

Narrative Ecologies: A teacher-centred  
model for professional learning and  
practice with technologies in Initial Teacher  
Education

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## Abstract

This thesis documents the evolution and evaluation of a conceptual model for developing and researching student teachers' online pedagogical practice. The research is set against a backdrop of significant investment in web-based technologies in formal schooling in the United Kingdom (UK). Thus, the research questions some of the factors that affect the development of student teachers' online professional and pedagogical practice faced with new opportunities to utilise web-based tools. As the project evolved it became apparent that a more fundamental research question was: How do we research student teachers' professional learning and development with new technologies in a manner that recognises their active agency in the process?

Three theoretical standpoints are synthesised within an interpretive paradigm to build the conceptual model. Ecological perspectives are merged with activity theory to understand the interplay between different mediating factors in complex, socio-cultural contexts incorporating technological tools. The rationale for underpinning these two with a narrative approach was to locate student teachers as active agents of their own professional development with technological tools.

A school-based intervention formed a key part of a module for ICT specialist student teachers on a BA (Hons) Primary Education course leading to Qualified Teacher Status (QTS) in the UK. A narrative analysis of five student teachers' experiences and perceptions of a primary school intervention, working face-to-face and online with primary school children aged 9-11 years, provides the vehicle for the evolution and development of the conceptual model. This analysis draws on a range of qualitative data including student teachers' online reflections, narrative interviews and artefacts from the intervention such as online discussion.

The thesis concludes that the exploration and construction of the student teachers' narrative ecologies yields a deeper understanding of the process of mediation and appropriation. The conceptual model illuminates *how* various mediating factors interrelated with the student teachers' personal narratives of professional development with technological tools. I conclude that narrative ecologies can offer contingencies for both further research and professional development with new technologies, through the potential to capture the nuanced and capricious ways in which technologies are incorporated into individuals' professional practice.



## Table of Contents

<b>Acknowledgements .....</b>	<b>10</b>
<b>Declaration.....</b>	<b>11</b>
<b>1 Introduction.....</b>	<b>12</b>
1.1 Aims and contexts.....	12
1.2 The thesis; more questions than answers.....	17
1.2.1 <i>Synopsis of thesis</i> .....	18
1.2.2 <i>Terms, definitions and 'I' as researcher</i> .....	22
<b>2 Teachers as active agents in developing e-pedagogy .....</b>	<b>25</b>
2.1 Introduction. ....	25
2.2 Online communication; a tale of rapid growth .....	26
2.3 Think tanks and policy makers .....	27
2.3.1 <i>Transformation through personal online learning spaces?</i> .....	28
2.4 Teachers as active agents in developing e-learning pedagogies .....	29
2.4.1 <i>E-learning; defined and redefined by people</i> .....	31
2.4.2 <i>Paradoxes; teacher agency Vs personalised learning</i> .....	34
2.4.3 <i>Refocusing e-learning policy on teacher agency and pedagogy</i> .....	36
2.5 Summary.....	37
<b>3 Authenticity and pedagogical design for professional knowledge and learning .....</b>	<b>39</b>
3.1 Introduction .....	39
3.1.1 <i>Navigating the argument</i> .....	40
3.2 Towards a pedagogical design for learning to learn in professional contexts.....	42
3.2.1 <i>Neelam's Story</i> .....	43
3.2.2 <i>Learning as a socio-cultural process</i> .....	44
3.2.3 <i>Professional learning and knowledge – a messy uncertain process</i> .....	46
3.2.4 <i>Issues of abstraction and transfer in situated approaches to learning</i> .....	48
3.3 Questions of mediation, appropriation and affordance .....	51
3.3.1 <i>Micro, meso and macro-level activity</i> .....	53
3.3.2 <i>Floor turtles and mathematical misunderstandings</i> .....	55
3.4 Ecological systems of mediated activity.....	58
3.4.1 <i>Designing contingencies for learning</i> .....	59
3.4.2 <i>Application to professional practice</i> .....	61
3.4.3 <i>Blueprints for professional practice?</i> .....	62

