructional practices were not overly effective as students’ deep understanding was shallow and uneven.

Given these HSIE teachers’ accountability concerns for student performance in school and public examinations, explicit quality criteria should have been prominent in creating a Quality Learning Environment. However, explicit quality criteria had the lowest coding of all the 18 elements with only general statements provided by the HSIE teachers to students regarding the desired quality of their work. Therefore, while there were concerns about student performance, the HSIE teachers themselves appeared to
be monitoring the quality of students' work to meet achievement levels. They were hesitant in allowing students to take control of the quality of their own work.

The low level of explicit quality criteria observed in classrooms could have implications for student achievement as the K–10 Curriculum Framework developed by the NSWBoS is a standards-referenced framework (NSWBoS, 2005a, 2005b). In such a framework student achievement is judged in relation to syllabus standards (NSWBoS, 2003a, 2003b). That is, what is to be learnt by these History and Geography students is linked to the learning outcomes through descriptions of levels of achievement of that learning, that is, standards. The low level of explicit quality criteria indicated that these HSIE teachers saw syllabus standards in terms of how well they taught, not levels of student achievement through standards of which they are clearly aware.

The low level of student direction indicated that these HSIE teachers were in total control, determining what activities students did and how they were going to do them. The importance placed on teacher-centred instruction was also highlighted in the researcher’s field notes (refer to Section 5.7) with ‘direct instruction’ and ‘discussion’ seemingly better suited to complete the History and Geography syllabi content to support students in meeting the learning outcomes tested in externally administered public examinations. Further, as the teacher-centred instruction usually involved routine tasks, some students may not have found the work very challenging (high expectations) with high levels of social support (high-range score) needed for students to regulate behaviour (self-regulation). With teacher-centred instruction prominent it could be argued that ‘Classroom Pedagogical Alignment’ promoted variable engagement.

There was also evidence of CPA impacting on the level of Significance. With the deep knowledge clearly defined within the Stage 4/5 History and Geography subject boundaries, making meaningful connections between other topics or between other subjects/KLAs (knowledge integration) was a minor consideration with cultural knowledge being treated in a superficial manner. With a focus on completing subject content knowledge and skills, exploring student background knowledge was common but narratives were a minor part of lessons. In creating value beyond the classroom (connectedness) the work students were doing served only as a level of competence or compliance to meet formal schooling and subject content completion requirements. Including all students in lessons to create Significance was seen as imperative, with inclusivity the highest coding element across the three dimensional constructs.
Within the Stage 4/5 HSIE classrooms there was strong evidence of the influence of CPA on the teachers’ instructional decisions. In the delivery of the subject knowledge and skills these HSIE teachers’ targeted more teacher-centred strategies that over the years had delivered minimal desired learning outcomes to achieve the basic learning objectives tested in external examinations.

7.6 Sources of Teacher differences – CPA and ‘Good Teaching Principles’

There were statistically significantly differences in mean scores for Quality Learning Environment and in Significance (Section 5.7). The element coding scores (refer to Table 4.8) for each of the HSIE teachers who were statistically significantly different were compared to quantitatively identify sources of difference. From a qualitative perspective, the ‘domains of influence’ provided some evidence from which to draw inferences to explain teacher differences. Inferences could be drawn from what Ms Smith and Ms Norris said in relation to alignment and the ‘good teaching principles’.

In promoting a Quality Learning Environment Ms Norris and Mr Jones were found to be statistically significantly different to Ms Smith and Mr Dennis. It appeared that explicit quality criteria, engagement and high expectations were sources of teacher differences. Even though Ms Smith’s score for explicit quality criteria was in the low mid-range, it was the highest score of all eight HSIE teachers, which may have leveraged the statistical difference. Qualitatively, what Ms Smith she said about explicit quality criteria and CPA in Section 7.5.1 assisted in understanding the statistical difference. Marking rubrics were regularly displayed in Ms Smith’s Year 9 Geography classroom, and issued to students so they could either individually or collectively assess the quality of their work (explicit quality criteria). Teacher developed workbooks further aligned instructional practices, subject knowledge, skills and assessment to support students to meet learning outcomes (deep understanding). Ms Smith was the only teacher in the group for which this link could be made.

In creating Significance the findings in Section 5.7 indicated that Ms Smith was statistically significantly different to Ms Norris, Mr Dennis and Mr Sutton (note: Mr Sutton did not participate in the interview process). The elements scores for background knowledge, cultural knowledge, connectedness and narrative were seen as sources of difference (refer to Table 4.8). Qualitatively, ‘good teaching principles’ one and two provide an opportunity to understand these teacher differences. That is, a reason for Ms Norris and Ms Smith being statistically different was the importance Ms Norris placed on student background knowledge (Principle 2) to support student
learning (Ms Norris and Mr Dennis coded in the mid-range with Ms Smith coding in the low-mid-range). On the other hand, Ms Smith saw teachers as facilitators of learning (Principle 1) with students taking an active role in the learning process through increased student direction. However, making such connections for Mr Dennis was more difficult as his perception of ‘good teaching’ (Principles 3 and 4) involved teachers themselves having a deep understanding of subject knowledge/skills and teacher professionalism.

Thus, in identifying sources of teacher differences, while these teachers saw the end point as lining up the classroom pedagogically (CPA), they all had slightly different approaches to it. In the Quality Learning Environment Ms Smith’s emphasised explicit quality criteria. In creating Significance, Ms Norris saw student background knowledge (Principle 2) as important, while Ms Smith saw teachers as facilitators of learning (Principle 1). Therefore, while recognising what these HSIE teachers said about was happening in their classroom was important, the ‘domains of influence’ in explaining teacher differences provided limited evidence as to an overriding principle that drove them all. Instead there was a cluster of principles with some teachers’ emphasising some aspects and other teachers emphasising others.

7.7 Summary and Conclusions – Teacher Perceptions Explaining Instructional Patterns Observed in the Stage 4/5 HSIE Classrooms

In Sections 7.2 to 7.5 of this chapter, four ‘domains of influence’ were identified from the conversations with these HSIE teachers as influencing the quality of their classroom instruction. In the interpretation phase, these domains provided a qualitative basis to draw inferences to assess through the ‘typical HSIE pedagogy’ impacts on classroom instruction. However, the ‘domains of influence’ are not a comprehensive model of influences, as classroom practice is very complex with many other interrelated factors not described that could have influenced the quality of classroom instruction observed.

Section 7.2 firstly identified five ‘good teaching principles’ and naive epistemological orientations/realist world-views as influencing these HSIE teachers’ instructional decisions. The impact of instructional characteristics associated with naive epistemological orientations/realist world-views was clearly evident in the pedagogy observed in the Stage 4/5 HSIE classrooms.
Secondly, it was evident from Section 7.3 that the HSIE teachers were isolated in their schools, faculties and classrooms by the pervasiveness of empirical-rational strategies and the associated difficulties in promoting collaborative cultures. Consequently, these HSIE developed ‘personal subjective educational theories’ consistent with the ‘typical HSIE pedagogy’. These ‘personal subjective educational theories’ appeared highly resistant to change as the effective professional learning offered by an AGQTP did not seem to translate into high levels of Quality Teaching.

Thirdly, in Section 7.4 leadership and pedagogy were linked through teacher professional learning. From the findings it was concluded that leadership capacity constraints across-schools and state and district/regional offices to deliver the effective professional learning impacted on the ability of teachers to implement the NSWQTM into everyday classroom practice. Therefore, in promoting Quality Teaching schools and state and district/regional offices were seen as ‘loosely coupled’ with weak ties between educational leadership and professional learning.

Fourthly, in Section 7.5 the notion of ‘Classroom Pedagogical Alignment’ or CPA was developed. CPA emerged from these HSIE teachers’ stated concerns about their accountability for student performance in externally administered public examinations. In addressing these concerns, the HSIE teachers designed classroom instruction for the ‘timely’ and ‘efficient’ delivery of subject knowledge and skills using mainly teacher-centred strategies. Given accountability concerns for student performance in examinations the low level of explicit quality criteria was an anomaly, but could be explained by the fact that the teachers monitored their teaching carefully, not entrusting this to students. From these findings, it was concluded that the ‘typical HSIE pedagogy’ developed in response to the ‘tight coupling’ of teacher-perceived curriculum and assessment constraints in a high accountability environment.

Further, in Section 7.6, these ‘domains of influence’ provided some evidence on which to draw inferences to explain teacher differences. Although each teacher saw the end point as lining up in the classroom pedagogically, they all had different approaches to it.

The impacts of these ‘domains of influence’ on classroom practices are complex. Therefore, the instructional decisions made by these HSIE teachers is not so much about the effects of individual ‘domains of influence’, but as complexity theorist such as J. Cohen and Stewart (1995) suggest, a web of interactions, emphasising networks, linkages, holism, feedback, relationships and interactivity in contexts. The complexity of
the interconnections between each of the ‘domains of influence’ and the pedagogy observed in these Stage 4/5 HSIE classrooms is synthesised in Figure 7.1. The interconnections and pedagogical implications represented in Figure 7.1 are summarised.

The NSW DET (now DEC) sets the overall parameters within each of the state schools that the HSIE teachers in this study operate. Leadership and Teacher Professional Learning are relatively ‘loosely coupled’ to schools as these teachers experience it, but departmental and individual interpretations of Curriculum and Assessment expectations are relatively ‘tightly coupled’ and this uneven pressure forms the ground on which teachers strive to build quality pedagogy. The ‘loose coupling’ of pressure from above directly impacts on Leadership Capacity, imposing constraints that partially explain the pervasiveness of the traditional training model approach to teacher professional learning. The more tightly coupled pressure from below forms both teacher perceptions of ‘good teaching’ and encourages the development of ‘Classroom Pedagogical Alignment’ in this high stakes examination context. These upper and lower pressures interact at the same time as they form the dynamic context within which these HSIE teachers attempted to implement the NSWQTM in the second half of 2004. These pressures also help us to understand how their classrooms came to exhibit a typical pattern of pedagogy that produced a limited ‘ceiling’, but protective ‘floor’ effect, when it was submitted to NSWQTM coding. These classrooms were characterised by teacher-centred strategies, with ‘direct instruction’ and ‘discussion’ being most common as teachers were variously successful in developing Significance within a Quality Learning Environment.
Figure 7.1  ‘Domains of Influence’ – Interconnections and Pedagogical Implications

NSWDET (DEC)
‘Loose Coupling’ of Leadership & Teacher Professional Learning

Leadership Capacity Constraints
Across Schools:
– Creating a shared vision and purpose
– Program coherence – aligning professional learning and management plans
At State & District/region Level:
– Creating a shared vision and purpose
– Provision of funding and on-going support
– Knowledge NSWQTM pedagogy
– Knowledge of teacher professional learning/change strategies

Pervasiveness of Traditional Training Model Supporting Professional Learning
– Isolated teachers in faculties and in classrooms
– Promoted ‘personal subjective educational theories’ based on ‘tried-and-true’ instructional practices
– Encouraged stability through social interactions to reinforce the legitimacy of normatively preferred instructional practices
– Reduced capacity of educational leaders to promote collaborative cultures

Quality Teaching in Stage 4/5 HSIE Classrooms
– ‘Typical HSIE Pedagogy’
– Pedagogical boundaries defined Quality Teaching – ‘ceiling’ & ‘floor’ effect
– Teacher-centred strategies - focus on ‘direct instruction’ and ‘discussion’
– Teacher differences in prompting a QLE and creating Significance

Classroom Pedagogical Alignment
– Alignment of mandated subject knowledge and skills with assessment and instruction to meet testing benchmarks in externally administered examinations
– Supports a ‘defensive pedagogy’ that placed a high premium on control, with consequent choice of low risk, low demand teaching strategies

Teacher Perceptions of Good Teaching’
– ‘Good teaching principles’ defining good teaching
– Consistency and inconsistency between teachers’ espoused beliefs and observed classroom practice (theories-in-use)
– Naive epistemological orientations/realist epistemological world-views influencing teachers’ instructional decisions

NSWDET (DEC) & NSWBoS
‘Tight Coupling’ of Curriculum & Assessment Policies
Chapter 8
Conclusions and Implications

8.1 Introduction

The research described in this thesis was innovatory in methodology and in the insights it provided into what may well be common classroom practice. A large number of classroom observations were conducted over a complete school term using a standardised model of pedagogy (NSWQTM) in a specific teaching/learning area. This is not common in the quality teaching studies available in the literature. Participants were interviewed to clarify the observation data and they identified their perceptions of influences on their teaching. Figure 7.1 synthesised the results of this study and provides an important contribution to the understanding of influences on classroom pedagogy.

This chapter explicitly answers each of the research questions in an attempt to inform future policy and practice and discusses aspects of the research design that suggest that the findings may be generalisable and proposes areas for future research.

8.2 Research Findings

This research study was undertaken in two phases. The first phase of this study addressed research question one and was based on classroom observations. The second was a set of interviews following feedback to the participants on the results of the observations.

Research Question 1:

What variation in pedagogy is exhibited in classroom instruction in Stage 4/5 HSIE classes in NSW public secondary schools, based on repeated classroom observations using the NSWQTM?

General comments about the quality of classroom instruction are commonly made, but using a classroom observational checklist such as the NSWQTM allowed a deeper level of interrogation. Observation and coding of 61 weekly lessons delivered in these eight Stage 4/5 HSIE classrooms indicated that there was variation, within a relatively low overall level of pedagogy as described by the NSWQTM (refer to in Section 5.4). The literature review indicated that the level was in line with that found in other studies. At a dimensional level, the scores for Significance and the Quality Learning
Environment were higher than for Intellectual Quality with all the three constructs scoring below the mid-point of 18 (dimensional minima of 6 and maxima of 30).

Within the Intellectual Quality dimension of classroom pedagogy, the element deep knowledge scored more highly with higher-order thinking, substantive communication and metalanguage scoring below the mid-point (3). Problematic knowledge had the lowest score. In promoting a Quality Learning Environment, social support and student self-regulation were more visible with student engagement and high expectations scoring below the mid-point. Explicit quality criteria and student direction scored very low. Regarding Significance, the elements of inclusivity and background knowledge were more evident, with cultural knowledge, knowledge integration, connectedness and narrative scoring below the mid-point.

A ‘ceiling’ and ‘floor’ appeared when individual teacher means for each dimension were graphed (see Figures 5.1 to 5.3). No lesson fell below a score of 11/30 (midpoint 18) or above 20/30. Although the ceiling seemed common, the floor differed between dimensions. Graphing the dimensional means for each of the teachers across the ten weeks of coding revealed a lower limit of around 11 for Intellectual Quality, 12 for Quality Learning Environment and 13 for Significance (possible range 6-30). The ‘floor’ level represents the minimum ‘quality level’ in these classes and corresponds to ‘bare appearance’ of the NSWQTM elements in the classrooms observed. The upper limit, of around 20 in all cases, corresponds to an ‘uneven treatment’ of the NSWQTM elements. Individual lesson scores for Intellectual Quality and Quality Learning Environment moved around within fairly level bands (9 units wide for the former and 8 units wide for the latter). Figure 5.3 shows slightly less variation and an apparent upward trend in the data for Significance.

Field notes taken as most of the lessons were coded (see Section 4.7) revealed a typical HSIE pedagogy across these Stage 4/5 HSIE classrooms (see Table 5.1). Teachers were inclusive of all students and worked to build strong positive relations and this seems associated with the higher scores for Quality Learning Environment. However, the typical HSIE pedagogy predominantly involved worksheets used to deliver subject knowledge and skills requiring lower-order thinking to answer questions from the textbook. A review of the researcher’s field notes found little evidence of the student-centred strategies that would promote higher levels of student understanding. Group work was not common and when it did occur, it appeared to be motivated by the need for classroom control rather than in developing student understanding.
The qualitative phase of the study suggested that this ‘typical HSIE pedagogy’, associated with the documented bands of teaching quality, was the product of a number of external ‘domains of influence’ that carry implications for larger questions about the potential for teachers’ professional learning to encourage them to adopt strategies that could lift the ‘ceiling’ at the risk of allowing the ‘floor’ to drop.

Some teachers scored more highly than others on some elements, with some teachers significantly different in promoting a Quality Learning Environment and in creating Significance. Teachers who expressed more sophisticated views of reality seemed to score higher on these dimensions. The differences between teachers were not statistically significant on Intellectual Quality. Neither were they significant between schools.

Detailed classroom observation findings are important in devising finely tuned teacher professional learning that allows feedback on classroom instructional practices. However, it was not only the patterns of classroom instruction observed that make this research of interest. While the teacher interviews revealed both knowledge of and commitment to improved teaching quality in general and the NSWQTM in particular, this was filtered through the recognition of four external ‘domains of influence’ (leadership, professional development, ‘Classroom Pedagogical Alignment’ and their own perceptions of ‘good teaching’). The reasons the teachers gave for the teaching were very enlightening and in fact, pointed to serious issues around teacher accountability and the impact it has on teaching practice.

Research Question 2:

*How do teachers’ perceptions of good teaching Influence their implementation of the NSWQTM?*

Five ‘good teaching principles’ emerged from the interviews that formed the second phase of the study (see Section 7 2). These principles had points of contact with NSWQTM but they emerged independent of it. Analysis seemed to indicate that most of these teachers approached teaching from a naive epistemological orientation or realist world-view position and that this was entrenched by the ‘tight coupling’ of curriculum and assessment in a high stakes, high accountability context. This was further evident as the teachers, while acknowledging what ‘good teaching’ looked like in their classrooms, did not exhibit clear recognition of the gap between their espoused and enacted beliefs and intentions. A high premium was placed on control, with consequent choice of low risk, low demand teaching strategies that were seen as
effective in meeting the basic intended learning outcomes for students in external examinations. These perceptions made achievement of full implementation of NSWQTM problematic.

Research Question 3:

*How do teachers’ perceptions about forms of professional learning influence their response to the NSWQTM?*

The interviews provided powerful insights into what professional learning was successful for these HSIE teachers (see Section 7.3). The teachers indicated that they had experience with many different patterns of professional learning. They seemed to realise that traditional patterns of ‘in-service’ were not particularly effective, while engagement in both collaborative and individual reflection could encourage them to cast a critical eye on their own teaching practices.

Traditional strategies were seen to isolate teachers in their faculties and classrooms, with consequent continued reliance on common approaches to work activities, regardless of the substance of occasional workshops. These approaches seemed to have produced consistently acceptable (although not outstanding) results in externally administered examinations over the years (*Classroom Pedagogical Alignment* (CPA); see Section 7.6) and so the teachers’ perceptions of ‘good teaching’ focused on ‘tried and true practices’. These instructional practices were revealed through the ‘typical HSIE pedagogy’. The strength of CPA and associated difficulties in challenging teachers’ beliefs about current practices through on-going professional learning were highlighted by some participating schools’ involvement in an empirical/rational form of professional development (AGQTP) without yielding any significant differences in teacher classroom practice. The ‘loose coupling’ of educational leadership and teacher professional learning may explain the weakness of these external mechanisms in encouraging participating schools to develop Quality Teaching.

Research Question 4:

*How do teachers’ perceptions about the organisational design of schools influence their choice of classroom instructional practices?*

Teachers apparently perceive the organisational design of schools as influential (see Section 7.4) but also consider that educational leadership within school and at state and district/regional levels neglect the opportunities to harness the collective capacity of teachers to influence teacher quality. Therefore, to positively influence the learning
experiences of students, educational leaders need to support and effectively manage teacher professional learning.