3.5	Summary.....	64
<b>4</b>	<b>Conceptualising the Role of Language.....</b>	<b>67</b>
4.1	Mind the gap! .....	67
4.2	Establishing the legitimacy of online dialogue.....	68
4.2.1	<i>Online cognitive dialogue.....</i>	<i>71</i>
4.2.2	<i>Indicators of online pedagogical presence.....</i>	<i>72</i>
4.2.3	<i>Summarising approach to language.....</i>	<i>74</i>
4.3	Summary of the knowledge bases .....	75
<b>5</b>	<b>Researcher as Toolmaker: Methodology.....</b>	<b>78</b>
5.1	Introduction .....	78
5.2	Methods.....	80
5.2.1	<i>Conduct of the research.....</i>	<i>80</i>
5.2.2	<i>Phase 1 Interventions; who and how?.....</i>	<i>82</i>
5.2.3	<i>Phase 2 interventions; who and how?.....</i>	<i>83</i>
5.3	Methodological design; teaching and learning as research.....	84
5.3.1	<i>Building the case through action learning.....</i>	<i>85</i>
5.3.2	<i>Summary.....</i>	<i>88</i>
5.4	In search of a paradigm; a narrative case study .....	89
5.4.1	<i>Parameters of a narrative case.....</i>	<i>89</i>
5.4.2	<i>Capturing the inimitable: Individuals and their experience.....</i>	<i>90</i>
5.4.3	<i>From phenomenography to narrative.....</i>	<i>91</i>
5.5	Ethical considerations arising on different levels.....	96
5.5.1	<i>Researching my own students.....</i>	<i>97</i>
5.5.2	<i>Student-teachers researching their pupils.....</i>	<i>100</i>
5.5.3	<i>Covert versus overt.....</i>	<i>103</i>
5.5.4	<i>Minimising risks to the children.....</i>	<i>105</i>
5.5.5	<i>Summary.....</i>	<i>108</i>
5.6	Lessons learnt from the pilot study .....	109
5.6.1	<i>Categories and indicators of online pedagogical presence.....</i>	<i>110</i>
5.6.2	<i>Interpretation and latent meaning.....</i>	<i>114</i>
5.6.3	<i>Pilot interviews.....</i>	<i>116</i>
5.6.4	<i>Analysis and discussion of pilot interviews.....</i>	<i>117</i>
5.6.5	<i>Summary.....</i>	<i>121</i>

<b>6</b>	<b>Building a teacher-centred narrative ecology .....</b>	<b>122</b>
6.1	Positioning the narrative ecology .....	122
6.2	An holistic approach to data – exploiting intertextuality .....	124
6.3	From knowledge bases to conceptual model.....	128
6.4	The analytical instrument; first iteration .....	129
6.4.1	<i>Making sense of the variables; effect.....</i>	<i>130</i>
6.4.2	<i>Resonance and dissonance.....</i>	<i>132</i>
6.4.3	<i>Intentionality; teacher as ‘keystone species’.....</i>	<i>134</i>
6.4.4	<i>Presence: Priority as an indicator of intent.....</i>	<i>136</i>
6.5	Verifying the variables in the data.....	139
6.6	Macro and meso variables.....	141
6.6.1	<i>Attitudes, values and beliefs.....</i>	<i>141</i>
6.6.2	<i>Prior experience of e-learning tools.....</i>	<i>142</i>
6.6.3	<i>Wider socio-cultural discourses.....</i>	<i>143</i>
6.7	Micro-level variables .....	144
6.7.1	<i>Micro-level questions.....</i>	<i>146</i>
6.7.2	<i>Theorising and reflecting as variables .....</i>	<i>147</i>
6.8	Summary.....	149
<b>7</b>	<b>Three narrative cases .....</b>	<b>150</b>
7.1	Narrative Analysis - Maria .....	150
7.1.1	<i>Overview.....</i>	<i>150</i>
7.1.2	<i>Primary mediating factors.....</i>	<i>151</i>
7.1.3	<i>Secondary mediating factors.....</i>	<i>155</i>
7.1.4	<i>Latent mediating factors.....</i>	<i>159</i>
7.1.5	<i>Summary.....</i>	<i>161</i>
7.2	Narrative analysis: Laura.....	162
7.2.1	<i>Overview.....</i>	<i>162</i>
7.2.2	<i>Primary mediating factors.....</i>	<i>163</i>
7.2.3	<i>Secondary and latent mediating factors.....</i>	<i>167</i>
7.2.4	<i>Summary.....</i>	<i>172</i>
7.3	Narrative Analysis: Joe.....	174
7.3.1	<i>Primary mediating factors.....</i>	<i>174</i>
7.3.2	<i>Secondary and latent mediating factors.....</i>	<i>183</i>
7.3.3	<i>Summary.....</i>	<i>187</i>

<b>8</b>	<b>Conceptual Interlude .....</b>	<b>188</b>
8.1	Narrative ecology; second iteration.....	189
8.1.1	<i>Narrative clarity</i> .....	190
8.2	Summary.....	193
<b>9</b>	<b>Two Narrative Cases .....</b>	<b>195</b>
9.1	Narrative Analysis: Karen .....	195
9.1.1	<i>Overview</i> .....	195
9.1.2	<i>Primary and secondary mediating factors</i> .....	196
9.1.3	<i>Latent mediating factors</i> .....	201
9.2	Narrative Analysis: Heather .....	206
9.2.1	<i>Overview</i> .....	206
9.2.2	<i>Primary mediating factors</i> .....	207
9.2.3	<i>Secondary mediating factors</i> .....	211
9.2.4	<i>Latent mediating factors</i> .....	213
9.2.5	<i>Summary</i> .....	215
<b>10</b>	<b>Synthesis: So What? .....</b>	<b>217</b>
10.1	Introduction.....	217
10.2	Research questions revisited .....	218
10.2.1	<i>Mediation, appropriation and affordance</i> .....	218
10.2.2	<i>Narrative intent across the case studies</i> .....	219
10.2.3	<i>The issue with affordance and ecology</i> .....	224
10.3	Professional learning: a narrative, multi-site process .....	228
10.3.1	<i>Frames of institutional pedagogy</i> .....	229
10.4	Limitations .....	232
10.4.1	<i>The whole story; nothing but?</i> .....	232
10.4.2	<i>Further limitations</i> .....	236
10.5	Summary of findings.....	237
10.6	Conclusions and implications .....	238
10.6.1	<i>Teacher education, toolmakers &amp; technology</i> .....	239
10.6.2	<i>Narrative in Education Research</i> .....	241
	<b>Afterword.....</b>	<b>244</b>
	<b>References .....</b>	<b>245</b>
	<b>Appendix A: Consent Letter and Information for Parents.....</b>	<b>261</b>

**Appendix B: Interview Schedule ..... 263**

**Appendix C: Karen’s Narrative Summary with Responses ..... 264**

**Appendix D: Ethical Protocol ..... 271**

**Appendix E: Letter to student teachers & informed consent form..... 274**

**Appendix F: Pilot Online Dialogue 2 (POD2)..... 276**

**Appendix G: Pilot Phase Interview Schedule ..... 277**

**Appendix H: Heather’s annotated interview transcript ..... 278**

**Appendix I: Narrative Ecology used in Analysis of Case ..... 285**

## Index of Figures

Figure 3.1: Vygotsky’s mediated stimulus and response.....	45
Figure 3.2: Mishra & Koehler’s conceptual framework of TCPK .....	54
Figure 3.3: The activity triangle (Adapted from Engeström 1987 & Somekh 2007).....	56
Figure 3.4: Conceptualising the micro-resource ecology .....	60
Figure 4.1: Representation of inter-related knowledge bases from literature review.....	75
Figure 5.1: Screenshot of a student teacher’s online resources .....	83
Figure 5.2: Building the case .....	86
Figure 5.3: Extract from ethical protocol.....	99
Figure 5.4: Extract from ethical protocol.....	102
Figure 5.5: Screenshot from online wiki code of conduct.....	106
Figure 5.6: Extract from ethical protocol - researcher expectations of student teachers.....	107
Figure 5.7: Focusing on Language and pedagogic form.....	109
Figure 5.8: POD1 online teaching and learning dialogue from pilot phase.....	111
Figure 6.1: Screenshot of Vlog recorded on January 18 <sup>th</sup> 2011, by Asmaa Mahfouz and uploaded to Facebook .....	122
Figure 6.2: An holistic approach integrating the three knowledge bases .....	128
Figure 6.3: Diagrammatical representation of narrative ecology; first iteration .....	129
Figure 7.1: Visual representation – presence and effect of mediating influences in Maria’s narrative .....	150
Figure 7.2: Maria’s online reflections.....	151
Figure 7.3: Extract from discussion thread .....	152
Figure 7.4: Maria’s final reflection online.....	154
Figure 7.5: Screenshot - home page of Maria’s VLE.....	156
Figure 7.6: Maria’s response to exploring the discussion tools.....	157
Figure 7.7: Maria’s prior experience – Questionnaire October 2007 .....	158
Figure 7.8: Passage from Maria’s written assignment.....	160
Figure 7.9: Extract from Maria’s assignment .....	160
Figure 7.10: Visual representation of mediating factors at play .....	162
Figure 7.11: Reflection posted to discussion forum 31 <sup>st</sup> October.....	165
Figure 7.12: Reflection posted to discussion forum 8 <sup>th</sup> November .....	165
Figure 7.13: Attitudes and values associated with mobile phone.....	167