The picture of teaching that emerged from this study was very different from what might have been expected from teachers of this level of experience and expertise. The interviews indicated that the ‘typical HSIE pedagogy’ and the ‘ceiling’ and ‘floor’ effects evident in the coded pedagogy were seen as outcomes of the external ‘domains of influence’, of which CPA was particularly strong. This notion emerged as the most powerful explanatory tool for making sense of the classroom practice observed and teacher perspectives on it. Teachers’ legitimate recognition of the high levels of accountability to parents, school executive and regional officers seems to have resulted in a conservative interpretation of external syllabus and examination demands. These ensured that most class members achieve an acceptable minimum performance, but such conservative interpretations make both high coding using the NSWQTM and high external examination results unlikely. As the HSIE KLA is an area of the curriculum that is essentially inquiry focused and constructivist based, this tendency towards teacher-centred approaches would appear to be misplaced. However, CPA seemed to encourage content completion through teacher-centred instruction, guided by the perceptions of ‘good teaching’ held by these HSIE teachers. These existing perceptions formed their bench mark for quality teaching, although they considered both teacher professional learning and educational leadership to be important ways of gaining understand of the latest educational initiatives and the implications of these initiatives for their classroom accountability.

It would appear that the HSIE teachers were ‘teaching defensively’ (by analogy with ‘driving defensively’) or ‘playing it safe’. The teachers seemed bound by their perceptions of external demands and that fear of underperformance which impedes teaching for excellence.

8.3 Implications of the Study

Four of the eight teachers involved in the study were HSIE Head Teachers. One of the teachers was a Head Teacher Administration, another was a relieving Head Teacher HSIE and the other two had over 20 years of classroom experience. As Head Teachers and experienced teachers they would all be able to influence student learning outcomes through their knowledge of subject material, classroom interactions and by monitoring learning and providing feedback. Therefore, the label ‘expert’ does not seem out of place (Hattie, 2003). However, the NSWQTM now provides a new
measure to distinguish between experienced and expert teachers by removing the conceptual vagueness between best practice statements and the teaching that actually occurs in the classroom (Ladwig, 2005). With the ‘typical HSIE pedagogy’ seen as the domain of these expert Stage 4/5 HSIE teachers the notion of a novice, advanced beginner, competent, proficient or expert teacher may now need to be reassessed.

It appears that the NSWDET bureaucratic/hierarchical model lacked the organisational support to improve the quality of teaching in these Stage 4/5 HSIE classrooms at the time this study occurred. The ‘tight coupling’ of the ‘instructional core’ of schools (the classroom) to the external ‘authority of office’ in the NSW Department of Education and Training (now NSWDEC) and the NSW Board of Studies promoted ‘Classroom Pedagogical Alignment’ and subsequently the ‘defensive’ teaching observed in the ‘typical HSIE pedagogy’. On the other hand, the ‘loose coupling’ of educational leadership and professional learning reduced the capacity of schools to challenge these teachers’ perception of ‘good teaching’ and promote Quality Teaching. The need for educational leadership to support the professional growth of school staff was acknowledged with the introduction in 2004 of the NSWDET Professional Learning Policy (NSWDET, 2004). The newly formed Australian Institute for Teaching and School Leadership now defines standards for school principals and sets out the role of quality school leadership (AITSL, 2011). These policy changes focus capacity building on instructional leadership, transformational leadership, distributive leadership and shared instructional leadership. However, educational leadership in schools is a complex and an evolving process with a need for further research to support principals and executive in building school capacity for pedagogical improvement.

Leadership in schools needs to align meaning within faculties, with school teams working together to establish continuity and mutual understanding, if they intend to build capacity for pedagogical improvement using the NSWQTM. For professional learning to make a substantial difference in student learning, educational leaders need to create ‘multiple corridors for participation’ (Hartnell-Young, 2006) through which professional learning can address the diverse needs and interests of all teachers. Such an approach is especially important when dealing with teachers with strong, fixed beliefs about what type of practice will work with what students; ideas which are formed from classroom experience and personal values. If effective professional learning is not endorsed by educational leadership, the pedagogical improvements in NSW public schools envisaged by the Vinson Report (2002) are unlikely to occur. The ‘typical HSIE pedagogy’ is unlikely to change as long as it remains effective in protecting mediocre
teachers and so long as those who take classroom risks in pursuit of higher level student outcomes find themselves in professional peril. This may not be appropriate for the education of 21st century students.

The prominence of teacher-centred strategies in these Stage 4/5 HSIE classrooms and the capacity of student-centred strategies for developing high levels of Quality Teaching warrant further attention by researchers. The NSWQTM is a synthesis of general characteristics of pedagogy and represents a set of teaching standards and not teaching strategies, so any teaching strategy or instructional approach could be applied in ways to create high or low levels of Quality Teaching. However, the classroom observation findings of this study indicate an association between teacher-centred modes and lower levels of Quality Teaching. Therefore, there is a need for researchers’ to investigate whether student-centred strategies consistent with constructivist perspectives, or conversely teacher-centred strategies, create similar or higher levels of Quality Teaching than observed in the HSIE classroom in the current study.

While the level of Quality Teaching identified in this study was not high, the teachers’ reasons for this practice point towards a need for a re-evaluation and public debate around the working conditions of teachers in NSW public schools. It was evident from the teachers’ conversations that increasing administrative workloads associated with accountability requirements led to frustration, stress and a reduction in motivation (see Section 7.5). For the NSWQTM to become part of everyday classroom practice, teachers’ workloads needed to be assessed in light of curriculum changes and the number of public examinations. Importantly, if teachers’ perceptions are to change, the now NSWDEC needs a commitment to the NSWQTM through long term strategies with substantial resources behind that commitment. The phasing out of the NSW School Certificate in 2012 by the NSWBoS may lead to improvements in classroom pedagogy. However, even with such a reduction in one of the ‘domains of influence’, the complexity of classroom practice revealed by this study suggests that higher levels of Quality Teaching in NSW public schools may not flow. The impact of this recent change on HSIE pedagogy requires investigation.

8.4 Generalisability of the Findings

This research study involved a mixed method, ‘explanatory sequential design’. The first phase of the research involved collecting classroom observation data using the item-rating scales and descriptors developed for use with the NSWQTM. The threats to
internal validity (refer to Section 3.2) were sufficiently controlled to enable the results to be legitimately compared across groups. Additionally, from previous research, the number of lesson observations \((n=61)\) undertaken was a large enough sample to determine variation and, therefore, to allow generalisation of the results. As the NSWQTM deals with general qualities of pedagogy to improve student learning, the findings of this study can inform teachers beyond the current setting by suggesting ways to improve classroom practice.

The second phase of the study investigated these HSIE teachers’ perceptions of influences on their classroom instructional practices. From a design perspective the findings from the formal, semi-structured interviews were strengthened because the participants had received a copy of the interview schedule and feedback on the observation results prior to the interviews being conducted. The identification of the four ‘domains of influence’ as general influences on classroom practice emerged from to this study and the Stage 4/5 HSIE teachers interviewed. Although CPA was clearly influential, it was not immediately apparent that any one of the ‘domains of influence’ had a consistently larger impact on teachers or their teaching than any other domain. Therefore, any direct cause and effect relationships warrant further investigation.

In the final or interpretation stage a mixing of the two data sets took place with priority on explaining the quantitative results through the qualitative findings. The aim was not to show specific day-to-day influences or cause and effect, but to identify general influences to understand why these HSIE teachers taught the way they did. While such a comparison is valid for the current study, other teachers in other classrooms may have different views about influences on the way they teach. Potentially, while these results provide an accurate picture of influences on teachers and teaching, it would need to be verified in other studies specifically designed to explore each of the ‘domains of influence’ in-depth.

The results and findings involve an expert teacher perspective with five of the teachers Head Teachers, one relieving as a Head Teacher with the other two participants very experienced classroom teachers. Therefore, the population of teachers in this study were more mature and more experienced than most teachers currently teaching in classrooms in schools in Australia. As a teacher’s career cycle is complex and influenced by a number of factors, a broader representative sample of teachers in different career stages may be beneficial in future studies and provide insights into the impact of career stage on classroom practice. The nature of the sample in the current
study may affect the extent to which the findings can be used as a basis for interpreting other school contexts.

8.5 Areas for Further Research

While this research study adds to the small body of research that applies to the NSWQTM there are areas that warrant further investigation. As the Vinson Report (2002) researchers argued, it is the quality of teaching defined by the classroom pedagogy that has a major influence on student learning outcomes. Therefore, additional research using the NSWQTM is needed to further ascertain the complexity of classroom practice.

It may be beneficial to undertake a comparative study of the classroom observation findings from this study and the SIPA HSIE secondary classrooms. As both studies were conducted at about the same time and were longitudinal in design, examining differences and similarities in classroom pedagogy would add further to the small body of research in the field.

A further study investigating the practices of teachers in the first five years of their teaching using the NSWQTM could determine career stage effects, with comparisons being able to be made with these expert teachers.

The research literature suggests that any teaching strategy or instructional approach can be applied to create high or low levels of Quality Teaching. However, these research findings clearly indicate that the teacher-centred strategies preferred by these HSIE teachers are associated with low mid-range to mid-range NSWQTM coding. Therefore, as the HSIE KLA is essentially an area of the curriculum that is inquiry focused and constructivist based, an intervention study could be developed to determine whether student-centred strategies consistent with constructivist perspectives of teaching and learning (or conversely teacher-centred strategies) tend to create similar or higher levels of Quality Teaching than observed in the current study.

It has been argued in the literature that the type of professional learning needed to support teachers to implement teaching consistent with NSWQTM should differ from more traditional professional learning experiences, where teachers are provided with information they are supposed to interpret and use by themselves in classrooms (Gore & Ladwig, 2006a, 2006b). An intervention study involving more reflective, contextually
focused approaches to professional learning could add to the small body of research linking professional learning and pedagogy. This research is of particular importance as, in at least one of the schools in this study, effective professional learning offered by AGQTP did not seem to translate into greater instructional focus for those HSIE teachers involved compared to the other teachers in the study.

One area that was not part of this study was investigating the quality of assessment tasks in relation to Quality Teaching. A correlation study using the *Quality teaching in NSW public schools: An assessment practice guide* (2006b) to investigate relationships between Quality Teaching, the quality of assessment tasks and the quality of the work that students produce would add to the research in this area.

In exploring further areas for research there was a startling lack of relationship between the Stage 4/5 HSIE teachers’ perceptions of ‘good teaching’ and Quality Teaching. This lack of relationship, as Gore and Ladwig (2006b) contend, is possible because school leaders and teachers simply do not recognise the quality of their own pedagogical practice. Therefore, a more detailed study explicitly addressing the complexities of everyday classroom life would add to the research examining relationships between teacher perceptions of ‘good teaching’ and observed practice.

Finally, these findings clearly indicated that the quality of leadership in schools and at state and district/regional levels was of importance to these HSIE teachers. Research in Australia also highlights the importance of quality leadership in what happens in the core business of schools, teaching and learning (Mulford, 2005; Mulford, et al., 2007). In the NSW context, the Ramsey Report (2000) stressed linkages between leadership in education, school effectiveness and the quality of teaching. Further research could be undertaken to assess the impact of educational leadership on teacher efficacy through professional learning when initiatives, including the NSWQTM, are introduced in anticipation of becoming part of everyday classroom practice.

### 8.6 Final Summary and Concluding Comments

The primary objective of this study was to advance research in the field of Quality Teaching with a mixed methods design chosen as the most appropriate way of gathering sufficient data to illuminate a fairly dim area of school practice. The first phase findings indicated that Quality Teaching was not evident to any great extent in these Stage 4/5 HSIE classrooms. As the teachers in the study were expert teachers, this result was unexpected. The identification of a ‘typical HSIE pedagogy’ was a
significant contribution of this study to research. The second phase was particularly successful in identifying from these HSIE teachers’ conversations, four ‘domains of influence’ as general influences on teachers and teaching. In the final interpretation phase, methodological sophistication provided an opportunity to explain the classroom observation results. Overall, from these findings it appeared that these HSIE teachers, pedagogically, were ‘playing it safe’.

The NSWQTM has the potential to improve the pedagogical practices of teachers, as well as to draw out general inferences that can be used in pedagogical reform attempts evident elsewhere. However, for the NSWQTM, or any other model of good teaching practice, to make a substantial difference in student learning, there is a need for educational leaders to develop schools as Communities of Practice and implement strategies to engage teachers seriously in effective, on-going professional learning. Given these complexities, the challenges for the NSWDEC and for teachers internationally, to improve the quality of pedagogy in all classrooms should not be underestimated.

In conclusion, with teachers directly accounting for a large part of student performance, they must place increasing importance on improving the quality of teaching in their classrooms with the support of the educational community leadership. Teachers are professionals who genuinely desire better outcomes for their students; the classroom must be the focus of initiatives to improve teaching quality.
References


Harvey, O. (1986). Beliefs systems and attitudes toward the death penalty and other punishments. *Journal of Personality, 54*, 143-159.


APPENDICES
Appendix 1

Authentic Pedagogy

A1.1 Authentic Pedagogy - Determining the Quality of Classroom Instruction
A1.2 Authentic Pedagogy – Summary of Research Findings

Appendix 1 – Authentic Pedagogy

A1.1 Authentic Pedagogy - Determining the Quality of Classroom Instruction

Newmann’s Vision of Authentic Achievement, Pedagogy* and Student Performance

<table>
<thead>
<tr>
<th>AUTHENTIC ACHIEVEMENT</th>
<th>AUTHENTIC ASSESSMENT TASKS</th>
<th>AUTHENTIC INSTRUCTION</th>
<th>AUTHENTIC STUDENT PERFORMANCE</th>
</tr>
</thead>
</table>
| CONSTRUCTION OF KNOWLEDGE | -Organisation of Information
-Consideration of Alternatives. | -Higher Order Thinking | -Analysis |
| DISCIPLINED INQUIRY | -Disciplinary Content
-Disciplinary Process
-Elaborated Written Communication | -Deep Knowledge
-Substantive Conversation | -Disciplinary Concepts
-Elaborated Written Communication |
| VALUE BEYOND SCHOOL | -Audience Beyond the school
-Problems Connectioned to the World Beyond the Classroom | -Connections to the World Beyond the Classroom | Not applicable in the original study |

(Source: Newmann & Associates, 1996a, p. 48)

1) Construction of Knowledge

Construction of knowledge is consistent with the constructivist perspective of the student as a meaning making person. Authentic construction of knowledge requires the application, manipulation, interpretation, or analysis of prior knowledge to solve problems that cannot be solved by simple retrieval or reproduction.

2) Disciplined Inquiry

Disciplined inquiry involves cognitive work as it offers “standards that help to establish some understandings as intellectually more worthy than others” (Newmann, 1996c, p. 286). Disciplined inquiry is seen as essential to the development of Intellectual Quality and has three main features:

Prior Knowledge Base: The use of prior knowledge such as facts, vocabulary, concepts, theories and conventions as a base for inquiry supports students in constructing new knowledge from what they have learned.

In-Depth Understanding: This element involves students striving for in-depth understanding of knowledge by creating relationships between pieces of knowledge rather than superficial awareness.

Elaborate Communication: This element involves students expressing ideas and findings through elaborate forms of communication. Elaborate forms of communication can be in verbal, symbolic or visual, for example, narratives and expositions.
3) Value Beyond the Classroom

This third criterion involves students in activities that produce work that has value or meaning beyond the classroom. For example, when a student responds to an issue and writes a letter to a Member of Parliament. However, if the response is poorly written or contains incorrect or shallow understanding it would be seen less authentic because the disciplined inquiry was not significant. The notion of value beyond the classroom is consistent with the constructivist view as learning is more meaningful when "students can connect new information to their own experiences" (Newmann & Associates, 1996a, p. 286).
# A1.2 Authentic Pedagogy – Summary of Research Findings