Figure 7.14: Attitudes and values associated with discussion forums.....	168
Figure 7.15: Screen capture showing design, layout and sequence of activities.....	171
Figure 7.16: Visual representation of mediating influences.....	174
Figure 7.17: Extract from Joe’s survey.....	175
Figure 7.18: Screen capture showing sequence of activities on front page.....	177
Figure 7.19: Informal discussion getting to know the children.....	178
Figure 7.20: Use of Instant messaging for direct contact with children.....	180
Figure 7.21: Extract from online discussion.....	182
Figure 7.22: Personal reflection.....	184
Figure 7.23: Online quiz.....	185
Figure 8.1: Second iteration of the Narrative Ecology model.....	189
Figure 9.1: Visual representation of Karen’s narrative analysis.....	196
Figure 9.2: Screenshot of online activities and resources.....	197
Figure 9.3: Extract from discussion forum.....	200
Figure 9.4: Qualitative response on baseline survey to use of mobile phone.....	203
Figure 9.5: Opening prompt to Heather’s online discussion group.....	206
Figure 9.6: Diagrammatic representation of mediating influences in Heather’s narrative case .....	207
Figure 9.7: Screenshot of Questionnaire.....	213

## Index of Tables

Table 5.1: Conduct and timescales.....	81
Table 5.2: Categories of online pedagogical presence with indicators and examples adapted from Anderson et al (2001), Ravenscroft (2007) and Laurillard (2000)......	110
Table 5.3: Themes and indicators for coding pilot interviews.....	117
Table 6.1: Dataset used to construct narrative analysis of each case.....	126
Table 6.2: Variables and indicators.....	140

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## **Declaration**

I declare that the research contained in this thesis, unless otherwise formally indicated in the text, is the original work of the author. The thesis has not been previously submitted to this or any other university for a degree, and does not incorporate any material already submitted for a degree.

Signed

Dated

# 1 Introduction

## 1.1 Aims and contexts

The aim of this research is to examine some of the factors that affect the development of student teachers' professional practice with online communication tools such as those supported - though not exclusively - within Virtual Learning Environments (VLEs) and Learning Platforms (LPs). All schools now have access to tools such as discussion forums and online platforms offering a range of networked applications that teachers and children can access both in and out of school through the Internet. With the development in so-called cloud computing technologies, where digital assets such as documents, multimedia and applications are accessed online through the Internet the implications of such developments in education are still in an emergent state. As well as identifying a range of factors affecting the development of student teachers' professional practice with online communication tools, a subsidiary aim is to investigate *how* various factors mediate student teachers' professional development with such technological tools. The research is inductive as it does not set out with a theory to prove or test but rather generates a conceptual model – the narrative ecology model - through iterative investigation of the problem. The identification of the problem of what and how different factors affect the development of student teachers' online pedagogical practice is timely as it comes at a time of intense investment and interest in educational technologies in schools, paralleled by a growth in online communications technologies in the wider society. The growth in technological innovation continues but the issues surrounding the role of technology in education remains a highly contested area.

In compulsory education in the UK over the last decade there has been a significant investment in the potential of new communications technologies to transform learning and teaching. Numerous policy initiatives have claimed that new technologies and media have the potential to yield 'new relationship[s] with learners,' (DfES, 2005, p.11). There has also been a substantial economic investment. The British Educational Suppliers Association

estimated that ICT allocations from school budgets would be around £556 million in 2010 to 2011 (BESA, 2010); this despite a period of economic recession. Many children and teachers have access to a range of technological tools in the contemporary classroom. Some of these such as Interactive Whiteboards (IWBs), computers and digital cameras already have legitimacy. Compelling arguments are also being made for other powerful technological tools such as smartphones and mobile devices to be incorporated as legitimate tools for learning in schools and beyond (Pachler, Cook & Bachmair, 2010).

In 2009, the Digital Britain Report, commissioned under the 1997 – 2010 Labour government epitomised the centrality with which they viewed online, networked services, with regards to the nation's economic prosperity and general wellbeing. For example the report claimed:

“We are at a tipping point in relation to the online world. It is moving from conferring advantage on those who are in it to conferring active disadvantage on those who are without, whether in children's homework access to keep up with their peers, to offers and discounts, lower utility bills, access to information and access to public services.” (DCMS, 2009, p.11)

The Internet and online services were seen as vital to the ‘creative knowledge-economy’ which also meant, ‘ensuring the healthy pipeline of talent starts in the education system from primary school right through to Higher Education’ (DCMS, 2009, p.21). The raising of the status of ICT in the Rose Review of the primary curriculum (Rose, 2010) and schemes such as the Home Access project, designed to ensure access to digital content for children from the poorest backgrounds, embodied the Labour government's vision of a contemporary education system. The change of government in 2010 and the economic climate have heralded a more cautious and conservative outlook for the role of technology in education. Indeed the Schools White Paper (DfE, 2010) makes only one reference to ICT or technologies in relation to the procurement of equipment. Similarly, the status of ICT as a subject remains uncertain, as it is not included in the new set of core academic subjects for 11 to 16 year olds in England, which constitute the English Baccalaureate (DfE, 2010).

Nevertheless technological development cannot be rolled back and the pervasiveness and ubiquity of technologies within formal education and the wider society remains. This is highlighted in the Cambridge Primary Review (Alexander, 2010), which realigns ICT in relation to a primary curriculum based upon eight broad subject domains, seeing ICT as

critical to all domains but also residing specifically within the ‘Language, oracy and literacy’ component thus:

“It no longer makes sense to pay attention to text but ignore txt. While ICT reaches across the whole curriculum, it needs a particular place in the language component.”

(Alexander et al, 2010, p.270)

That is, digital media literacy together with technological literacy across subject domains is still regarded as essential within an education system fit for contemporary society.

Consequently, despite the investment in ICT over the last decade, the shift in its positioning in education and the curriculum under the current Coalition government is indicative of its ongoing problematic and contested status. Furthermore, the contested status of ICT and technologies in education is not a recent phenomenon. Issues in realising the potential of new technologies were evident in the previous Labour government’s policy rhetoric around notions of ‘e-maturity’ or the lack of it in some schools (Becta, 2009). Becta noted in 2009 that ‘there continues to be a long ‘tail’ of schools in the lower, ambivalent and late-adopter categories,’ with regards new technologies (2009, p.7). A research report for the DfES (Moss et al, 2007, p.4) found that although the introduction of interactive whiteboards (IWBs) could contribute to the transformation of pedagogy, it is ‘a long term project.’ Similarly, Higgins et al (2007) found that rather than transform pedagogical practice IWBs appeared to promote an increase in whole class teaching. The debate about the potential of technologies and ICT to transform the pedagogical experience continues, despite various waves of investment in ICT infrastructure and training. Whilst successive governments might be more or less deterministic in their vision of technology in education and the need or not for the reification of ICT as a subject, there remain outstanding issues concerning the potential of technologies to enhance the pedagogical process.

It could be argued that it is inevitable that pedagogical change is unable to keep pace with the rapid introduction of a raft of technological innovations into schools and wider society over such a short period of time. With so much attention focusing on the technologies themselves, the complexity of what it takes for teachers to innovate with technologies can easily be

overlooked as a JISC survey concluded in 2007. For example in relation to the take-up of Web 2.0 technologies across a range of users it was noted that:

“Some of the most challenging outstanding issues in this area relate to administration, ownership, sustainability and assessment, which are cultural (institutional and personal) rather than technical. As such, the focus of further research should be on guiding and facilitating change rather than looking for purely technological solutions.”