<table>
<thead>
<tr>
<th>Study</th>
<th>Data Collection and Analysis</th>
<th>Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Authentic Achievement – Restructuring Schools for Intellectual Quality (Newmann &amp; Associates, 1996a; Newmann, Marks, &amp; Gamoran, 1996c)</strong></td>
<td><strong>Authentic Achievement is measured by:</strong></td>
<td><strong>Key Findings:</strong></td>
</tr>
<tr>
<td>- Longitudinal study conducted in 24 significantly restructured public schools from sixteen American states.</td>
<td><strong>Authentic Pedagogy:</strong></td>
<td><strong>Authentic Pedagogy Scores for Social Sciences:</strong></td>
</tr>
<tr>
<td>- Observation undertaken (n = 504) in Maths and Social Sciences classes.</td>
<td>- Determined by adding classroom instruction and assessment task coding scores (range 11 to 43 and midpoint index = 27).</td>
<td>- Middle school observations – mean = 22.2 (n = 20)</td>
</tr>
<tr>
<td>- Classes evenly divided between elementary (grades 4-5), middle school (grades 7-8) and secondary (grades 9-10).</td>
<td>- <strong>Classroom Instruction:</strong></td>
<td>- Secondary school observations – mean = 22.4 (n = 23)</td>
</tr>
<tr>
<td>- Data was also collected on students’ basic knowledge.</td>
<td>- Single point-in-time data collection, same class cohorts were observed four times during two, one week long visits in a one year period. Lesson scores ranged from 4 to 20.</td>
<td>- All schools – mean = 22.2 (n = 67)</td>
</tr>
<tr>
<td>- Surveys on gender, race, household resources and the education backgrounds of family members (n = 2000) were conducted to develop a measure of socio-economic status.</td>
<td>- <strong>Assessment tasks:</strong></td>
<td>- In the Social Sciences there were examples of high-quality authentic practice in some schools. Overall, there was tremendous variation in <strong>Authentic Pedagogy</strong>. In many other schools in the study there were very few examples. Social Science performance exceeded Mathematics performance in middle and high schools.</td>
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<td>- Each teacher submitted two sample assessment tasks (n= 235). The seven assessment standards were averaged over the two tasks with a range from 7 to 23.</td>
<td>- Overall the mean scores for <strong>Authentic Pedagogy</strong> were lower than the theoretical midpoint index (27).</td>
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<td></td>
<td>- A teacher questionnaire described the conditions under which the task was set.</td>
<td>- Both individual teachers and schools varied relative to each other. The most successful teacher scored a 33.5 and the least successful teacher scored 12.5.</td>
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<td></td>
<td><strong>Authentic Student Performance measured by:</strong></td>
<td><strong>Key Findings:</strong></td>
</tr>
<tr>
<td></td>
<td>- Each teacher submitted two class sets of student work, in response to the two assessment tasks.</td>
<td>- The researchers concluded that with scores considerably below the highest levels of authenticity, even the most successful teachers and schools found the promotion of authentic teaching difficult.</td>
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<td></td>
<td>- Tasks were scored according to the three standards. The scores range between a low of 3 and a high of 12 (mid-point = 7.5).</td>
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<tr>
<td>Study</td>
<td>Data Collection and Analysis</td>
<td>Findings</td>
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<tr>
<td><strong>Assessing the presence of a School-Wide Professional Community (Louis, Kruse, &amp; Marks, 1996b):</strong></td>
<td><strong>Professional Community:</strong></td>
<td><strong>Key Findings:</strong></td>
</tr>
<tr>
<td>- The researchers defined a professional community as a movement towards five elements of practice: shared norms and values; a focus on student learning; reflective dialogue; ‘deprivatisation of practice’ and collaboration.</td>
<td>- Survey data was collected from the teachers to construct an index based on the five professional community elements</td>
<td>- Considerable variance exited between schools.</td>
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<td></td>
<td>- Survey data was mapped against each school Authentic Pedagogy rank to determine the level of a professional learning community</td>
<td>- Not all schools in the study were able to achieve high standards of professional community.</td>
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<td>- Between school variations was seen as a function of the schools structural conditions, human resources and social resources.</td>
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<td></td>
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<td>- School culture and school organisation were key factors in supporting a strong professional community.</td>
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<td></td>
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<td>- Teacher responsibility for students learning varied considerably within in schools.</td>
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<td></td>
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<td>- Professional communities were more common in elementary schools than in high schools.</td>
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<td></td>
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<td>- Teachers reported that the elements of a professional community helped them improve their teaching.</td>
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<tr>
<td><strong>Authentic Assessment and Instruction (Avery, 1999a)</strong></td>
<td><strong>Authentic Instruction:</strong></td>
<td><strong>Key Findings:</strong></td>
</tr>
<tr>
<td>- Cross-sectional study involving single point-in-time data collection.</td>
<td>- Two observers visited each teacher’s classroom, twice during the one month observation period. Instruction was rated using Newmann’s four criteria.</td>
<td>- The results were similar to those from the original Newmann study, with classroom instruction found to have a strong effect on student performance on assessment tasks.</td>
</tr>
<tr>
<td>- Examined how student demographics, engagement and teacher instruction influenced student performance on one common assessment task on a common unit of work on immigration.</td>
<td>- <strong>Authentic Achievement on Performance Task:</strong></td>
<td>- Students who received a high level of authentic instruction were more likely to demonstrate a higher level of authentic performance.</td>
</tr>
<tr>
<td>- Involved 116 students (90% Year 11) and five history teachers from a single urban high school in the United States.</td>
<td>- Students submitted an essay at the completion of the unit. Composite score developed from Newmann’s three criteria for ‘authentic student performance’.</td>
<td>- Student demographic characteristics (sex, race/ethnicity and socio-economic status) were not significant predictors of student performance.</td>
</tr>
<tr>
<td>Study</td>
<td>Data Collection and Analysis</td>
<td>Findings</td>
</tr>
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<tr>
<td>Constructivism and Authentic Pedagogy: State of the Art and Recent Developments in the Dutch National Curriculum in Secondary Education (Roelofs &amp; Terwel, 1999)</td>
<td>Indicators of Authentic Pedagogy</td>
<td>Key Findings:</td>
</tr>
<tr>
<td>-Involved multiple case studies</td>
<td>Authentic Pedagogy Instruments</td>
<td>1) Construction of knowledge in complete task environments</td>
</tr>
<tr>
<td>-Conducted in mathematics and English classes in secondary schools that had implemented a new Dutch curriculum between 1993 and 1996 (n = 3).</td>
<td>Three indicators for Authentic Pedagogy:</td>
<td>-Researchers found that knowledge-construction occurred only occasionally.</td>
</tr>
<tr>
<td>-Involved a modified version of Neumann’s vision of Authentic Pedagogy. Four aspects of Authentic Pedagogy were distinguished:</td>
<td>-A situation-specific questionnaire for teachers (n = 89).</td>
<td>-No significant shifts were perceived in teaching behaviour from 1993 to 1996.</td>
</tr>
<tr>
<td>-Construction of knowledge in complete task environments.</td>
<td>-Two situation-specific student questionnaires for mathematics and English</td>
<td>-Most learning situations did not integrate subject-matter from other topics or make connections with other subjects.</td>
</tr>
<tr>
<td>-Connectedness to students’ personal worlds.</td>
<td>-Data from classroom observations</td>
<td>2) Connectedness to students’ personal worlds</td>
</tr>
<tr>
<td>-Value of learning activities beyond school.</td>
<td>-Interviews with teachers on textbook use.</td>
<td>-Overall, there were few changes in teaching practices from 1993 to 1996.</td>
</tr>
<tr>
<td>-Co-operation and communication.</td>
<td>All instruments covered the four characteristics of Authentic Pedagogy.</td>
<td>-Teachers often chose examples relating to students daily life when teaching content.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-Lessons where students had some control over determining lesson content and learning occurred very rarely.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3) Value of learning activities beyond school</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-Teachers made regular connections to current developments in society.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-Out-of-school applications involving tasks dealing with social problems of persons or outside institutions was not common.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4) Co-operation and communication</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-Occurred only occasionally, with limited evidence of students working together in groups on collective tasks, or playing a role in assessing the results of collective tasks or undertaking problem solving.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-In classes when communication did take place, the teachers themselves often took the responsibility for the verbalisation of the thought processes.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Summary</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-Overall the researchers’ conclude that the characteristics of Authentic Pedagogy were not found to any real extent.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-There was a lack of support at school level, with flexible timetables, increased instructional time blocks and co-operation between departments needed.</td>
</tr>
<tr>
<td>Study</td>
<td>Data Collection and Analysis</td>
<td>Findings</td>
</tr>
<tr>
<td>-------</td>
<td>----------------------------</td>
<td>----------</td>
</tr>
</tbody>
</table>
|       |                            | - The large number of separate subjects, each with their own programs restricted *Authentic Pedagogy*.  
       |                            | - *Authentic Pedagogy* was very much dependent on classroom climate and technology. |
|       |                            | 2) Teacher Perceptions of Obstacles to *Authentic Pedagogy*  
       | **Student Perception Instrument:** | Key Findings:  
       | - A situation-specific questionnaire explored the English and mathematics students’ perceptions of their teachers’ teaching behaviours. | - Teachers indicated they regularly or often practiced certain aspects of *Authentic Pedagogy*.  
       | **Textbook-Use Instrument:** | - Students indicated that teachers practiced aspects of *Authentic Pedagogy* very infrequently. |
|       | - Nine English and mathematics teachers were interviewed in relation to textbook use and their opinions and motives on teaching supporting *Authentic Pedagogy*. | Key Findings:  
       | | - Textbook use strongly influence classroom practices and was seen as an obstacle to *Authentic Pedagogy*:  
       | |   - Textbook use was seen as supporting basic skills practice.  
       | |   - Teachers agreed that lesson content and lesson design were highly dependent on the textbooks use.  
       | |   - Textbooks provided limited opportunities for learning situations in which students had control over aspects of their learning.  
       | | - Construction of knowledge was limited because teachers were not willing or able to take the students’ worlds into account, beyond that which was already addressed in the textbooks. |
Appendix 2

Productive Pedagogy Model

A2.1 Overview of Dimensional Constructs
A2.2 Productive Pedagogy – Summary of Research Findings
A2.3 School Reform Longitudinal Study - Overall Mean Ratings of Classroom Observations and Mean Ratings for the Social Science Curriculum Area

Appendix 2 – Productive Pedagogy Model

A2.1 Overview of Dimensional Constructs

Each of the four dimensional constructs are defined by the 20 elements.

<table>
<thead>
<tr>
<th>Intellectual Quality</th>
<th>Relevance</th>
<th>Supportive Classroom Environment</th>
<th>Recognition of Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Higher Order Thinking</td>
<td>Knowledge Integration</td>
<td>Student’s Direction</td>
<td>Cultural Knowledge</td>
</tr>
<tr>
<td>Deep of Knowledge</td>
<td>Background Knowledge</td>
<td>Social Support</td>
<td>Inclusivity</td>
</tr>
<tr>
<td>Depth of Student’s Understanding</td>
<td>Connectedness to the World beyond the Classroom</td>
<td>Academic Engagement</td>
<td>Narrative</td>
</tr>
<tr>
<td>Substantive communication</td>
<td>Problem-Based Curriculum</td>
<td>Explicit Quality Performance Criteria</td>
<td>Group Identity</td>
</tr>
<tr>
<td>Knowledge as Problematic</td>
<td></td>
<td>Student Self-Regulation</td>
<td>Active Citizenship</td>
</tr>
<tr>
<td>Metalanguage</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(Source: QSRLS, 2001, p. 4)

The educational theory and perspectives underpinning the Productive Pedagogy model as outlined by Ladwig (2007) and Education Queensland (Queensland School Reform Longitudinal Study, 1998) are summarised. The Productive Pedagogy model (and therefore the NSWQTM) developed from educational research concerned with student learning outcomes and Newmann and Associates (1996a) original construct of ‘Authentic Pedagogy’. Three of the four items used to measure ‘authentic achievement’ higher order thinking, substantive communication and connections to the classroom beyond the world were retained in Productive Pedagogy model. Two other elements were drawn from ‘disciplined inquiry’ by disaggregating depth of knowledge and students understanding into deep understanding and deep knowledge.

Other elements, including knowledge as problematic, knowledge integration, problem-based curriculum, self-regulation and cultural knowledge were developed from Berlak and Berlak’s formulation of dilemmas of teaching. Background knowledge was synthesised from Berlak and Berlak’s focus on students’ personal knowledge. Explicit performance criteria, metalanguage and narrative developed from synthetic theory and as indicators of specific pedagogical features identified as important in the critical literacy tradition. Student direction developed from Bernstein’s understanding of framing, with inclusivity emerging from work in the 1970s involving reproduction theory and social inequalities. Two additional CORS item measures were academic engagement and social support. Each of these was part of an analysis of social support for students and its association with improved student performance (see Newmann & Associates, 1996a). Active citizenship was added to acknowledge the need for students to be aware of structures, practices and rights and responsibilities of individuals in a democratic society. Group Identities articulated the positive identification of non-dominant social identities of students with inclusivity built from a collective understanding calling for inclusivity in classroom.
processes and curricula.

The findings of studies undertaken using the *Productive Pedagogy* model are summarised in Appendix A2.2. To determine the quality of classroom instruction, each element was scored on a 5-point ordinal scale using the descriptions from the *Productive pedagogies; classroom observation manual* (Education Queensland, 2001, 2002). To support understanding, the classroom observation findings are discussed in terms of four observational score ranges or bands. That is, scores between 4 and 5 are 'high range'; scores between 3 and 4 are 'mid-range'; scores between 2 and 3 are 'low mid-range' and scores between 1 and 2 in the 'low-range'.

## A2.2 Productive Pedagogy – Summary of Research Findings

<table>
<thead>
<tr>
<th>Study</th>
<th>Data Collection and Analysis</th>
<th>Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Queensland School Reform Longitudinal Study (Queensland School Reform Longitudinal Study, 1999, 2001)</strong></td>
<td>Data Collection and Analysis</td>
<td>Key Findings:</td>
</tr>
<tr>
<td></td>
<td>- Longitudinal study: conducted in twenty-four schools over a three year period from 1998 to 2000.</td>
<td>Intellectual Quality</td>
</tr>
<tr>
<td></td>
<td>- Grades 6, 8 and 11 were involved from the Maths, English Science and Social Science curriculum areas.</td>
<td>- Overall, there was not a strong emphasis on Intellectual Quality.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- In the Social Sciences deep knowledge, depth of understanding, higher-order thinking and substantive communication scored in the low mid-range. Metalanguage scored in the low-range.</td>
</tr>
<tr>
<td></td>
<td><strong>Data Collection and Analysis</strong></td>
<td>Relevance</td>
</tr>
<tr>
<td></td>
<td>- Single point-in-time data collection.</td>
<td>- Overall there was not a strong emphasis on Relevance.</td>
</tr>
<tr>
<td></td>
<td>- Overall there were 975 classroom observations.</td>
<td>- In the Social Sciences, background knowledge and problem based curriculum had low mid-range scores. Knowledge integration and connections to the classroom beyond the world scored in the low range.</td>
</tr>
<tr>
<td></td>
<td>- In the Social Science curriculum area there were 37 Year 6 lesson observations; 64 from Year 8; 67 from Year 11 and 15 others (n = 183).</td>
<td>Recognition of Difference</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Overall scores and scores in the Social Sciences for representative participation (inclusivity) were in the high range.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Narrative, cultural knowledge, group identities in learning community and active citizenship scored in the low-range.</td>
</tr>
<tr>
<td></td>
<td>- Lesson were coded on a 5-point ordinal scale using the items scales descriptions found in the Productive Pedagogies; Classroom Observation Manual (Education Queensland, 2001, 2002).</td>
<td>Supportive Classroom Environment</td>
</tr>
<tr>
<td></td>
<td>(The overall and Social Sciences results are presented in Appendix A2.3)</td>
<td>- This dimension had the highest mean score.</td>
</tr>
<tr>
<td></td>
<td><strong>Teacher and School Differences:</strong></td>
<td>- Student self-regulation scored in the high-range and engagement and social support scored in the mid-range.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Explicit quality criteria had a low mid-range score and student’s direction of activities scored in the low-range.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Key Findings:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Considerable statistical differences were found between the individual teachers within the schools in the study than across-schools.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Some of teachers rated highly across the elements and constructs, a very large number rated substantially lower.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Individual teacher practices had a greater effect on student outcomes than whole school effects.</td>
</tr>
</tbody>
</table>

278
<table>
<thead>
<tr>
<th>Study</th>
<th>Data Collection and Analysis</th>
<th>Findings</th>
</tr>
</thead>
</table>
| The study also explored three areas of School Organisational Capacity:  
- Principal Leadership  
- Professional Learning Communities  
- Teacher Capital | School Organisational Capacity | Key Findings:  
- Leadership across the schools often did not focus on teaching and learning.  
- Contemporary policies pushed school leaders into managerialistic, rather than pedagogical leadership.  
- Teachers reported low levels of organisational support and systemic constraints.  
- System structures created uncertainty in school districts about their functions.  
- Strong links were found between teacher collective responsibility for student learning and overall level of professional learning community.  
- Links between curriculum, pedagogy and assessment was inconsistent because of misalignment between state education policies and schools.  
- Improved teacher professional development was needed to reduce the variation between individual teachers. |
| Towards Better Teaching – Productive Pedagogy as a Framework for Teacher Education (Gore, Griffiths, & Ladwig, 2004)  
- A cross-sectional study involving 10 pre-service primary and secondary education students in their final year of University.  
- Participant teachers nominated 2-3 lessons for observation (n = 25) | Data Collection and Analysis  
- Single point in time data collection  
- Lesson were coded on a 5-point ordinal scale using the items scales descriptions found in the Productive Pedagogies; Classroom Observation Manual (Education Queensland, 2001, 2002).  
- Results were compared using a two-tailed t test (unequal variance) with the QSRLS (2001) results. | Key Findings:  
- Consistent with the QSRLS results, these pre-service teachers were better at creating Supportive Classroom Environments (mean = 2.78) and Relevance (mean = 2.31) than developing Intellectual Quality (mean = 1.83) and Recognition of Difference (mean = 2.03).  
**Intellectual Quality**  
- Higher-order thinking was the central element with a low mid-range score. Deep knowledge, depth of students understanding, substantive communication, knowledge as problematic and metalanguage all had scores in the low-range.  
**Relevance**  
- All elements, background knowledge, knowledge integration, connectedness and problem-based curriculum scored in the low mid-range  
**Supportive Classroom Environment**  
- Social support, engagement and student self-regulation had mid-range scores.  
- Explicit quality criteria scored in the low-range.  
**Recognition of Difference**  
- Public representation of inclusive participation scored in the high range.  
- Cultural knowledge, narrative, group identities in a learning community and active citizenship all had low-range scores.  
**Overall Findings:** |
| Semi-Structured Interviews  
- Two weeks after the study was completed semi-structured interviews were conducted to explore the pre-service teachers understanding and experiences in applying Productive Pedagogy into classroom practice. |  |  |
**Study** | **Data Collection and Analysis** | **Findings**
--- | --- | ---

**Numeracy, equity, ICT. Final Report, Brisbane: Griffith University (Zevenbergen & Lerman, 2006)**

**Pedagogy and Interactive Whiteboards: Using an Activity Theory Approach to Understand Tension in Practice (Zevenbergen & Lerman, 2007)**

- Longitudinal Study
  - Pedagogy was coded related to Information and Computer Technology (ICT) and Interactive White Boards (IWB) use in mathematics classrooms in the middle school classrooms in Victorian and Queensland $\left(n=10\right)$.  

**Data Collection and Analysis**

- Single point-in-time data collection.
- An initial survey gained insights into the schools, their technology use, and the levels of confidence/skills among the teachers.
- Video data was collected as teachers undertook lessons $\left(n=40\right)$.
- Lessons were coded by 2-3 reviewers using Productive Pedagogies; Classroom Observation Manual (Education Queensland, 2001, 2002). The theoretical mid-point in this study was 2.5.
- A second method described the features of a lesson in which a teacher used ICTs.

**Key Findings:**

- Intellectual Quality
  - All elements scored below 2 (low-range scores).
- Relevance
  - Problem base curriculum scored above 2 (low mid-range), but lower than the theoretical mid-point (2.5).
  - The other elements background knowledge, connections to the classroom beyond the world and knowledge integration scored below 2 (low-range).
- Supportive Classroom Environment
  - Explicit quality criteria (low mid-range score), social support and students’ self regulation (mid-range scores) scored above the theoretical mid-point (2.5).
  - Engagement scored above 2 (low mid-range score), with student direction scoring below 2 (low-range score).
- Recognition of Difference
  - Description scored above 2 (low mid-range score), but was lower than the theoretical mid-point (2.5).
  - The other elements scored below 2 (low-range scores) with exposition and description replacing cultural knowledge and active citizenship.