(Spire, JISC, 2007, np)

It is against this contested backdrop that my research is set, making it a timely intervention aimed at moving beyond the rhetoric, in order to examine in more depth some of the factors that affect the development of student teachers' professional practice with online technological tools. However, there is also a personal trajectory that brings me to this particular point in my research.

My experience as a primary school teacher has given me first hand experience of using ICT as a pedagogical tool across the primary curriculum. I remember taking my class of children to the computer suite in 1999 to use the Internet for the first time. I was as excited as the children at the prospect of joining up to this thing called The World Wide Web. I gave the class of 30 children the same task which was to access the same BBC website. The problem was that the school only had a slow ISDN connection. Although we encountered technical problems and few children got onto the website, the issue was personal. From a personal perspective my own lack of knowledge had led to very unrealistic expectations of the technology. By the time my school had acquired broadband in 2002, I had developed my own knowledge and understanding of ICT, added the role of ICT co-ordinator to that of Mathematics co-ordinator in the school, enrolled on an MA Education course at Brighton University and was teaching an ICT in Education module to two groups of student teachers at Brighton University after school.

In my subsequent role as a senior lecturer in ICT and education I became aware that student teachers often appeared to be seeking 'purely technological solutions' from me (JISC, 2007). I was also aware that my sessions with student teachers were often essentially technology-based with some discussion opportunities to consider how the tools we had explored at university might be translated into hypothetical classroom contexts. My own Master's research had started to explore the potential of online communities for learning. Whilst still

based in school in 2002, I started up an online community of teachers and children, using Think.com which has since become ThinkQuest (Oracle, 2011). My own experience of using and researching the use of online communities with primary school children (Turvey, 2006a) gave me an understanding of the complexities of integrating technological tools into one's own pedagogical practice. It also gave me an insight into how I could bring together student teachers and children online to explore at first hand the complexities of developing the use of online communication tools within pedagogical practice.

It was this personal trajectory of professional development set against the backdrop of technological developments within the wider society and education policy that brought me to my initial research question:

- What are some of the factors that affect the development of student teachers' online pedagogical practice?

This question was pertinent to my professional role and objectives in Initial Teacher Education (ITE), particularly with the growth of e-learning and the development of Learning Platforms and Virtual Learning Environments in all phases of education. If the student teachers I was teaching were to be able to exploit opportunities for new approaches to pedagogy afforded by such technologies, they needed an understanding of both the technological and pedagogical complexities of engaging with their learners online. Thus this research project set out to know and understand more about how teachers developed their pedagogical practice online. It was timely both from my own professional standpoint and the ongoing policy context.

In order to be able to address these issues I developed and validated a new module, 'E-learning and Citizenship', which involved student teachers in developing their online pedagogical practice through an intervention involving children in local primary schools. The children were from Key Stage 2 (8-11 year olds) and the student teachers were all ICT specialists enrolled on a BA (Hons) Primary Education course leading to Qualified Teacher Status (QTS). The module, 'E-learning and Citizenship' brought the student teachers in face-to-face and virtual contact with the children over the course of three weeks. However the

student teachers were also involved in University-based sessions that covered a range of topics from discussion of theories of e-learning and technical inputs on the tools, to discussing and reflecting on the intervention with the children. The module lasted the duration of the university semester and involved a formally assessed essay, which incorporated reflection on their school-based experiences. In the thesis I focus on five of these student teachers who are given the pseudonyms Karen, Laura, Maria, Joe and Heather.

## **1.2 The thesis; more questions than answers**

The thesis portrays the research journey I took starting from the initial research question, prompted as explained in 1.1 by the policy context surrounding the role of technology in education, technological developments in the wider society and my own professional development context. The journey was an iterative and inductive one that revealed underlying questions to be addressed and led me to the development of the narrative ecology model as a conceptual approach to understanding the ways in which student teachers' professional development with new technologies is entwined with an eclectic range of socio-cultural and autobiographical factors. The iterative and inductive process at the centre of this thesis can be traced through the progression of the research questions raised, thus:

- What are some of the factors that affect the development of student teachers online pedagogical practice?
- How do different factors inter-relate to affect the development of student teachers online pedagogical practice?
- How can we design a pedagogical and methodological approach that captures the tension and complexity between, the technological, socio-cultural environment and individual agents?