**Overall Findings:**

- ICT promoted teaching by reducing preparation time and quickening the pace of lessons. However, pedagogy remained similar to normal lessons without ICT use.
- ICT use reduced the quality of mathematical opportunities; provided fewer learning opportunities to connect students to the world beyond schools and offered students little autonomous or independent learning opportunities.
- The researchers concluded that the results were aligned with the original QSLRS (2001) findings.
<table>
<thead>
<tr>
<th>Elements/Dimension</th>
<th>QSRLS (n=975) Overall Mean (Std Dev)</th>
<th>Social Science (n=201) Mean (Std Dev)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Intellectual Quality</strong></td>
<td>2.27 (0.82)</td>
<td></td>
</tr>
<tr>
<td>Deep knowledge</td>
<td>2.71 (1.07)</td>
<td>2.70 (1.104)</td>
</tr>
<tr>
<td>Depth of student’s understanding</td>
<td>2.60 (1.02)</td>
<td>2.60 (0.97)</td>
</tr>
<tr>
<td>Knowledge as problematic</td>
<td>1.74 (1.06)</td>
<td>2.01 (1.26)</td>
</tr>
<tr>
<td>Higher-order thinking</td>
<td>2.56 (1.11)</td>
<td>2.60 (1.10)</td>
</tr>
<tr>
<td>Metalanguage</td>
<td>1.75 (1.02)</td>
<td>1.50 (0.86)</td>
</tr>
<tr>
<td>Substantive conversations</td>
<td>2.27 (1.20)</td>
<td>2.39 (1.20)</td>
</tr>
<tr>
<td><strong>Relevance</strong></td>
<td>2.07 (0.88)</td>
<td></td>
</tr>
<tr>
<td>Knowledge integration</td>
<td>1.76 (1.10)</td>
<td>1.83 (1.07)</td>
</tr>
<tr>
<td>Link to background knowledge</td>
<td>2.62 (1.17)</td>
<td>2.56 (1.20)</td>
</tr>
<tr>
<td>Connection to world beyond the classroom</td>
<td>1.91 (1.10)</td>
<td>1.88 (1.12)</td>
</tr>
<tr>
<td>*Problem based curriculum</td>
<td>2.02 (1.31)</td>
<td>2.25 (1.41)</td>
</tr>
<tr>
<td><strong>Supportive Classroom Environment</strong></td>
<td>3.30 (0.69)</td>
<td></td>
</tr>
<tr>
<td>Explicit quality performance criteria</td>
<td>2.13 (1.11)</td>
<td>2.18 (1.21)</td>
</tr>
<tr>
<td>Engagement</td>
<td>3.73 (1.02)</td>
<td>3.74 (0.95)</td>
</tr>
<tr>
<td>Social support for student achievement</td>
<td>3.66 (0.96)</td>
<td>3.65 (0.90)</td>
</tr>
<tr>
<td>Students self-regulation</td>
<td>4.04 (0.97)</td>
<td>4.10 (0.93)</td>
</tr>
<tr>
<td>Student’s direction of activities</td>
<td>1.60 (0.85)</td>
<td>1.66 (0.85)</td>
</tr>
<tr>
<td><strong>Recognition of Difference</strong></td>
<td>1.94 (0.54)</td>
<td></td>
</tr>
<tr>
<td>Curriculum knowledge values cultures</td>
<td>1.35 (0.80)</td>
<td>1.69 (1.05)</td>
</tr>
<tr>
<td>Public representative of inclusive participation</td>
<td>4.04 (1.20)</td>
<td>4.07 (1.18)</td>
</tr>
<tr>
<td>Narrative</td>
<td>1.95 (1.14)</td>
<td>2.01 (0.68)</td>
</tr>
<tr>
<td>*Group identities in learning community</td>
<td>1.19 (0.62)</td>
<td>1.23 (0.680)</td>
</tr>
<tr>
<td>*Active Citizenship</td>
<td>1.18 (0.58)</td>
<td>1.21 (0.626)</td>
</tr>
</tbody>
</table>

*elements not included in the Quality Teaching framework

(Sources: Queensland School Reform Longitudinal Study (QSRLS), 2001, pp. 21-122; Gore, 2004)
Appendix 3

NSWQTM – Examples of Item-rating Scales

A3.1 Deep Knowledge
A3.2 Problematic Knowledge
A3.3 Explicit Quality Criteria
A3.4 Student Direction
A3.5 Knowledge Integration
Appendix 3 – NSWQTM – Examples of Item-Rating Scales

A3.1 Deep Knowledge

1.1 Deep knowledge

Description

Knowledge is deep when it concerns the central ideas or concepts of a topic, subject or KLA and when the knowledge is judged to be crucial to the topic, subject or KLA. Deep knowledge is evident when either the teacher or the students provide information, reasoning or arguments that address the centrality or complexity of a key concept or idea, or when relatively complex relations are established to other central concepts.

Knowledge is shallow when it does not concern significant concepts or key ideas of a topic, subject or KLA, or when concepts or ideas are fragmented and disconnected from a central focus. Knowledge is also shallow when important ideas are treated superficially by the teacher or students, or when there is no clear focus on an important idea or concept. This superficiality can arise from trying to cover large quantities of fragmented information that results in the content covered remaining unconnected to central ideas or concepts.

Coding scale

To what extent is the knowledge being addressed focused on a small number of key concepts and the relationships between and among concepts?

Deep knowledge

1. Almost all of the content knowledge of the lesson is shallow because it does not deal with significant concepts or ideas.

2. Some key concepts and ideas are mentioned or covered by the teacher or students, but only at a superficial level.

3. Knowledge is treated unevenly during instruction. A significant idea may be addressed as part of the lesson, but in general the focus on key concepts and ideas is not sustained throughout the lesson.

4. Most of the content knowledge of the lesson is deep. Sustained focus on central concepts or ideas is occasionally interrupted by superficial or unrelated ideas or concepts.

5. Knowledge is deep because focus is sustained on key ideas or concepts throughout the lesson.

(source: NSWDET, 2003d, p. 12)
1.3 Problematic knowledge

Description

Knowledge is treated as problematic when it involves an understanding of knowledge not as a fixed body of information, but rather as being socially constructed, and hence subject to political, social and cultural influences and implications. Multiple, contrasting and potentially conflicting forms of knowledge are presented and recognised as constructed and open to question.

Knowledge is not treated as problematic when it is presented only as fact, a body of truth to be acquired by students, or is treated as static and open to only one interpretation.

Coding scale

To what extent are students encouraged to address multiple perspectives and/or solutions? To what extent are students able to recognise knowledge as constructed and therefore open to question?

Problematic knowledge

1. All knowledge is presented only as fact and not open to question.

2. Some knowledge is treated as open to multiple perspectives.

3. Knowledge is treated as open to multiple perspectives, seen as socially constructed and therefore open to question.

4. Knowledge is seen as socially constructed and multiple perspectives are not only presented, but are explored through questioning of their basic assumptions.

5. Knowledge is seen as socially constructed, with multiple and/or conflicting interpretations presented and explored to an extent that a judgement is made about the appropriateness of an interpretation in a given context.

(source: NSWDET, 2003d, p. 16)
2.1 Explicit quality criteria

Description
High explicit quality criteria is identified by frequent, detailed and specific statements about the quality of work required of students. Explicit quality criteria become reference points when the teacher and/or students use the criteria to develop and check their own work or the work of others.

Low explicit quality criteria is identified by an absence of written or spoken reference to the quality of work expected of students. Reference to technical or procedural requirements only (such as the number of examples, length of an essay or the duration of a presentation) is not evidence of explicit quality criteria.

Coding scale

To what extent are students provided with explicit criteria for the quality of work they are to produce? To what extent are those criteria a regular reference point for the development and assessment of student work?

Explicit quality criteria

1. No explicit statements regarding the quality of work are made. Only technical and procedural criteria are made explicit.

2. Only general statements are made regarding the desired quality of the work.

3. Detailed criteria regarding the quality of work are made explicit during the lesson, but there is no evidence that students are using the criteria to examine the quality of their work.

4. Detailed criteria regarding the quality of work are made explicit or reinforced during the lesson and there is evidence of some students, some of the time, examining the quality of their work in relation to these criteria.

5. Detailed criteria regarding the quality of work are made explicit or reinforced throughout the lesson and there is consistent evidence of students examining the quality of their work in relation to these criteria.

(source: NSWDET, 2003d, p. 26)
2.6 Student direction

Description
Classrooms with high student direction see students exercising control over one or more of the following aspects of a lesson:

- **choice** of activities
- **time** spent on activities
- **pace** of the lesson
- **criteria** by which they will be assessed.

When students assume responsibility for the activities in which they engage, and/or how they complete them, the activities are likely to be student-centred (e.g. group work, individual research and practical investigation projects).

Classrooms with low student direction do not see students exercising control over class activities. Instead, the teacher explicitly determines what activities students do and how and when they are to do them. The nature and appropriateness of an activity is thus decided by the teacher.

Coding scale
To what extent do students exercise some direction over the selection of activities related to their learning and the means and manner by which these activities will be done?

<table>
<thead>
<tr>
<th>Student direction</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. No evidence of student direction. All aspects of</td>
</tr>
<tr>
<td>the lesson are explicitly designated by the teacher</td>
</tr>
<tr>
<td>for students.</td>
</tr>
<tr>
<td>2. Low student direction. Although students exercise</td>
</tr>
<tr>
<td>some control over some aspect of the lesson (choice,</td>
</tr>
<tr>
<td>time, pace, assessment), their control is minimal or</td>
</tr>
<tr>
<td>trivial.</td>
</tr>
<tr>
<td>3. Some student direction. Students exercise some</td>
</tr>
<tr>
<td>control in relation to some significant aspects of the</td>
</tr>
<tr>
<td>lesson.</td>
</tr>
<tr>
<td>4. Substantial student direction. Some deliberation or</td>
</tr>
<tr>
<td>negotiation occurs between teacher and students over</td>
</tr>
<tr>
<td>at least some significant aspects of the lesson.</td>
</tr>
<tr>
<td>5. High student direction. Students determine many</td>
</tr>
<tr>
<td>significant aspects of the lesson either independent of</td>
</tr>
<tr>
<td>or dependent on teacher approval.</td>
</tr>
</tbody>
</table>

(source: NSWDET, 2003d, p. 36)
3.3 Knowledge integration

Description

High knowledge integration is identifiable when meaningful connections are made between different topics and/or between different subjects. For instance, when students address themes or problems which require knowledge from multiple topics or subject areas, knowledge integration will be high.

Low knowledge integration is identifiable when no meaningful connections are made between different topics and/or between different subjects. In the extreme, strong subject boundaries can prevent or “get in the way of” student learning because opportunities to make meaningful connections are missed.

Coding scale

To what extent do lessons regularly demonstrate links between and within subjects and key learning areas?

Knowledge integration

1. No meaningful connections. All knowledge is strictly restricted to that explicitly defined within a single topic or subject area.

2. Some minor or trivial connections are made. Knowledge is mostly restricted to that of a specific topic or subject area.

3. At least one meaningful connection is made between topics or subject areas by the teacher and/or the students during the lesson.

4. Several meaningful connections are made between topics or subject areas by the teacher and/or the students during the lesson.

5. Meaningful connections are regularly made between topics or subject areas by the teacher and/or the students during the lesson.

(source: NSWDET, 2003d, p. 44)
Appendix 4

First Phase - Selection of Participants

A4.1 Expression of Interest
A4.2 Participant Consent Form
A4.3 Information for Students and Parents
A4.4 Letter of Support-School Education Directors
A4.5 Letter Confirming Observations

Appendix 4 – First Phase - Selection of Participants

A4.1 Expression of Interest

(All information statements and consent forms were printed on University of Newcastle Faculty of Education letter head. The procedure will be followed for all documents)

A STUDY OF PEDAGOGY IN NSW GOVERNMENT SECONDARY SCHOOLS
EXPRESSION OF INTEREST – INFORMATION STATEMENT

Dear Principal and/or Teacher,

Your school and HSIE teachers are invited to take part in the research project identified above that is being conducted by Mr Ken Edge (Head Teacher HSIE, Cardiff High School) as part of his Masters of Education Degree (Research) under the supervision of Dr. James Ladwig from the Faculty of Education at the University of Newcastle.

If you wish to participate please read the following information and be sure you understand its contents before you consent to participate. If there is anything you don’t understand, or you have any questions please feel free to contact the researcher.

What is the study about?

In May 2003 NSWDET released the Quality Teaching in NSW public schools discussion papers outlining the NSW Quality Teaching model. To support the introduction of the model the Professional Support and Curriculum Directorate in collaboration with the University of Newcastle produced ‘A Guide to Classroom Practice’.

The proposed over time study involves teachers of Stage 4 and Stage 5 History and Geography students from NSW public secondary schools. Teacher instruction is to be coded over a ten-week period using the ‘Classroom Practice Coding Sheet’ developed by the NSWDET for use with the NSW Quality Teaching model. This study is important because it is the first time research has been undertaken to analyse the nature of pedagogy within one class over a full term in NSWDET schools.

The proposed pilot study is designed to investigate the following research question:

*What variation in pedagogy is exhibited in classroom instruction in Stage 4/5 HSIE classes in NSW public secondary schools, based on repeated classroom observations using the NSWQTM?*
What is the process for participating schools?

The study involves NSWDET secondary schools from the Hunter Region. Two teachers from each school who are currently teaching Stage 4/5 History or Geography and who are genuinely interested in the study are needed to participate. It would be preferable to have one teacher from each faculty area. Participation of teachers is to be voluntary and the decision to participate or not, will not disadvantage the school or teachers in any way.

To be involved in the project school principals need to return the teacher consent forms with a copy of the nominated teachers’ timetable for Term II, 2004. Only those who give their informed consent will be included in the project. Selection of schools will be based on the curriculum patterns of each teacher. If you decide to participate, the school or the teachers may withdraw from the project at any time without giving a reason.

What are the expectations of participating schools and teachers?

The school and teachers need to be committed for the 10 weeks commencing Term II 2004. Observations of the same class (same teacher, same students, same curriculum) will be conducted each week. If a teacher is absent an alternative class-time can be substituted. At the completion of each observation a brief discussion will be conducted to gain a sense of how that lesson fits in the weeks work. Additionally, at the completion of all observations, a de-briefing will be conducted to provide teachers an opportunity comment on the research process and the organisation. Feedback on the classroom observations are to be provided at the conclusion of the study.

If circumstances arise and the student researcher is not available a time may be substituted. If this situation occurs the teachers involved will be notified and an alternative time negotiated.

To facilitate and coordinate procedures teacher meetings will be held in Week 3 of Term II, 2004 for those involved in the study.

How will your privacy be protected?

All documentation and expressions of interest by schools will be treated as private and confidential. Schools and teachers will be de-identified by a coding system, known only to the student researcher and supervisor. The student researcher and supervisor are to be responsible for the security of the personal details of participants and schools and any correspondence between the researcher and participants.

What are the benefits for participating schools?

Regular discussion and reflection on classroom observations to participants is an integral part of effective professional development. At the completion of the study a debriefing between the student researcher and each classroom teacher will occur. The discussion will be reflective enabling teachers to build on current knowledge skills and beliefs and to construct their own knowledge through interactive learning. The research project provides an opportunity for the teachers from each of the schools to collaborate (e.g. observe one another teach, work together to develop teaching strategies) and reflect on issues raised during each of the classroom observations. The researcher will be available to support teachers throughout the study.
Process for expression of interest

If your school is interested in participating in the pilot study, please pass on the invitation and consent forms to interested teachers for completion. The consent form with a copy of each teacher’s timetable for Term II 2004 needs to be returned by 10/05/04 to:

Dr. James Ladwig  
School of Education  
Newcastle University  
Callaghan, NSW 2308  
49216650 (w)  
49216895 (fax)  
email: James.Ladwig@newcastle.edu.au

If you have any questions, please feel free to contact me as well.

Thank you for taking the time to consider this invitation to participate in this very exciting research study.

Dr James G Ladwig  
Mr Ken Edge

This project has been approved by the University’s Human Research and Ethics Committee, Approval No H-046-06-05.

Should you have concerns about your rights as a participant in this research, or have a complaint about the manner in which it the research is conducted, it may be given to the researcher, or, if an independent person is preferred, to the Human Research Ethics Officer, Research Office, The Chancellery, The University of Newcastle, University Drive, Callaghan, NSW 2308, telephone (02 49216333, email Human-Ethics@newcastle.edu.au.
A4.2 Participant Consent Form

PARTICIPANT CONSENT FORM
RESEARCH PROJECT
A STUDY OF PEDAGOGY IN NSW GOVERNMENT SECONDARY SCHOOLS

Dear participant,

Please read the following information. Participants are to complete details in Section 7 and school principals are to complete Section 8.

1) I agree to participate in the above research project and give my consent freely.
2) I understand that the project will be conducted as described in the information sheet, a copy of which I have retained.
3) I understand I can withdraw from the project at any time and do not have to give any reasons for withdrawing.
4) I consent to being part of a research program that involves:
   - Attending an orientation meeting in Week 2 of Term II, 2004.
   - A commitment to ten-week study commencing week 3 Term II, 2004.
   - Weekly classroom observations by a researcher using the classroom practice-coding sheet developed for use with the NSW Quality Teaching model.
   - Being available for a twenty-minute debriefing at the conclusion of classroom observations.
   - Providing a copy of my timetable for Term II, 2004.

5) I understand that my personal information will remain confidential and only the researchers will have access.
6) I also have the opportunity to have questions answered to my satisfaction.
7) The following details are to be completed by the interested teacher:

Surname: ............................................. First Name: .........................
Signature: ............................................................................. Date:..............................

Contact and School Details:
Name of School: ..........................
Phone: .......................... Fax: ........................................
School: .................................... Email address: ....................

8) To be completed by the school principal.
I support the involvement of ....................................................... in the pilot study.
(Participating teachers name): .......................................................  
Signature: ............................................. Date:..............................

This project has been approved by the University’s Human Research and Ethics Committee,
Approval No H-046-06-05.

Should you have concerns about your rights as a participant in this research, or have a complaint about the manner in which it the research is conducted, it may be given to the researcher, or, if an independent person is preferred, to the Human Research Ethics Officer, Research Office, The Chancellery, The University of Newcastle, University Drive, Callaghan, NSW 2308, telephone (02 49216333, email Human-Ethics@newcastle.edu.au.
Dear Students/parents/caregivers,

(Name of school)…………………………………………..HSIE faculty has been invited to participate in an exciting research project identified above that is being conducted by Mr Ken Edge under the supervision of Dr James Ladwig from the Faculty of Education University of Newcastle.

What is the study about?

The study involves the researchers observing teachers in a number of the History and Geography classes in years 7 to 10. The observations are to be conducted twice a week during the term. The study will provide the school with valuable information that can be used to enhance the learning outcomes of all our students.

If you have any question about the research or any other concerns please feel free to contact the school or researchers.

Principal………………………………………………… Date.............................

Dr. James Ladwig
School of Education
Newcastle University
Callaghan, NSW 2308
49216650 (w)
49216895 (fax)
email: James.Ladwig@newcastle.edu.au

This project has been approved by the University’s Human Research Ethics Committee, Approval No H-046-06-05.

Should you have concerns about your rights as a participant in this research, or have a complaint about the manner in which it the research is conducted, it may be given to the researcher, or, if an independent person is preferred, to the Human Research Ethics Officer, Research Office, The Chancellery, The University of Newcastle, University Drive, Callaghan, NSW 2308, telephone (02 49216333, email Human-Ethics@newcastle.edu.au.
A4.4 Letter of Support-School Education Directors

Dear Principal,

A research project to examine to what extent ‘Quality Teaching’ is exhibited in classroom instruction in Stages 4/5 History and Geography requires willing classroom practitioners to have their lessons coded, using the ‘Quality teaching in NSW public schools: A classroom practice guide’ (NSWDET, 2003).

This research will be conducted by Mr Ken Edge and has been approved by both DET and the University of Newcastle.

As Quality Teaching is a Hunter / Central Coast Regional priority you may have staff willing to participate in having their lessons coded over a ten-week period and receive feedback at the end of the process.

We ask that you consider the possibility of your staff involvement in this valuable research.

Yours sincerely,

Mrs Liz Rushton
School Education Director Lake Macquarie

Mr Wayne Ible
School Education Director Newcastle
Dear, (Name of teacher)

Thank you for the expression of interest and welcome to the research team.

As you can appreciate there is a lot of variation in school period lengths and it has not been a simple task to organise the observations into a workable structure. The following details are of your classes and observation times.

Class: …………………………….  Day: ………………………………..
Period: ………………………….  Time: ………………………………..

If there are any problems with the classes /times could you please let me know ASAP.

The meeting I scheduled for the last week of term obviously did not take place due to organisational problems. I will check with all participants and try to reschedule a meeting during week two and four next term.

During the ten weeks of observation there will be occasions when a teacher is absent for various reasons, if this happens could you please contact me at home or e-mail. I have also attached a copy of a project information form that needs to be distributed to the parents/caregivers of students involved in the study.

I’m looking forward to working with you in the project.

Regards,

Ken Edge

49444345 (H)
49549966 (W)
email: ken.edge@newcastle.edu.au
Appendix 5

Field notes and Lesson Coding for a Sequence of three Stage 4 Geography Lessons

A5.1 Geographical Tools, Syllabus Topics and Outcomes

A5.2 Lesson Observation 1
   A5.2.1 Final Coding
   A5.2.2 Field Notes

A5.3 Lesson Observation 2
   A5.3.1 Final Coding
   A5.3.2 Field Notes
   A5.3.3 Worksheets

A5.4 Lesson Observation 3
   A5.4.1 Final Coding
   A5.4.2 Field Notes
   A5.4.3 Worksheets

A5.5 Exemplar Interview Transcript

A5.6 Worksheet Example
# Appendix 5 – Field notes and Lesson Coding for a Sequence of three Stage 4 Geography Lessons

## A5.1 Geographical Tools, Syllabus Topics and Outcomes

The related syllabus knowledge and skills for the Stage 4 Geography lessons are described in this section (NSWBoS, 2003a).

*Geography Years 7–10 Syllabus*

### Geographical skills

Geographical skills are an integral aspect of learning in Geography. The following geographical skills relate specifically to Stage 4 outcomes 4.1, 4.2 and 4.3 and Stage 5 outcomes 5.1, 5.2 and 5.3. They are to be integrated into teaching and learning across all focus areas.

### Stages 4–5

<table>
<thead>
<tr>
<th>Skills</th>
<th>Content</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Students develop skills in:</strong></td>
<td><em>The content described below should be integrated with the content in the focus areas.</em></td>
</tr>
<tr>
<td>• acquiring geographical information</td>
<td><strong>Students learn to:</strong></td>
</tr>
<tr>
<td>‒ by reflecting on prior learning</td>
<td>• consider:</td>
</tr>
<tr>
<td>‒ by asking geographical questions</td>
<td>‒ what do I already know/understand?</td>
</tr>
<tr>
<td></td>
<td>‒ what skills do I bring to this inquiry?</td>
</tr>
<tr>
<td></td>
<td>‒ what written and graphical resources do I already have?</td>
</tr>
<tr>
<td>• by identifying and gathering geographical information</td>
<td>• ask:</td>
</tr>
<tr>
<td></td>
<td>‒ what is there? where is it? why is it there?</td>
</tr>
<tr>
<td></td>
<td>‒ what are the effects of it being there? how is it changing over time? should it be like this?</td>
</tr>
<tr>
<td></td>
<td>‒ what groups are involved? what do different groups think? what action is appropriate?</td>
</tr>
<tr>
<td>• processing geographical information</td>
<td>• locate and gather information from a variety of primary and secondary sources, including maps, globes, plans, fieldwork, information and communication technology, books, 3D models, videos, photographs</td>
</tr>
<tr>
<td>‒ by analysing geographical information</td>
<td>• make and record observations about environments in written and graphical form</td>
</tr>
<tr>
<td></td>
<td>• evaluate the appropriateness of information gathered</td>
</tr>
<tr>
<td></td>
<td>• reflect on the appropriateness of information-gathering processes</td>
</tr>
<tr>
<td></td>
<td>• observe and interpret geographical relationships in maps</td>
</tr>
<tr>
<td></td>
<td>• observe and interpret geographical trends and relationships in tables and graphs</td>
</tr>
<tr>
<td></td>
<td>• analyse geographical data using simple mathematics</td>
</tr>
<tr>
<td></td>
<td>• process, present and analyse geographical information using information and communication technology (census data on a computer database, CD-ROMs)</td>
</tr>
<tr>
<td></td>
<td>• prepare maps and plans of real or imaginary places using pictures and/or symbols at a variety of scales, eg mind maps</td>
</tr>
<tr>
<td></td>
<td>• select and use appropriate graphical methods (incorporating information and communication technology) to present information in maps and diagrams</td>
</tr>
<tr>
<td></td>
<td>• draw conclusions and make generalisations</td>
</tr>
<tr>
<td>• by organising and synthesising geographical information</td>
<td></td>
</tr>
</tbody>
</table>

(source NSWBoS, 2003a, p. 20)
### Geography Years 7–10 Syllabus

**Students develop skills in:**
- communicating geographical information
  - by answering geographical questions

- by applying geographical information

- participating as informed and active citizens
  - by acquiring knowledge about civics
  - by applying this knowledge for active citizenship

**Students learn to:**
- present geographical information in the form of both oral and written reports accompanied by maps and graphs, including databases, flow charts, multimedia presentations, debates, role-plays, models and simulations
- communicate a logical argument/opinion in oral/written form to a variety of audiences, peers, teachers, parents and carers
- reflect on the appropriateness of different forms of communication
- apply generalisations to solve geographical problems and make reasoned decisions, reflect on sequences of activities undertaken during learning and at the culmination of learning and propose ways of applying this learning to new learning situations
- practise extended writing activities based on extended reading and research
- gather knowledge of civics and decision-making processes
- reflect on the meaning of citizenship and how this varies between groups
- propose and, where appropriate, take individual action about contemporary geographical issues, participate in community action about contemporary geographical issues (eg Streamwatch, Clean Up Australia)
- review and modify individual and group participation

(source NSWBoS, 2003a, p. 21)
Focus Area 4G4 Global Issues and the Role of Citizenship
Focus: Global geographical issues and appropriate methods of citizenship for their management.

**Outcomes**
A student:
4.2 organises and interprets geographical information
4.3 uses a range of written, oral and graphic forms to communicate geographical information
4.4 uses a range of geographical tools
4.7 identifies and discusses geographical issues from a range of perspectives
4.8 describes the interrelationships between people and environments
4.9 describes differences in life opportunities throughout the world
4.10 explains how geographical knowledge, understanding and skills combine with knowledge of civics to contribute to informed citizenship.

**Geographical tools in this focus area**
The geographical tools listed below are to be integrated into teaching and learning activities in this focus area. (For details of all tools see pages 18–19.)

**Maps**
- use an atlas
- use various types of maps: physical, political, topographic, thematic
- locate features on a map using latitude and longitude, area and grid references
- use the points of a compass to determine direction
- construct a sketch map

**Fieldwork**
- use geographical instruments
- collect and record data in the field

**Graphs and Statistics**
- identify and calculate maximum, total, range, rank, and average
- construct and interpret bar column, line, climatic and proportional graphs

**Photographs**
- draw a line drawing
- collect and interpret photographic images

The following ICT are suggested for integration in teaching and learning in 4G4:
- use a range of digital images, maps, sound and other appropriate multimedia sources to develop a multimedia presentation or webpage

(source NSWBoS, 2003a, p. 32)
### Students learn about:

**Global geographical issues**
- global geographical issues, which must include:
  - access to fresh water
  - climate change
  - energy use
  - human rights
  - indigenous people and self-determination
- the need to promote ecological sustainability

At least TWO global geographical issues selected from the list above:
- the nature of the issue
- different perspectives relevant to the issue
- the responsibility of governments to the issue
- the actions of individuals, groups and governments
- implications for social justice and equity

### Students learn to:

- recognise global geographical issues
- describe the nature of global geographical issues
- explain the links between human actions and the consequences for ecological sustainability on a global scale
- describe the spatial dimensions of the issue
- describe the ecological dimensions of the issue
- identify perspectives and bias about the issue, including in media reports
- describe the actions of individuals, groups and governments in relation to the issue
- communicate appropriately with organisations to participate as a global citizen

(source NSWBoS, 2003a, p. 33)
# A5.2 Lesson observation 1

## A5.2.1 Final Coding

Mr Dennis (E/0303/9/04)

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### Coding Sheet

<table>
<thead>
<tr>
<th>Element</th>
<th>Evidence: Coding notes</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1 Deep knowledge</td>
<td>Exposed focus at control points of lesson</td>
<td>4</td>
</tr>
<tr>
<td>1.2 Deep understanding</td>
<td>Most students able to process information, some students unable to recall</td>
<td>3</td>
</tr>
<tr>
<td>1.3 Problematic knowledge</td>
<td>Viewpoint or concept of Fishing Knowledge, VS sustainability for people in the culture</td>
<td>2</td>
</tr>
<tr>
<td>1.4 Higher-order thinking</td>
<td>Connection between fishing, resource, size, and healthy</td>
<td>2</td>
</tr>
<tr>
<td>1.5 Metalanguage</td>
<td>Goal: teach terms - mini lesson on</td>
<td>2</td>
</tr>
<tr>
<td>1.6 Substantive communication</td>
<td>Meaning of Fish, Others and Fish</td>
<td>3</td>
</tr>
<tr>
<td>2.1 Explicit quality criteria</td>
<td>Goals clearly set for the students</td>
<td>2</td>
</tr>
<tr>
<td>2.2 Engagement</td>
<td>Very few clearly off task</td>
<td>6</td>
</tr>
<tr>
<td>2.3 High expectations</td>
<td>Most students, or many? They</td>
<td>4</td>
</tr>
<tr>
<td>2.4 Social support</td>
<td>Most students some students did not</td>
<td>4</td>
</tr>
<tr>
<td>2.5 Students' self-regulation</td>
<td>Most students</td>
<td>4</td>
</tr>
<tr>
<td>2.6 Student direction</td>
<td>Low student direction</td>
<td>2</td>
</tr>
<tr>
<td>3.1 Background knowledge</td>
<td>Need to show</td>
<td>4</td>
</tr>
<tr>
<td>3.2 Cultural knowledge</td>
<td>Philippines agricultural, commercial</td>
<td>3</td>
</tr>
<tr>
<td>3.3 Knowledge integration</td>
<td>May be considered, gradually</td>
<td>2</td>
</tr>
<tr>
<td>3.4 Inclusivity</td>
<td>Again some ideas seem to exclude</td>
<td>5</td>
</tr>
<tr>
<td>3.5 Connectedness</td>
<td>Explain fishing with urban,</td>
<td>4</td>
</tr>
<tr>
<td>3.6 Narrative</td>
<td>How eels make</td>
<td>2</td>
</tr>
</tbody>
</table>
# Field Notes

## QT Classroom Observation Notes

- **Teacher Code:** E  
- **School Code:** 03  
- **Class Code:** 86T  
- **Date:** 3/9/04  
- **Time/Period:** P78  
- **Topic/Focus Area:** Use of daily journals.

<table>
<thead>
<tr>
<th>Notes</th>
<th>Links to elements</th>
</tr>
</thead>
</table>
| TT - Overview.  
- OHT on board. 'Human impacts...on coral!'  
- Migration cards  
- Shell.  
- Students read from sheet to complete scaffolds.  
- TT - Who know how cards are arranged?  
- ST - polyps, etc.  
- TT - Explains how they build reefs.  
- Students to complete 'all holes'  
- Hard sheet, complete scaffolds on board.  
| - Background knowledge from last period.  
- More from up stream and distribution. |
| ST asks students question.  
- ST - death of marine species + allelopathy  
- ST - newly created  
- ST - smaller, clips bring airways.  
- ST - kill algae/coral bleaching.  
| TT - Nobody has the first one  
- ST - pollution  
| TT - Visible population. |
**QT Classroom Observation Notes**

**Teacher Code:** F  
**School Code:** 03  
**Class Code:**  
**Date:**  
**Time/Period:**  

**Topic/Focus Area:**  

<table>
<thead>
<tr>
<th>Notes</th>
<th>Links to Elements</th>
</tr>
</thead>
</table>
| ST- Killo Habilis  
?? - Anybody else ?? Are we one kind is not bad kind  
?? Which car gets better/blank or white cars ??  
ST blank ??  
TT - What happens if you spill milk out ? Explain it in steps to links to concrete effects.  
TT - Students complete others box.  
TT - Clearly write- good statement examples of hearing!  
TT - Gradually in maths yet ?? linking to 4 in 2nd head to this group- local knowledge.  
- links to stockton bank being created away.  
TT - Nobody blames you for failures - nearly or into access. | Not involved to understand.  
Connectedness  
Communicative |

---

303
TT - Big picture/ leading - student respond
ST - Global warming/TT - goal
ST - Redfish in ocean
ST - Industry waste - chemicals
ST - Agricultural waste - some students try to add/teacher comes up with answer/ agricultural products
ST - Seawage
ST - What was the first thing people did on ocean? - transport TT
TT links to containers - falling off ships
2:25 - Couple of minutes to consolidate work based on readings.
4:26 - Feijoa - student asks - links to island name, Feijoa
2:28 TT pens down
TT concentrated on what we got out of TT activity, plus present on -
Steps - Turn off light switch.
<table>
<thead>
<tr>
<th>Notes</th>
<th>Links to elements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Video: Impacts on Ocean Resources</td>
<td>Explain different solutions</td>
</tr>
<tr>
<td>Human Impacts</td>
<td>Brief discussion</td>
</tr>
<tr>
<td>Solutions</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>ST: Fishing Money</td>
<td>Management strategies</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>2:33 - Start video</td>
<td>Fishing industry activities</td>
</tr>
<tr>
<td></td>
<td>Links to fishing</td>
</tr>
<tr>
<td>Surf</td>
<td>Dive</td>
</tr>
<tr>
<td>Surf</td>
<td>Ski</td>
</tr>
<tr>
<td>Scuba</td>
<td>Waterproof</td>
</tr>
<tr>
<td>Engagement</td>
<td>Writing</td>
</tr>
<tr>
<td>2:45 - Stop video: Impacts on ocean</td>
<td></td>
</tr>
<tr>
<td>TT</td>
<td>Link to management strategies</td>
</tr>
<tr>
<td>TT: Why come here, how fish move</td>
<td></td>
</tr>
<tr>
<td>TT: Technology</td>
<td></td>
</tr>
<tr>
<td>Video: Motorcycle Accident</td>
<td></td>
</tr>
<tr>
<td>Hood - Accident</td>
<td>Can't parallel</td>
</tr>
<tr>
<td>Crash</td>
<td>Clear up</td>
</tr>
<tr>
<td>Nick - Accident</td>
<td></td>
</tr>
<tr>
<td>Saw</td>
<td>New technology</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Clear up</td>
</tr>
<tr>
<td></td>
<td>New fish</td>
</tr>
<tr>
<td></td>
<td>Day fish</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>4:48</td>
</tr>
</tbody>
</table>

Date: 2/9/04
Transport Strategy 🥷 Fishery Models

TT: What is a gulf?
ST: Answer.
ST: Controls on pollutants.
ST: 'Filter of sewage'

No 3-year fishing in the North Sea.

Stop Video

TT: Sustainable Fishing (develop) 🥷 Management

TT: Marine Research/Same fish

Place Box to preserve fish stocks. Hunting development stages.

Stop Video

TT: Philippines - need to develop same fishery as North Sea

2.54 - Effect on less fishing on families 🥷 Cultivation Problems

2.56 - Some students studying to fish + of tanks now - begin chilling.

Stop video

3:00pm - ST: Nature activities

ST: Fishing - boxing up HMS.
<table>
<thead>
<tr>
<th>Notes</th>
<th>Links to elements</th>
</tr>
</thead>
<tbody>
<tr>
<td>TT: What is happening to fish stocks?</td>
<td>- Instruction</td>
</tr>
<tr>
<td>ST: Adequately</td>
<td>- Tum no more noise</td>
</tr>
<tr>
<td>ST: People</td>
<td>- Place?</td>
</tr>
<tr>
<td>ST: Would they be paid good?</td>
<td>- Cultural links</td>
</tr>
<tr>
<td>TT: links to use of poisons, be poverty</td>
<td>- Management strategies</td>
</tr>
<tr>
<td>ST: Problems may have?</td>
<td>- Overview</td>
</tr>
<tr>
<td>TT: Safe recently discovered?</td>
<td>- Discussion</td>
</tr>
<tr>
<td>ST: Link to OHS</td>
<td>- Cultural links, happen</td>
</tr>
<tr>
<td>TT: Management strategies - Agriculture</td>
<td>- Briefly</td>
</tr>
<tr>
<td>TT: This to engage Tom</td>
<td>- Community</td>
</tr>
<tr>
<td>TT: Also, John to give answer</td>
<td>- Management strategies</td>
</tr>
<tr>
<td>ST: Also about lessons</td>
<td>- Reflect on this</td>
</tr>
</tbody>
</table>

**QT Classroom Observation Notes**

- Teacher Code: F
- School Code: 03
- Class Code: 
- Date: 7/9/04
- Time/Period: P7+8

**Topic/Focus Area:**
### A5.3 Lesson observation 2

Note: TT-teacher talk; ST- student talk. Copies of worksheets are included.