That is, these three key research questions represent the progression that my research went through in order to develop the narrative ecology model as a conceptual approach to the practice-based research in Higher Education of the ways in which student teachers' professional practice with technologies develops.

The first question had emerged from my own professional practice and the wider context around technologies in education as discussed in 1.1. However, the second research question emerged throughout the initial literature review stage of the project, which examined the two key knowledge bases of professional learning, and mediation and appropriation of tools.

These knowledge bases raised issues about *how* different factors affect and mediate professional learning. However, the complexity of the mediation and appropriation of tools in the process of professional learning also raised issues about how such complexity could be captured and researched leading to my third research question. This issue was further confirmed when examining key aspects of the knowledge base surrounding language. I will briefly illustrate the iterative nature of this thesis in the outline that follows.

### *1.2.1 Synopsis of thesis*

Chapter 2 reviews the literature surrounding the development of e-learning as a phenomenon and the difficulties in adequately defining e-learning. Claims regarding the potential of e-learning to transform pedagogy (Scardemalia and Bereiter, 1996: DfES, 2005: Owen et al, 2006) are examined critically in terms of whether such transformations represent a change in essence or are merely superficial (Davydov, 1999). It is argued throughout the chapter that a focus on greater teacher agency and pedagogy is required in order to identify more clearly the factors involved in promoting 'relevant teaching-learning processes and interactions (Ravenscroft, 2000, p.242). The difficulties in adequately defining e-learning (Haythornthwaite and Andrews, 2007) are also used to argue that e-learning is an emergent and dynamic phenomenon impacted on by teachers. Thus agency is defined as going beyond mere ownership and defined as playing an active role in the development of e-learning itself (Pachler et al, 2010). The argument for a focus on greater teacher-agency and pedagogy provides a strong rationale for the initial research question regarding the factors that effect the development of student teachers' online pedagogical practice thus:

- What are some of the factors that affect the development of student teachers online pedagogical practice?



Chapter 3 addresses issues surrounding the second research question regarding *how* different factors affect the development of student teachers' professional practice with online communication tools, for example:

- How do different factors inter-relate to affect the development of student teachers online pedagogical practice?

The knowledge bases of professional learning, and mediation and appropriation are discussed in depth. These broad knowledge bases are synthesized to argue that authentic or situated approaches to professional learning offer opportunities for student teachers to engage with the complexities and uncertainties of developing professional knowledge in practice as a dynamic and iterative process. As such this involves the development, synthesis and adaptation of various types of knowledge; pedagogical, technological, subject content (Schön, 1987: Shulman, 1987: Eraut, 1994: Laurillard, 2002: Mishra & Koehler, 2005: Loveless, 2007). Socio-cultural theory is used to establish the ways in which professional activity and learning is socially and culturally mediated by a range of factors from the micro-level contexts of classrooms and specific tools – virtual or real – to the macro-level influences of policy and wider discourses (Vygotsky, 1978: Wertsch, 1998: Engeström 2000 & 2001: Somekh, 2007). Ecological perspectives (Gibson, 1979: Nardi & O'Day 1999: Zhao & Frank, 2003: Loi and Dillon, 2006: Luckin, 2005 & 2008) are also drawn on to shed light on the ways in which different socio-cultural and technological factors are entwined in a dynamic process of mediation and appropriation. The complexity of professional knowledge and learning is used to argue that student teachers need to be given opportunities to develop their practice within authentic contexts in which they have control over the micro ecology of resources (Luckin, 2005 & 2008). Consequently this discussion raised further questions regarding designs for professional learning which led to the third key research question. That is, given the complexity of professional learning and the range of potential factors involved in the process of mediation and appropriation:

- How can we design a pedagogical and methodological approach that captures the tension and complexity between the technological, socio-cultural environment and individual agents?