### A5.3.1 Final Coding

Mr Dennis (E/03 15/09/04)

<table>
<thead>
<tr>
<th>Element</th>
<th>Evidence: Coding notes</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1 Deep knowledge</td>
<td>[open ended question - two may exceed for the lesson - classwork etc.]</td>
<td>3/k</td>
</tr>
<tr>
<td>1.2 Deep understanding</td>
<td>[applied question - feedback - major round]</td>
<td>3/k</td>
</tr>
<tr>
<td>1.3 Problematic knowledge</td>
<td>[Fold not open to quick fix]</td>
<td>1</td>
</tr>
<tr>
<td>1.4 Higher-order thinking</td>
<td>[skills based - small scale / large facility practice - scale maps]</td>
<td>3/k</td>
</tr>
<tr>
<td>1.5 Metaslanguage</td>
<td>[Referential explanations]</td>
<td>2</td>
</tr>
<tr>
<td>1.6 Substantive communication</td>
<td>[Referential, correct, inform, answer, explanations of enough to sustain]</td>
<td>3</td>
</tr>
<tr>
<td>2.1 Explicit quality criteria</td>
<td>[Most / few not doing - activity]</td>
<td>4/k</td>
</tr>
<tr>
<td>2.2 Engagement</td>
<td>[Most / few not doing - activity]</td>
<td>4/k</td>
</tr>
<tr>
<td>2.3 High expectations</td>
<td>[Most / few not doing - activity]</td>
<td>4/k</td>
</tr>
<tr>
<td>2.4 Social support</td>
<td>[Most / few not doing - activity]</td>
<td>4/k</td>
</tr>
<tr>
<td>2.5 Students’ self-regulation</td>
<td>[Most / few not doing - activity]</td>
<td>5/k</td>
</tr>
<tr>
<td>2.6 Student direction</td>
<td>[Most / few not doing - activity]</td>
<td>2/k</td>
</tr>
<tr>
<td>3.1 Background knowledge</td>
<td>[Most / few not doing - activity]</td>
<td>4/k</td>
</tr>
<tr>
<td>3.2 Cultural knowledge</td>
<td>[Most / few not doing - activity]</td>
<td>1/k</td>
</tr>
<tr>
<td>3.3 Knowledge Integration</td>
<td>[Most / few not doing - activity]</td>
<td>2/k</td>
</tr>
<tr>
<td>3.4 Inclusivity</td>
<td>[Most / few not doing - activity]</td>
<td>5/k</td>
</tr>
<tr>
<td>3.5 Connectedness</td>
<td>[Most / few not doing - activity]</td>
<td>2/k</td>
</tr>
<tr>
<td>3.6 Narrative</td>
<td>[Most / few not doing - activity]</td>
<td>3/k</td>
</tr>
<tr>
<td>Notes</td>
<td>Links to elements</td>
<td></td>
</tr>
<tr>
<td>----------------------------------------------------------------------</td>
<td>-------------------</td>
<td></td>
</tr>
<tr>
<td>TT: Explains route grade: [100] [grade]</td>
<td>v</td>
<td></td>
</tr>
<tr>
<td>TT: How many cm in a m?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>St: 100</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TT: Plot in km</td>
<td></td>
<td></td>
</tr>
<tr>
<td>St: 1000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TT: What does this mean?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$+$: What is the area km²?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>St: 1 km²</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TT: What is the area km²?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$+$: What is the area km²?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>St: 1 km²</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TT: Lines from E or W?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$+$: Large plot answer.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TT: Lines from N or S, always East before North/West.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TT: Need to climb before you (Climb - or E before N?)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TT: Find point on the map and explain 4/6 figure grid references.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
10.25
TT - shop class had a whole
area - 41,000 ft.
res. (understand - class)

10.15
TT - innovators need to be
connected to companies

ST - strong exponents of
ST - strong exponents of

ST - need to develop
TT - need to develop

TT - need to develop

TT - need to develop

TT - need to develop

TT - need to develop
<table>
<thead>
<tr>
<th>Notes</th>
<th>Links to elements</th>
</tr>
</thead>
<tbody>
<tr>
<td>10.30 TT - 1:25,000 explained - links to maps</td>
<td></td>
</tr>
<tr>
<td>(Asked students the difference between)</td>
<td></td>
</tr>
<tr>
<td>Small &amp; larger scale maps?</td>
<td>Orthographic grid side - not explained</td>
</tr>
<tr>
<td>10.40 TT - Revising answers with class</td>
<td></td>
</tr>
<tr>
<td>ST - Table question - gives a TT funny story</td>
<td>2 students incorrent</td>
</tr>
<tr>
<td>TL - Shilton river</td>
<td></td>
</tr>
<tr>
<td>ST - Shilton - wrong</td>
<td>803.569 not correct</td>
</tr>
<tr>
<td>TT - Mental railway station</td>
<td></td>
</tr>
<tr>
<td>ST - Andover</td>
<td></td>
</tr>
<tr>
<td>TT - When the Hunter &amp; Dennis William River near London Qr today establish give the answer</td>
<td>'Can Florence' when two rivers meet - 'part language'</td>
</tr>
<tr>
<td>ST - Turn answer on chin and</td>
<td>Substantiaa Community</td>
</tr>
<tr>
<td>Sales why?</td>
<td></td>
</tr>
<tr>
<td>1050 - New working on smaller scale map - handwritten</td>
<td></td>
</tr>
<tr>
<td>didn't review exercises</td>
<td></td>
</tr>
</tbody>
</table>
A5.3.3 Worksheet

Year 8 Geography – Topographic Map Skills Review.

A. Examine the Newcastle map sheet and complete the following exercises.

1. What is the scale of this map? Express this as both a:
   
   a. Statement .................................................................................................
   
   b. a ratio. .................................................................................................

2. Give a (4 figure) Area Reference for the following features:
   
   a. Newcastle Beach ..............................................................................
   
   b. Clarence Town ...................................................................................
   
   c. Karuah Bridge ...................................................................................
   
   d. Broadmeadow Railway Station ..........................................................

3. Give a 6 figure, map reference for the following feature:
   
   a. Lambton High School ......................................................................
   
   b. Maitland Railway Station .................................................................
   
   c. Nobbys Head ....................................................................................

4. Name the feature that is located at the following grid references:
   
   a. 719481 ............................................................................................
   
   b. 821751 ............................................................................................
   
   c. 905705 ............................................................................................
   
   d. 632598 ............................................................................................

5. State the direction from Lambton High School to:
   
   a. Nobby’s Head ..................................................................................
   
   b. Karuah Bridge ..................................................................................
   
   c. Mount Sugarloaf ..............................................................................
   
   d. Broadmeadow Railway Station .......................................................#

6. State the distance from Lambton High School to:
   
   a. Nobby’s Head ..................................................................................
   
   b. Karuah Bridge ..................................................................................
   
   c. Mount Sugarloaf ..............................................................................
   
   d. Broadmeadow Railway Station .......................................................#

B. Examine the Wallsend map sheet and complete the following exercises.

1. What TWO types of map are shown on this sheet? Explain how they differ from each other.
   
   ..............................................................................................................
   
   ..............................................................................................................

2. What is the scale of this map? Express this as both a:
   
   a. Statement ..........................................................................................
   
   b. a ratio. .............................................................................................

© T. Bradley Publications 2004
3. Give a (4 figure) Area Reference for the following features:
   a. John Hunter Hospital
   b. Charlestown Square Shopping Centre
   c. Broadmeadow race Course
   d. Former BHP steelworks site

4. Give a 6 figure) map reference for the following feature:
   a. Lambton High School
   b. Garden City Shopping Centre
   c. Mount Sugarloaf
   d. Your House

4. Name the feature that is located at the following grid references:
   a. 691482
   b. 602558
   c. 806571
   d. 720531

5. State the direction from Lambton High School to:
   a. John Hunter Hospital
   b. Wallsend High School
   c. Mount Sugarloaf
   d. Broadmeadow Railway Station

6. State the distance from Lambton High School to:
   a. Garden City Shopping Centre
   b. Jesmond Roundabout
   c. Mount Sugarloaf
   d. Broadmeadow Railway Station
   e. Your House
c. **News Flash!!!!!!!!!!!!**

Newcastle has been awarded the Olympic Games for 2012!!
Your job is to design the course for TWO of the following THREE events.
1. Use either the Wallsend or Newcastle map sheet to design the course for:
   a. the marathon (42.1 km)
   b. the triathlon, consisting of:
      • 1.5km swim leg
      • 50 km bike leg
      • 10km run
   c. The 200km road race (bikes)
2. Your start and finish points should be able to cater for humungous crowds, and show the worldwide TV audience the magnificence of Newcastle.
3. To accompany your courses, you will need to write precise descriptions for the competitors so they can prepare well for the event.

**Presentation:**
1. You should be able to show the course drawn onto the topographic maps.
2. Make your own detailed sketch maps, to appropriate scale (i.e. the same scale as your base map).
3. Your written descriptions will include the appropriate geographical terminology, such as distance, directions, grid references etc.
A5.4 Lesson observation 3

A5.4.1 Final Coding

Mr Dennis (E/03 23/9/04)

<table>
<thead>
<tr>
<th>Element</th>
<th>Evidence: Coding notes</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1 Deep knowledge</td>
<td>Knowledge of: Equine studies. Equine parts related.</td>
<td>4</td>
</tr>
<tr>
<td>1.2 Deep understanding</td>
<td>You want a number of students to look at the board. Most could.</td>
<td></td>
</tr>
<tr>
<td>1.3 Problematic knowledge</td>
<td>Can be graph difficult. Some knowledge - whole line omitted.</td>
<td>2</td>
</tr>
<tr>
<td>1.4 Higher-order thinking</td>
<td>Links equine to all parts of the board and all text in the difficult unit.</td>
<td>3</td>
</tr>
<tr>
<td>1.5 Metalanguage</td>
<td>Equine explained - some annotation. Inaccurate.</td>
<td>2</td>
</tr>
<tr>
<td>1.6 Substantive communication</td>
<td>Inaccurate. Teacher should not show a distinction in group teacher/class discussions.</td>
<td>3</td>
</tr>
<tr>
<td>2.1 Explicit quality criteria</td>
<td>Teacher controls content of lesson. General standard via board summary.</td>
<td>2</td>
</tr>
<tr>
<td>2.2 Engagement</td>
<td>Whole spread most students. Complete task book.</td>
<td>4</td>
</tr>
<tr>
<td>2.3 High expectations</td>
<td>Whole class some randomise.</td>
<td>3</td>
</tr>
<tr>
<td>2.4 Social support</td>
<td>Strong.</td>
<td>5</td>
</tr>
<tr>
<td>2.5 Students’ self-regulation</td>
<td>No problem</td>
<td>5</td>
</tr>
<tr>
<td>2.6 Student direction</td>
<td>Pace of the lesson, teacher controlled most of the lesson.</td>
<td>2</td>
</tr>
<tr>
<td>3.1 Background knowledge</td>
<td>Mixed types, equine whole text experienced.</td>
<td>4</td>
</tr>
<tr>
<td>3.2 Cultural knowledge</td>
<td>Traditional cultural experience.</td>
<td>2</td>
</tr>
<tr>
<td>3.3 Knowledge integration</td>
<td>Shocks progress conclusions between graph/parts - some experienced.</td>
<td>3</td>
</tr>
<tr>
<td>3.4 Inclusivity</td>
<td>More clothes, no gender bias.</td>
<td>4</td>
</tr>
<tr>
<td>3.5 Connectedness</td>
<td>Explorers - whole, some balance.</td>
<td>3</td>
</tr>
<tr>
<td>3.6 Narrative</td>
<td>Minor part of lesson.</td>
<td>2</td>
</tr>
</tbody>
</table>

Quality teaching in NSW public schools
QT Classroom Observation Notes

Teacher Code: E  School Code: 03  Class Code: Y8C004
Date: 23/9/04  Time/Period: 2/4B
Topic/Focus Area: B12 - Whaling  Focus Area: 4G4 - Use of Slang

Notes

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>6:45</td>
<td>TT - How's got up early this morning?</td>
</tr>
<tr>
<td>4:30</td>
<td>ST - 6:45 am 4:30 am - Tom.</td>
</tr>
<tr>
<td></td>
<td>TT - Ask a few to skip talks while talking.</td>
</tr>
<tr>
<td></td>
<td>ST - Health conditions -</td>
</tr>
<tr>
<td></td>
<td>TT - Special day today for</td>
</tr>
</tbody>
</table>

- Geography
  - Subtopics -
  - Equinox -

Brief S.C / rew

- Tom W asked to explain concepts?

- Equinox -
- TT - Is it the shortest or the longest?

- ST - Not silly answers -
- TT - Equi - equal i.e. equal night/day

Rises 6.00 am / set 6.00 pm.
**QT Classroom Observation Notes**

**Teacher Code:** E  **School Code:** 03  **Class Code:** Y8G344

**Date:**  **Time/Period:** 102+3

**Topic/Focus Area:**

<table>
<thead>
<tr>
<th>Notes</th>
<th>Links to elements</th>
</tr>
</thead>
<tbody>
<tr>
<td>TT - Ask Emma what time in</td>
<td>HOT</td>
</tr>
<tr>
<td>Russia - 6 am.</td>
<td></td>
</tr>
<tr>
<td>Two other examples by</td>
<td></td>
</tr>
<tr>
<td>Students answered.</td>
<td></td>
</tr>
<tr>
<td>TT - Why does this happen?</td>
<td></td>
</tr>
<tr>
<td>St - because of the tilt of</td>
<td></td>
</tr>
<tr>
<td>the axis.</td>
<td></td>
</tr>
<tr>
<td>TT - Yes till 23.58</td>
<td></td>
</tr>
<tr>
<td>Rotation of the earth.</td>
<td></td>
</tr>
<tr>
<td>TT - Equinox Pizza??</td>
<td></td>
</tr>
<tr>
<td>St - Two equinox</td>
<td></td>
</tr>
<tr>
<td>St - Spring - Vernal Autumn</td>
<td></td>
</tr>
<tr>
<td>TT - Want about other pub</td>
<td></td>
</tr>
<tr>
<td>&amp; the wind.</td>
<td></td>
</tr>
<tr>
<td>St - Answer: Autumn</td>
<td></td>
</tr>
</tbody>
</table>

Writing - Discussion of 4 links to
Whales of Newcastle

St - Courtney - indicates Whales off Newcastle now.
Table with notes:

<table>
<thead>
<tr>
<th>Notes</th>
<th>Links to elements</th>
</tr>
</thead>
<tbody>
<tr>
<td>TT - Discussed how to tackle questions, cues, bullet points. Need to</td>
<td>- Explicit: Quality of student answer in some groups.</td>
</tr>
<tr>
<td>explain sentence, perhaps</td>
<td></td>
</tr>
<tr>
<td>10:05</td>
<td></td>
</tr>
<tr>
<td>- Students to work independently on workbook.</td>
<td></td>
</tr>
<tr>
<td>TT - Discussion with some students in back. Christophel explains Tom's</td>
<td></td>
</tr>
<tr>
<td>current work.</td>
<td></td>
</tr>
<tr>
<td>10:10</td>
<td></td>
</tr>
<tr>
<td>Teacher stops class/Activity 5.</td>
<td></td>
</tr>
<tr>
<td>1. Easy</td>
<td></td>
</tr>
<tr>
<td>2. Take - more to cour, they</td>
<td></td>
</tr>
<tr>
<td>to answer question. How did you get the answer?</td>
<td></td>
</tr>
<tr>
<td>ST - Student explains divide geom/numbrsic</td>
<td></td>
</tr>
<tr>
<td>TT - Scaffold - answer on board - put two sentence together that in</td>
<td></td>
</tr>
<tr>
<td>give by students.</td>
<td></td>
</tr>
</tbody>
</table>
**QT Classroom Observation Notes**

**Teacher Code:** E  
**School Code:** 03  
**Class Code:**  
**Date:** 23/01/04  
**Time/Period:**  
**Topic/Focus Area:** 4TH ANSWER

<table>
<thead>
<tr>
<th>Notes</th>
<th>Links to elements</th>
</tr>
</thead>
<tbody>
<tr>
<td>TT - Key points from para 2. <strong>Country can you give me just answer.</strong></td>
<td></td>
</tr>
<tr>
<td>TT - Paragraph 3: Karl - one word?</td>
<td>IRE</td>
</tr>
<tr>
<td>ST - Harpoon.</td>
<td></td>
</tr>
<tr>
<td>TT - Technology.</td>
<td></td>
</tr>
<tr>
<td>ST - Why did you say harpoon.</td>
<td></td>
</tr>
<tr>
<td>ST - Underrated.</td>
<td></td>
</tr>
<tr>
<td>ST - Why Karl? Anything else</td>
<td></td>
</tr>
<tr>
<td>ST - Books, explosives, Harpoons.</td>
<td></td>
</tr>
<tr>
<td>TT - Explain written board.</td>
<td></td>
</tr>
<tr>
<td>TT - Para 4.</td>
<td></td>
</tr>
<tr>
<td>ST - Answers - not engage.</td>
<td></td>
</tr>
<tr>
<td>TT - One word; stop - adds information about IRE.</td>
<td></td>
</tr>
<tr>
<td>ST - Somewhat; asked about problem.</td>
<td></td>
</tr>
<tr>
<td>TT - Clearly, paragraph new model.</td>
<td></td>
</tr>
<tr>
<td>- Recognize traditional communities that need to hunt.</td>
<td></td>
</tr>
</tbody>
</table>

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**S/C - LK - DK**

---

**323**
Introduction

The hunting of whales for oil has been going on for more than 700 years. Whaling has not caused the extinction of any species of whales but has caused their numbers to become so low that it is not commercially viable to hunt commercially. This is known as Commercial Extinction. Even though no species has become extinct, many local populations of whales have been completely removed.

Whaling History

It is thought that the Japanese first started whaling before the birth of Christ. Norwegians and the Basque people of Spain and France started whaling in the first millennium. It was not until the 17th century that the Americans, British and Dutch people started to hunt whales for oil. During this time the hunters selected the Northern Right Whale because it was a slow swimmer and easier to hunt. It was called the Right whale because it was the “right whale” to hunt. Only about 550 of these Northern Right Whales exist in the Northern Oceans today and there has been no sign that this species is recovering.

Modern Whaling

The harpoon gun and explosive harpoon were invented in 1868 and this is when it is said that modern whaling began. The combination of steam driven ships, rather than sailing ships, and the harpoon gun, made it possible for hunters to catch the faster-swimming species of whales. Many countries also developed what are known as “factory ships”. These ships made it possible for the hunters to cut up and process the whales into oil without going back to the harbour. It also meant that these ships could travel much further from home and stay at sea for many months at a time.
In 1946 an organisation was formed called the “International Whaling Commission” (I.W.C.). Originally this was a group of nations who were at the time hunting for whales. The I.W.C. set quotas (limits) on the number of whales that each country was allowed to catch. Unfortunately they set the numbers far too high and the number of whales declined very rapidly. The whaling countries hunted down one species after another, as the larger slower whales become “commercially extinct” they set after the smaller faster whales.

Over time the IWC was joined by other non-whaling nations turning the organisation into more of a conservation organisation. In 1982 the IWC asked that there be a ban on commercial whaling. By 1994 there had a definite increase in the number of some species including the Blue, Grey and Humpback. The only species not recovering include the Northern Atlantic Right Whale and the Southern Blue Whale. Since the number appeared to be going up the IWC has been discussing the lifting of the bans.

Illegal Whaling
Despite the IWC’s ban on whaling illegal whaling is going on. Information has recently been revealed that the Whaling fleet of the CIS, which operated from 1948 to 1973 in the Southern Ocean, reported taking 2710 Humpback Whales while they actually took nearly 50 000. This may be the cause of the Blue Whales inability to recover in the Southern Oceans. The Japanese have been hunting Minke Whales by claiming they hunt them for scientific purposes. Biologists have recently taken samples from the Whale meat sold in Japan finding that the whale meat is often not Minke but Blue, Humpback, Fin and dolphin meat.

Traditional Hunters
Many traditional cultures have been whaling on a subsistence scale for a very long time. Whaling is very much a way of life for many of the traditional cultures of the far Northern Hemisphere. Some conservationist would like a complete ban on whaling. People from some of the traditional cultures like the Inuit people (Eskimos) see Whaling as a part of their culture and want to continue whaling. Other people see whaling as cruel and unnecessary because of the often slow and agonising death caused to whales by traditional hunting methods. It is a very difficult issue to resolve because people have such vastly different views. The ICW have given some traditional whale hunters exemptions from the ban to enable them to continue whaling as part of their heritage. Strict quotas (limit on the number) have been placed on these people however.
Reported Whale Catch from 1910 until the IWC ban

<table>
<thead>
<tr>
<th>Year</th>
<th>Blue</th>
<th>Fin</th>
<th>Sel</th>
<th>Minke</th>
</tr>
</thead>
<tbody>
<tr>
<td>1910</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>1915</td>
<td>3</td>
<td>7</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>1920</td>
<td>6</td>
<td>4</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>1925</td>
<td>8</td>
<td>6</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>1930</td>
<td>11</td>
<td>14</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>1935</td>
<td>32</td>
<td>14</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>1940</td>
<td>16</td>
<td>32</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>1945</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>1950</td>
<td>9</td>
<td>26</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
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<td>3</td>
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<td>4</td>
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<tr>
<td>1965</td>
<td>2</td>
<td>28</td>
<td>12</td>
<td>4</td>
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<tr>
<td>1970</td>
<td>1</td>
<td>6</td>
<td>28</td>
<td>5</td>
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<tr>
<td>1975</td>
<td>1</td>
<td>4</td>
<td>8</td>
<td>14</td>
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<tr>
<td>1980</td>
<td>0</td>
<td>2</td>
<td>4</td>
<td>12</td>
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<tr>
<td>1985</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>7</td>
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</tbody>
</table>

(Thousands of whales)

Exemptions to the IWC ban on hunting whales

<table>
<thead>
<tr>
<th>Cultural group</th>
<th>Quota 1998-2002 (total for 5 years)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alaskan Eskimos and Chkotka peoples</td>
<td>620</td>
</tr>
<tr>
<td>Greenlanders</td>
<td>155</td>
</tr>
<tr>
<td>St Vincent &amp; The Grenadines</td>
<td>4</td>
</tr>
<tr>
<td>Other Traditional cultural groups</td>
<td>620</td>
</tr>
</tbody>
</table>

SKILLS ACTIVITY 5: Use the data found in the tables and graph above to complete the following.

1. How many whales are Greenlanders allowed to kill between 1998 and 2002?
2. How many whales are Greenlanders allowed to kill per year?
3. Why do you think some groups are allowed to kill more than others do?
4. The data for the Fin whale has been marked on the graph. Join these dots with a line to show the trend.
5. Use the table to plot the information for the Blue whale.
6. Why do you think the number of all whales caught went down around 1945?
7. If the biggest whales were hunted first, make a list of whales from the largest to the smallest. (Hint: look at the graph)
8. How many whales were caught in 1965? (the total amount)
9. How many Fin whales were caught between 1910 and 1985?
10. Construct a column graph showing the total number of each species of whale caught from 1910 to 1985.
They call it research.... the world calls it slaughter

| Within hours of being harpooned yesterday, a dissected Minke whale is the victim of “scientific research” on board a Japanese whaling boat in southern Antarctic waters. | was necessary for scientific research. “It is important research for Japan and the rest of the world”, the Japanese consul in Sydney said. “Whaling is not only in Japan. Norway, Russia and the Unites States are doing it as well.” Japan was the only nation to vote against the sanctuary and licensed its whalers to kill 330 whales during the summer for scientific research under Article 8 of the 1946 Whaling Convention. But an International ban on | Commercial hunting was introduced in 1886. The Japanese said their research aimed to prove the Minke whale should be harvested based on population trends. It is believed that there are about 700 000 globally. The research includes examining the whales’ feeding habits, sex, size and population in a bid to determine whether they should be harvested. |

ACTIVITY: Answer these questions from the information in the article above

1. Which country is hunting Minke whales?
2. Why do they say they are hunting these whales?
3. According to the Japanese consul, which other countries are also hunting whales?
4. What do the Japanese hope to prove?
5. How many Minke Whales exist today?
6. Do you think Minke Whales should be hunted? Explain why you believe this
7. Do you think the journalist who wrote this article likes whaling or not? Give reasons for your answer.
8. Suggest ways a person could have a say in whether whaling is to continue or not.

Adapted from (The Daily Telegraph Mirror, 16/2/95)
ACTIVITY 6: The following sentences are all incorrect. Find the correct information in the text you have just read and then change the sentence so that it is correct.

1. Commercially extinct means that there are not enough whales to sell at the shops
2. Many species have become extinct because of whaling
3. The first country to hunt for whales was the Dutch
4. The Right Whale has this name because they only turn to the right when cornering
5. There has been a dramatic increase in the number of Right Whales in recent history
6. Whalers started hunting the smaller whales because they are less tough to eat because they are small
7. The only advantage of factory ships was that they could process more whales
8. IWC is short for Interesting Whale Collectors
9. The Humpy, Fine, Blu and Write are all types of whale
10. The Inuit are whale conservationists who want a complete ban on whaling

The following sentences contain facts which should have been included as part of the document you have just read through. Each sentence belongs under one of the headings given in this document. Complete the table below by writing the correct heading name next to the sentence. The first one has been done for you as an example.

<table>
<thead>
<tr>
<th>Heading</th>
<th>Sentence/Fact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Whaling History</td>
<td>During the 1950’s whale oil started to be used to make soaps and other cosmetics.</td>
</tr>
<tr>
<td></td>
<td>Norway and Iceland started whaling again in 1993 despite the IWC rulings.</td>
</tr>
<tr>
<td></td>
<td>During the 1930’s and 1940’s between 20 and 30 thousand whales were hunted down and killed for their oil.</td>
</tr>
<tr>
<td></td>
<td>To reduce this, Norway has started a project where each whale brought into the harbour is DNA tested. Whale meat found in market would be checked to ensure it is Minke Whale meat.</td>
</tr>
<tr>
<td></td>
<td>Alaskan Eskimos are permitted to kill a maximum of 41 bowhead whales per year.</td>
</tr>
<tr>
<td></td>
<td>The whaling industry is an example of one of the worst cases of wildlife exploitation in the history of the world.</td>
</tr>
<tr>
<td></td>
<td>Whale hunting today is usually much more humane than in the past because the animals are killed much more quickly.</td>
</tr>
<tr>
<td></td>
<td>Many harpooned whales were lost in the past as they sank and could not be recovered. Today they are hit with a canister of compressed air which inflates the inside of the whale and stops it from sinking</td>
</tr>
<tr>
<td></td>
<td>The baleen of the whales was used to make horsewhips and corsets. The wax in the head of the sperm whale was used to make smokeless candles.</td>
</tr>
</tbody>
</table>
ER  Mr Dennis, thank you for being involved today. If we can just have a look at the first question in the first section and explore the Quality Teaching model and your understanding of good teaching. In your words could you explain what constitutes high quality teaching?

EP  I think that is always a hard question to answer, because the way I always see it is if you could say, is teaching his profession, here’s the rule book and here’s how you be a top quality teacher and follow these steps anyone can do it. To me it is not like that, the idea of saying here is the list of 5 steps A B C D to N and then pow, you are a quality teacher, that anyone can do it, it is not as easy. So I think you have to break it down and say OK, what common qualities you find in people that you can perceive as being quality teachers. I think you can come up with a completely different list there than want you might find in the Quality Teaching model for instance, you have to look at some documents around that say about what constitutes a quality teacher as opposed to Quality Teaching and you could argue that they are different things. Quality teachers are interested in their subject, have an interest in the kids, an interest in the actual process of teaching, a willingness to become engaged in your subject and a willingness to become engaged with the students. It all comes back to one thing and you can tie that to the Quality Teaching model with deep knowledge and you have got to have deep knowledge of your subject content and you got to have an enthusiasm for that deep knowledge to convey it.

ER  In that you are suggesting there some of the understanding the Quality Teaching model and how it might be able to be used in the classroom situation. Could you explain how the Quality Teaching model, as you have used it or worked with it has helped you within the classroom situation? Can you sort of allude to or suggest examples of how you have used it, not just make it just focus on a classroom, maybe for evaluation purposes, how it has helped you overall and enhanced student learning?

EP  The way I look at the Quality Teaching model is when you got it, we had a look at it is a reminder of what good practice is and so what it does is act as a lode stone or something that keeps you pushing towards, saying, OK this is what I have been trying to do my whole teaching career but a reminder of what constitutes Quality Teaching and so you go back to that Quality Learning Environment and deep understanding and the connectedness of the subject with the kids. As I said it is a constant reminder to say Oh this is what we should be doing in the classroom. I suppose as far as making a specific use of it is concerned. I think there has always been a battle with us teachers to be entertainers as well as teachers. You know what I mean, it’s Friday afternoon and you’ve got year 8 and they say it’s boring, we’ve got to do something exciting and I think you have got to say, where does that tie in with Quality Teaching if you are talking about stretching the kids intellectually. I think what the model is all about, its saying we are not just there to entertain them, not just there to say alright will the kids find this interesting, it’s there to say are we going to get quality lectures or quality lessons. I should say and I don’t know if what I am saying is making sense, but I am just trying to get to the point - it is that reminder that you have got to get in there and try and achieve those goals, rather than just saying Oh I was going to get in there be interesting for the kids. Knowing that you can find something and they will say Wow this was interesting. I don’t know that it is necessarily if you have a look back at the 3 aspects of the model.
ER  The 3 dimensions are what you are indicating. I want to just work around a few points in terms of your professional development. In terms of your past experiences and experiences you had with professional development with the Quality Teaching model itself, how do you feel about the way the model was introduced you talked about engagement of teachers as opposed to engagement with the model. How do you feel about comparisons, say on past professional experience and the way the model has been working within the school and imbedded in teaching and programs.

EP  I think in this case there are a lot of positive things you can say about the way it was introduced. It was actually, here is the policy, here is the document, here are the elements of Quality Teaching and here are the 3 dimensions and you could actually sit down you could do the reading and you could relate it back to what happens within the classroom. I can go back to say 10 years ago or there about and we had another big wave to define all teaching, authoritative learning. The way it was introduced was sort of like, the buzz word on the street, come and here about authoritative learning and different people would mention it, you would go to lectures, presentations and another person saying no, what they are saying about authoritative learning isn't really right, I've got the true story of what authoritative learning or AL they shortened it to. So you understand what I mean, there would be cycles going around, saying no I've got the true picture of authoritative learning and don't you listen to those people and here's what it is and your scratching your head saying, well it is sort of what I had in the Quality Teaching model. A lot of what we had in that authoritative learning model was a reminder of quality teaching practices. What I am trying to say, is it was very non structured attempt to introduce new teaching ideas into the classroom. The Quality Teaching model as I said, there it is in a package, it has got a foundation if you like, you can always refer back to it and you know what it is.

ER  In terms of whole school and the individual, how was it presented and how was it implemented across the school? Do you think that the approach at the moment is ongoing and you can actually work it, say this year next year and the year after, or it is just going to sit there like you were suggesting with authoritative learning stuff.

EP  That is a hard question to answer because there are people in this school, there are people in this staffroom that will say, Yep I know all about the Quality Teaching model and other people will say “what is Quality Teaching?”, as though they had never heard of it. I guess, the answer comes on from memory because trying to think how it was introduced, it was introduced at a School Development Day, I remember we did a session over at Kings View High School (not the original school name) that was basically a tie in with the two schools. I think we had the presentation of the Queensland model by Sue Holmes (pseudonym). I can’t tell you exactly the way it went but that is just my memory of it certainly the school level, it was introduced at the executive level and from there it was a responsibility of each of the Head Teachers to disseminate through the faculty. So I guess you will get varying degrees success because you are depending upon what attitude it is taken through the various Head Teachers. The school as a whole tried to make Quality Teaching a priority, we have had an ongoing program that as you go through different teachers are encouraged to take part and to get no more of that model but to act as teams within the school with people who have already been through the Quality Teaching process. I don’t know it is a process of encouraged osmosis I guess.

ER  Has anyone done any classroom observations and have people worked as a team developing lessons, or people presenting or working along those lines, with other people looking at it and trying to work out what is happening with the structure of lessons with the model?

EP  I would say yes. As I said we have had 7, 8 or 9 people at a time go off and do the
training for the day and what has been encouraging is that you team up with someone else that has been through the training and going through the package in those pairs, with encouragement to go and observe lessons and so on.

ER That sounds like encouragement. Do you know if anybody that was involved? There is usually dialogue around the staffrooms or around the school with people who are involved, that sort of deprivatisation of classrooms is always a difficult for teachers to work with.

EP Well I suppose encouragement is the right word there, because it is not as though it has been OK. Here is the policy that you will all follow and we'll be watching to make sure you all do it, it is all about personal and professional development, or personal professional development and I think that should probably, be the best way to do. That is, in a non-threatening environment, in a non-threatening way so that people are more likely to be conducive to explore new ideas. I think that if you can do that on a peer basis or a peer relationship basis it is probably a better way and better chance.

ER You are suggesting that a lot of the professional development that have taken place in the past is sort of one off snap shots and then the next day you sort of do a bit of it and over a period of time it slowing gets lost. Do you feel that some of the professional development that has been working with the Quality Teaching model may fit into that line at the moment within the school?

EP That sort of varies from school to school, I think within this school we have a central place within professional development, it has been a target of priority or a target objective, there is a high level of awareness certainly at the executive level, training opportunities are there. There is continuing interaction with the Quality Teaching model and getting more and more teachers familiar with the model. I think the next big step that has got to be taken would fall down, that is how do you get people from going to those training days to say, alright this is good stuff I am going to implement it into my teaching.

ER Do you have any suggestions on how that might actually take place within the school?

EP I think that's the part that is not coordinated and it comes back down to what the individuals do. I don't know if there is any follow-up. I guess different individuals are going to have different response to that and I would like to go back to where I started from and I find the Quality Teaching model is a reminder of what we always considered to be good teaching practice. So I guess the range of responses of different people are going to be saying, Yes I am going to really have the Quality Teaching model very high in the consciousness that I will try to get it high up there in the lesson planning and other people saying, well I am doing this anyway. That is a matter of recognition of where you put it, there is certainly talk of, alright we rewrite our programs, we need to rewrite our programs using the Quality Teaching equation and incorporating the Quality Teaching strategy into your learning and teaching strategies for programs. I don't know in event of the whole school.

ER So how would you actually go about incorporating into your teaching programs the Quality Teaching principles and interactions that take place in the classroom, individual teaching and how teachers work as a group? I suppose more so programming into a teaching unit that works?

EP I suppose I could teach the teachers and say, it could be like a republic and that's like the old people die before it's a republic. I think there is a grain of truth there, I think as more and more new teachers come through that are doing their Dip Ed or whatever at Uni and they will actually incorporate the whole of Quality Teaching model within their prac teaching and so on within their classrooms. What they are picking up at Uni that is when the impact is going to be.
A generation or so?

I think so, yes. So I shouldn’t be too cynical or too negative but you can’t teach an old dog new tricks and as I said, I keep saying the same thing I guess, a lot of teachers are going to be of my generation are going to maintain, yes these are the things we have always done. Perhaps we haven’t recognised them and having these different labels, perhaps we haven’t stuck these tags on them. What it is doing (Quality Teaching model) is putting into one package a whole host of what we consider to be important to quality or good teaching anyway. There are a lot of people out there doing Quality Teaching, but they don’t just realise they are doing Quality Teaching. Does that make sense?

Yes that makes sense, yep.

You do get those people who actually raise it in their consciousness and then start programming according to that (Quality Teaching model), that is the more difficult challenge I guess. I think the way to actually incorporate it and making it a realistic goal for the average teacher, is not OK, let’s sit down and rewrite all our programs, but assessment tasks and class assignments, when you’re setting them really have a good understanding of the Quality Teaching model and then you set your assessment task and you set junior assignments so you are incorporating Quality Teaching practices in there. I think that’s happening.

So you have a flow of what happens in the classroom reflecting assessment task and student performance, so you have got this link of the 3 dimensions coming through to evaluate assessment tasks. If it’s not being done in the classroom then a lot of the kids won’t be able to address high-order thinking and working in that way.

Yes, what I am saying is that teachers are more likely to find it easier, they are more likely to find it easier conceptually and to have an understanding of the model if they can say, alright lets apply this concept to a specific task I am setting rather than incorporating it into their teaching 28 periods a week. I think the best way to start is that assignment and assessment level.

So that would in terms of professional development and learning using the Quality Teaching model you would be focusing more on analysing assessment tasks and getting teachers to work on those and then getting back to what they are doing in the classroom?

Yes and then from modelling in your assessment task and so on transfer and incorporate that back into teaching practices. As I said, if you got a lot of tasks, there are a lot of standalone tasks. Great I’ve got a set of assessment tasks, you know 30 years you got Year 8 Geography, you have to find out about animals or rainforests, you know that is going to stack up and people are used to doing it and then because of the resources that were available. I’m going off on a different tangent now. You have a look at the whole task in research now, we set an assignment in the traditional sense and your kids will go and do it in 5 minutes, copy, and paste and print, oh there’s the assignment that fits that heading. We have almost got a demand on us now to think about how you are going to present your assessment tasks and how they are going to present assignment so that you are actually getting something out of them. I think because of that technological pressure we need to rethink about how we do our assessment tasks.

That is an interesting view that I actually hadn’t thought of, I am aware of the 3rd phase of the Quality Teaching model and assessing the quality of task and feedback in the classrooms. It is an interesting way of actually doing the professional development with it.

I guess what I am trying to say is that this pressure on us to say, we need to work differently in setting work because of these technological issues, here is a model that can help you set quality stuff to help you really get in there and you know use your Quality
Teaching ideas and get back quality assessment tasks.

ER  How does the school in regards to handling professional development money and how did they actually work that support with the introduction of Quality Teaching model? Is there a time issue that we might need to have a look at?

EP  I think in this school it hasn’t been an issue they have been very generous with the time and money call it what you like, because the money is provided for relief days for people to go off and have a look at the model. Overall I can’t see that’s an issue here.

ER  Are you suggesting that the administration and executive have supported it fairly extensively and the school therefore provided funding to make it work?

EP  Yes, yes...

ER  How about parents. Do they have any idea of what is going on with Quality Teaching?

EP  I guess the answer to that is I am not sure. I will hazard a guess and say possibly not.

ER  Any other ideas?

EP  Well parents might have a look at work that has been done by the kids and they might say, gee that’s good stuff because that’s relevant but whether they would make that connection with Quality Teaching model I doubt because they are probably not aware of the model.

ER  So it is suddenly an in house job or situation of teaching.

EP  Yeah, Yeah...

ER  Any other things you would like to add? Any suggestions to make professional learning in regards to Quality Teaching work better? Any other ideas you might make Quality Teaching work better within the school or within schools overall.

EP  It is always hard to talk of our situation here, I think in so many cases what you are dealing with is potentially resistance to change and a fairly seasoned teacher saying here comes another new theory, how long is this one going to last. I always think and again I come back repeating a whole theme I guess but it is one of the most important things is to condense or reassure professionals this is not a new model that is coming in to say hey you people don’t know what you are doing you need to change to this. I think an important part is to reassure these professionals and yes you are good teachers you have been doing Quality Teaching and yet this is another model that throws new light on it and it is in effect reinforcing it the practice that you have been doing and get them higher up in the profile. Because that is what it is really all about, and it is that awareness and what the model is all about. Reassuring teachers that you are not asked to totally change practices, but to reflect on practice.

ER  Awesome, reflecting.

EP  Reflecting, yes.

ER  You were involved with the study this time last year. Did your involvement with the study and what came out of it, help you with what you did in the classroom enhance your understanding of the model and give you a different perspective than what you had at the start of it can you sort of give me some ideas.

EP  I think being involved with it did was actually made me go back and think about what you were doing in the classroom, and if your lesson had a purpose and where did it fit in the model and how does it affect my classroom practice and if you do that it is always being done or are there particular things that you can do to improve on it make them lift there higher order skills or make it more relevant to what the kids are doing. I guess what it was
doing was increasing the level of awareness and push it towards that practice if you want to use that word or try to achieve that practice. Yes, that awareness issue.

ER Then you get to reflect on it 12 months later.

EP When you get the chance. It is like I was saying with that generational thing it almost is an ingrain thing in your teaching practice from the word go to be constantly on your level of awareness and I guess unless you are constantly working with any model like that and constantly being involved again here.

ER You are suggesting that other things take over.

EP It could be that original habits take over or long ingrained habits take over.

ER Does the syllabus documents have anything to retract from the teaching part of the model or were people just focusing more on the deep knowledge part of it and getting those concepts over that demonstrate deep understanding strategies within the classroom or even going onto standards with staged outcomes and that sort of thing?

EP No I think the syllabus has probably helped in a way. I think the syllabus is now far more specific and contented so if you go to the deep knowledge there is all this support in that and I remember going back 20 years or whatever, the commerce syllabus was a 72 page documents to teach them something in eight areas and you say OK what is it I’m supposed to be teaching them, if they were to go to deep knowledge the syllabus was very lucky in guidance as to what deep knowledge was in there. That’s not part of it these days, now the syllabus for the system is definitely reinforcing that deep knowledge. As far as the higher order thinking or connectivity and so on, I don’t think you can rely on the syllabus to do every single thing I think you have got to go to the Quality Teaching model and do it as a compliment to the syllabus and say OK here it is a reminder of what you are doing with this material. One very simple thing that was said to me way back when I started teaching by a deputy, who said, you know teaching is simple, you have just got to work out what you are going to teach and how you are going to teach it. I guess you can say the syllabus now is what you are going to teach with the Quality Teaching model being the other side of how you are going to teach.

ER Is there anything else you would like to raise based on our discussion at the moment or issues being raised about study you have been in previously or what we are doing here at the moment.

EP No I have probably covered it all, no doubt I will think of something again later on.

ER Well you will have that opportunity when you have read through it.

EP When you asked about how well resource the introduction had been in comparison to how we normally have professional development resourced in the school but I think if you had a look at our school system and I am only guessing this but if you had a look at our school system and compare us to private enterprise or businesses. The way we always do things in school, ‘we have a brand new way of doing business or we have a brand new piece of technology and we will spend no money on it. They will say see you later we know you will use this now and there will be no follow-up. To me if we were in private enterprise and they were trying to introduce an entire change in the business culture there is no way they would leave it down to one days training and at the end of one days training say well good you’ve been good you’ve been serviced and we will expect to see that new business culture in our business from now on. It wouldn’t work, we use that word, it is a generational thing, and if you are talking about the way businesses do carry out their business and they are looking to change their whole business culture, it is a long ongoing process, and you have to chuck an awful lot of money at it. I guess when I say oh yeah it is there and what we do it, I’m only saying that in comparison in comparison to
how I think private enterprise is trying to bring a change to their business culture then we are probably woefully under resourced.

ER  Do you think the Quality Teaching model is going to be sustained over the next 3 or 4 years or sit out there like everything else has, it will float around for a while and somebody else with a new idea will come along.

EP  I think the Quality Teaching model has got a better chance of standing up, because it is there, you’ve got documentation, you can read it, as compared to the authoritative learning model 10 years ago, as I said my contact with it was almost a semi religious birth. So I think it is more likely to stand up, but I just go back to the analogy I just had then. If businesses, if BHP, the Commonwealth Bank wanted a really radical change to their approach they know that you have got to have an ongoing process of training and retraining and reinforcing that training. So if we want the Quality Teaching model to become a core part of our culture we have got to do the same thing. Now if there is the will to do that or the money to do that I don’t know, but again you don’t get deep seated change unless you are really committed to it at that whole organisation level and continue to put the resources into it to ensure that it happens. You know what so much of this is like, it is like the theory we teach Business Studies in year 12 you know the resistance to change the law and model of change and so one. I guess if you have a look at the Lewis model and you can say OK are we really applying something like that to be induced to something like Quality Teaching then I would have to say well not really. We are relying upon the will of the teachers to say, yes after one days contact with this thing I am going to embrace it, I am going to keep it high up there on the radar.

ER  Mr Dennis, thank you for your time today.
YEAR 10 Geography.

Research assignment: Australia in its regional and global context.
Value of assignment - 15%
Due Friday, week 8

Term 3

What will be Australia's future – what will be the “shape” of Australia in 2051? In this research assignment you are asked to identify current predictions about Australia’s future and the impact of immigration on Australia’s environments. You are then asked to make your own judgement about the decisions being made about our future. “The decisions of today will be the fate of tomorrow.”

INTERNET ACCESS NECESSARY!
Parts A and B will require access to the internet. If it is not available at home you will need to access your local library OR use the school resources. Inability to access the internet will not be considered a valid reason for not attempting the task.
Failure of your computer/printer also will be invalid reasons. Save your work to disk or in your email account.

You have been given a list of useful and relevant websites that contain the information you will need. However you are encouraged to use other sites/information.

This task should take about three to five hours to research and write. Start early and consult with your teacher about problems.

Part A. (60 marks)
Follow the instructions and answer:
Where do migrants come from now?
Key Facts in Immigration: http://www.immi.gov.au/facts/02key.html#2
- What are the main differences? Write 2-3 lines
- If this trend continues how will Australia have changed by 2051? Write 2-3 lines.

How will migration shape Australia’s future?
- What are the “series” predictions? Write 2-3 lines
- Copy and paste the “projected population chart” into your document.
- What part will immigration play in future population growth? Write 2-3 lines

Where will most people be living?
- Copy and paste the “projection results with assumptions (high and low)” from this site.
- Briefly describe the main changes in your own words. (2-3 lines)

What will the future workforce be? –
- Copy and paste the table “assumed job numbers for Australia”
- Which job sectors will grow and which will show the least opportunity? (2-3 lines)

What will Australia’s population “shape” be?
http://www.mnforsustain.org/australian_population_19992101.htm
- Copy and paste the 2051 population pyramid.
- How will the “shape” of Australia’s population have changed? (2-3 lines)

Part B (25 marks)
Using some or all of the available sources listed below (from the CSIRO) and your coursework knowledge estimate the impact of immigration and population growth on Australia’s coastal environment AND Urban growth in Australia. Write about ONE page of text with supporting diagrams from the sites.

**What could be the impact on Australia’s coasts?**

More floods, population: more costs at the coast
http://www.csiro.au/research/Program5/futuredilemmas/

**Impact on Australia’s urban environment.**

Appendices From Future Dilemmas: Options to 2050 for Australia’s population, technology, resources and environment

People and their needs; From Future Dilemmas: Options to 2050 for Australia’s population, technology, resources and environment household profiles, models of impact;

Future dilemmas page
http://www.csiro.au/research/Program5/futuredilemmas/

Australian for an Ecologically Sustainable Population Inc.

Future Dilemmas: Options to 2050 for Australia’s population, technology, resources and environment: series 02/01

**Part C (15 marks) – write about one page.**

Using the information you have researched what would you recommend about Australia’s future immigration intake? (should it be maintained at current rates, reduced or limited?) What are your reasons?

It is suggested that you refer to issues such as sustainability, defence, trade, social equity and justice, human rights, etc. (you need not cover all of these)

http://www.population.org.au

**Marking:**

<table>
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<th>Bands achievement</th>
<th>Description of</th>
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| **Band 6 responses will** | • Have answered all parts of the task  
• Followed the task instructions  
• Indicated additional research  
• Used geographic terms in context  
• Integrated this task with the topics from “issues in Australian Environments”  
• Used well written text with a word processor such Microsoft word |
| Marks range | 90-100 |
| **Band 5 responses will** | Have attempted all parts of the task, generally followed instructions, geographic terms are used, there is integration with topics studied and text is well written using a word processor. |
| Marks range | 75-89 |
| **Band 4 responses will** | Have completed at least part A and attempted one other part. There will be a visible effort to use geographic terms and integrate this research with topics. |
| Marks range | 60-74 |
| **Band 3 responses will** | Part A will be substantially complete and there has been an attempt at one other part. Some effort is made to use geographic terms related to topics. |
| Marks range | 30-59 |
| **Band 2 responses will** | Part A has been attempted with some effort to relate this task to the topics |
| Marks range | 10-29 |
| **Band 1 responses will** | There has been a basic attempt with no effort to demonstrate integration of this task to topic knowledge and little use of geographic terms |
| Marks range | 1-9 |
Appendix 6

Phase 2 – Participant Information, Consent Forms and Interview Schedule

A6.1 Teacher Information Sheet
A6.2 Participants Consent Form – Research Project
A6.3 Interview Schedule

Appendix 6 - Phase 2 - Participant Information, Consent Forms and Interview Schedule

A6.1 Teacher Information Sheet

DR JAMES G LADWIG
ASSOCIATE PROFESSOR, SCHOOL OF EDUCATION
THE UNIVERSITY OF NEWCASTLE
CALLAGHAN, NSW 2308
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FAX +61 (02) 4921 6895
James.Ladwig@newcastle.edu.au

TEACHER INFORMATION SHEET

“The professional development needs of teachers’ to support improved learning outcomes of students using the ‘Quality Teaching’ model in NSW Stage 4/5 HSIE classes in NSW public schools”

Dear………………..,

I would like to thank you for your involvement in the research project undertaken during Term 3, 2004. As part of the ongoing research I would like to extend an invitation to take part in a supporting project identified above being conducted by Mr Ken Edge (Head Teacher HSIE, Cardiff HS) as part of his Masters of Education Degree (Research) under the supervision of Associate Professor James Ladwig from the Faculty of Education at the University of Newcastle. This research is of significant importance, as the findings will provide additional information on the type of professional development needed to support teacher’s inquiry in developing quality teaching practices. All the teachers who took part in last years’ observational study are being invited to continue in the current project.

Your participation in the project is voluntary and there is no obligation to be involved in this study based on the previous research study. If you do decide to participate, you may withdraw from the project at any time without giving a reason. For this portion of my study, we would like to interview all participants about the professional needs of teachers to support Quality Teaching. Interviews with participants will be conducted face to face and will take the form of an interactive professional discussion. The interview requires your opinions and will take place outside school hours, at a mutually agreeable time and place. I also would like to seek your permission to tape record the interview. You have the right to review and edit the interview, or any transcript of the interview.

During each interview reflective discussion will build on current knowledge, skills and beliefs and is designed to assist you to construct your own knowledge about professional development.
through the professional dialogue of the interview. Further, at the end of the project, a report will
be prepared and circulated to each participant in the study so that each can gain a more
collective understanding of the issue of professional learning all face. For your further
information, the guiding questions of the interview have been attached below.

Any personal or identifying information that you provide will remain confidential to the
researcher. Names of particular schools or participants will not appear in any reports. The
information obtained will be used for research purposes only and will be held in the strictest
confidence. The information obtained at the interview will be destroyed after analysis and the
data has been electronically recorded. All electronic data will be retained for period of five years.

If you would like to participate, please complete the attached consent form and return it in the
reply paid envelop provided. This will be taken as your informed consent to participate. Mr Edge
will then contact you to arrange a time convenient to you for the interview.

Dr James G Ladwig                           Mr Ken Edge

This project has been approved by the University’s Human Research Ethics Committee,
Approval No. H-046-0605.

Should you have concerns about your rights as a participant in this research, or you have a
complaint about the manner in which the research is conducted, it may be given to the
researcher, or, if an independent person is preferred, to the Human Research Ethics Officer,
Research Office, The Chancellery, The University of Newcastle, University Drive, Callaghan
NSW 2308, telephone (0249216333 email Human-Ethics@newcastle.edu.au.)
Proposed Areas for Discussion

This interview schedule is intended to guide the interviews to ensure effective use of time and resources and that the data gathered is relevant to the overall study objectives. The main areas of discussion as listed below.

The following questions are to be used as guide to support initial discussion.

Quality teaching principles

Prompt: Extract from Quality Teaching documentation, understanding of what constitutes quality teaching. “The core business of the profession of teaching is pedagogy. As the art and science of teaching pedagogy is evident both in the activity that takes place in the classrooms or other educational settings and in the nature of the quality of the tasks set by teachers to guide and develop students learning. The NSWQTM of pedagogy is a framework for teacher professional development to focus discussion and critical reflection on the teaching and assessment practices that take place in classrooms” (New South Wales Department of Education & Training (NSWDET), 2003a, p. 4).

i) In your own words, could you explain what constitutes high quality teaching?

ii) How has the NSW QT model helped you in your understanding of quality teaching?

iii) Can you give some examples of how you currently use the NSW QT to enhance student learning?

Involvement in the research study (Term 3 2004)

Prompt: Reasons for involvement in the study, enhanced awareness of QT, student learning outcomes, curriculum development.

i) Can you briefly explain why you became involved in the study?

ii) Did you enjoy being involved in the study?

iii) In what ways has involvement in the study helped your understanding of Quality Teaching?

iv) Would you be involved in any further studies? Can you outline the reasons for this view?

Lifelong learning experiences

Prompt: Past experiences as a teacher support/prevent the potential for a different kind of learning environment supported by the NSW Quality Teaching model.

i) How would you compare your current professional learning about Quality Teaching with past professional learning experiences?

The school context

Prompt: Identification of problems and obstacles to improve student learning outcomes: organisation of curriculum, local school community, cultural traditions, involvement in decision making.

i) Do administrators and parents support teaching based on Quality Teaching? What specific examples of do you have.

ii) How have the views of other teachers and the school affected your use of the NSWQT in classroom practice?

Evaluating professional development

Prompt: Identification of current professional develop practices, suggestions on alternative practices to support QT principals.
i) What do you think are the main professional development issues relating to quality teaching and classroom practice?

ii) How would you make professional learning on Quality Teaching better?
PARTICIPANTS CONSENT FORM
RESEARCH PROJECT

How do teacher perceptions of teaching explain the instructional patterns observed in the Stage 4/5 HSIE classrooms?

Dear participant,

Please read the following information.

1) I agree to participate in the above research project and give my consent freely.

2) I understand that the project will be conducted as described in the information sheet, a copy of which I have retained.

3) I understand I can withdraw from the project at any time and do not have to give any reasons for withdrawing.

4) I consent to being part of a research program that involves face to face taped interview of approximately 40 minutes duration.

5) I understand that my personal information will remain confidential and only the researchers will have access.

6) I also have the opportunity to have questions answered to my satisfaction.

Surname: …………………………..First Name: ………………………..
Signature: ………………………….. Date: …………………………..

Contact and School Details:
Name of School…………………………………………………………
Phone number……………………… Fax……………………………
Email address………………………………………………………………

Could you please complete the return the consent form to the address above by 14/06/05.
Thank you for taking the time to consider this invitation to participate in the study. Should you have any questions regarding the project, please feel free to contact me by phone or by email.
A6.3 Interview Schedule

Section 1: Teacher Perceptions about Quality Teaching

Prompt: Extract from quality teaching documentation, understanding of what constitutes quality teaching:

“The core business of the profession of teaching is pedagogy. As the art and science of teaching pedagogy is evident both in the activity that takes place in the classrooms or other educational settings and in the nature of the quality of the tasks set by teachers to guide and develop students learning...

"The NSWQTM pedagogy is a framework for teacher professional development to focus discussion and critical reflection on the teaching and assessment practices that take place in classrooms" (New South Wales Department of Education & Training (NSWDET), 2003a, p. 4).

i) In your own words, could you explain what constitutes high quality teaching?

ii) How has the NSW QT model helped you in your understanding of quality teaching?

iii) Can you give some examples of how you currently use the NSW QT principles to enhance student learning?

Section 2: Professional Learning Experiences

Prompt: Past experiences as a teacher support/prevent the potential for a different kind of learning environment supported by the NSW Quality Teaching model.

i) How would you compare your current professional learning about Quality Teaching with past professional learning experiences?

Prompt: Identification of current professional develop practices, suggestions on alternative practices to support Quality Teaching.

ii) What do you think are the main professional development issues relating to Quality Teaching and classroom practice?

iii) How would you implement professional learning to support Quality Teaching better?

Section 3: The Organisational Design of School

Prompt: identification of problems and obstacles to improve student learning outcomes: organisation of curriculum, local school community, cultural traditions, involvement in decision making.

i) Do educational administrators and parents support teaching based on Quality Teaching? What specific examples of do you have?

ii) How have the views of other teachers and the school affected your use of Quality Teaching principles in classroom practice?

Section 1: Research Question 2

In the research literature reviewed in Section 2.4, there is recognition that teachers’ beliefs influence decisions about classroom pedagogy. Self-reported methods dominate in the literature to understand these relationships. In many instances, questions arise about the reliability of self-reported methods, as it is often difficult to obtain an accurate interpretation of the teacher’s understandings (de Brabander, 2001; Fang, 1996, Therborn, 1980). In addressing this issue, questions posed to these HSIE teachers need to specify whether they ask for facts, wishes or realisations about what is possible (Therborn, 1980). Based on these conceptions then, what do all of the HSIE teachers in this study have in common? Therefore, the first interview question
focused on the current state of affairs, that is, these HSIE teachers’ perceptions of good teaching. The second interview question was more theoretical, exploring the ideal and requiring the teachers to link the NSWQTM to their understandings of good teaching. The third interview question also focused on the current state of affair, asking the teachers to give some examples of how the NSWQTM enhanced their understanding of student learning.

**Section 2: Research Question 3**

The third research question explored professional learning experiences of the HSIE teachers. The first interview question asked the teachers to recount their past professional learning experiences and professional learning associated with the NSWQTM. The second interview question required judgments about the effectiveness of professional learning relating to the introduction of the NSWQTM. The third interview question asked teachers to explain how they would make their professional learning experiences better.

**Section 3: Research Question 4**

This research questions was designed to explore these HSIE teachers’ views of other influences on teachers and teaching and therefore, classroom instructional practices. The first interview question asked for examples of support for the NSWQTM and quality teaching practices by educational administrators. The second interview question asked how the views of other teachers and the school may have impacted on the ability of these HSIE teachers’ implementation of NSWQTM into every day classroom practice.
### Appendix 7 – Teaching Strategies - Summary Table

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<th>Group Work</th>
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<th>Problem Solving</th>
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Note: Meaning was obtained from the field notes by assigning teaching strategies a score of 1, 2 or 3 (1-strategy not used in the lesson; 2-strategy used for less than half, or a minor part of the lesson; 3-strategy evident for most of the lesson).
Appendix 8

Interview Field Note Example

Appendix 8 – Interview Field Note Examples

A8.1 Interview Field Note Example 1

2/1/06.

Interview 1 – Three ideas.

1. View on what constitutes HT.
   - personal views.

2. Capabilities to support HT using "QT model".
   - class room methods
   - student activities - improving outcomes
   - feedback and practice
   - collegial discussion

3. Professional development
   - past experiences
   - lessons for success in teaching
   - suggestions for change - how??
   - Support for multi-level coordination of schools
   - Variability between schools
   - QT model - something that comes and goes

4. Variability in understanding:
   - linking PD to current practice
   - how to "implement" not "change"
   - current practices

347
Thich - lists back to - "eradicate"

Interview II

1. Facilitate of learning -------
   - students understand it & can apply it - student centered.

2. AT model reflects teaching / learning beliefs.

Review - Program to Task analysis to resources & follow assessments tasks to align.

- personal views - of AT model & its usefulness - link to classroom.
- open comment on the school as a "learning community".
- Y9-10 examples: experienced with AT model / sharing experiences with students.
3. AT "solitude" - need to link back to the classroom.

- need to be provided to support again.
- links to current work: time available.

Collaborative discussion - within school across schools.

PS - "hard it over to the kids"

- lesson study idea.

PH - Professional development within community -> via high quality.

4. HSIE

Staff - willing to "run"

with the ideas, link to administration + support.

The Q6 - comments: WAT - learning community.

P6 - practices need to be "sustainable."