Chapter 4 focuses on the knowledge base of language and particularly the issue how the more specific domain of computer-mediated communication (CMC) is positioned in relation to the research. I argue that whilst student teachers' pedagogical motivations and intent are no doubt embodied to a certain extent in the tangible vehicles of utterances such as speech and written text, one cannot assume that these capture the whole picture with regards individual agents' motivations and intent. This is based upon the distinction that Vygotsky (1978) made between the intra-psychological and inter-psychological realms, which Wertsch has also drawn on in his work (1985 and 1998). This chapter is focused on the issue raised by the third research question of how to capture individual agents' intent as they engage with the complexity of technological and socio-cultural contexts. There is a tendency in CMC to approach this issue through lexical or taxonomical analysis of text or spoken language. Chapter 4 discusses the underlying assumptions of such approaches in order to explore the extent to which lexical or taxonomical approaches are useful in capturing expressions of pedagogy online or face-to-face.

Chapter 5 sets out the pedagogical and methodological design issues that were addressed in the research. As an insider-researcher, researching my own student teachers, the pedagogical design was as vital as the methodological design. Thus, Chapter 5 relates how both of these were inductively developed. This was achieved by synthesizing various methodological approaches with the concerns, raised in earlier chapters, to design a professional learning context that provided contingencies for the student teachers to have agency over the experience within an authentic context. The methodological journey took me from the consideration of the merits of phenomenographic methodological approaches to a narrative case study of individual student teachers. Whilst action research approaches influenced the pedagogical design of the intervention carried out by the student teachers and myself, I realized that the most effective way to capture this from the research perspective was by constructing individual narrative cases of five student teachers' experiences and perceptions of the intervention. Chapter 5 also relates the findings from a pilot study. This was also instrumental in my decision to take a narrative case study approach.

Chapter 6 discusses and explains the first iteration of the narrative ecology model. In doing so, I illustrate how the literature from each of the inter-related knowledge bases, feeds into the conceptual and analytical model. The literature was used to identify an array of broad variable factors that could be detected in the analysis of each of the five student teachers' narrative cases. The synthesis of the literature to form the conceptual model also generated further questions that could be applied to each student teacher's case through the analysis of the data generated. The chapter explains how the array of variable factors was used in each student teacher's case to construct a narrative that attempted to capture their perceptions and experiences of the intervention. The emphasis of the chapter is on illustrating the way the variable factors are conceived as interdependent entities within an over-arching narrative of professional development.

In Chapter 7 I present three narrative cases of Maria, Laura and Jo, using the first iteration of the narrative ecology model. Each of the three narrative cases is presented in their own right. The intention at this stage was not to draw comparisons between the cases, but to establish the efficacy of the conceptual approach in facilitating an adequate narrative account of each student teacher's perceptions and experiences of the intervention. A range of inter-textual data generated by each of the student teachers throughout the intervention is presented and used in conjunction with the narrative ecology model to story their experiences and perceptions and create a narrative case.

Chapter 8 reflects on the issues raised in applying the first iteration of the narrative ecology to the three cases in Chapter 7 and presents some minor adaptations to the way in which the conceptual model is conceived based upon the cases of Maria, Laura and Jo. This chapter serves to further clarify the way in which the conceptual model is used to story the student teachers' perceptions and experiences of the intervention.

Chapter 9 applies the adapted version of the narrative ecology model to the cases of Karen and Heather. As in Chapter 7, the intention is not to make comparisons between the cases but to establish each narrative case in its own right. Thus, the narrative ecology model is used to make connections between the various isolated but nevertheless constituent aspects of each student teacher's case.

Chapter 10 brings synthesis to the five narrative cases produced. I reflect on the application of the narrative ecology model across the five narrative cases with a number of objectives. Firstly the narrative ecology model is evaluated throughout this chapter including its limitations. Secondly, I consider how the development and application of the narrative ecology model has informed further my understanding of the knowledge bases discussed in the literature review. Thirdly, I synthesize aspects from all five narrative cases to argue that narrative approaches offer useful insights into the process of professional learning with technologies. More specifically, I argue that based upon my five narrative cases, narrative ecologies have the potential to make more explicit some aspects of the intra-psychological domain of professional learning. That is, student teachers' professional learning with new communications technologies is contingent on an eclectic range of factors but without storying these they remain isolated and inconsequential. Thus it is argued that narrative ecologies have the potential to bring meaning to the isolated but constituent factors that affect teachers' professional development with technologies.

### 1.2.2 Terms, definitions and 'I' as researcher

Throughout this thesis I use several terms interchangeably and other terms more specifically. In general, where terms are used interchangeably this is to reflect the way the terms are used in current literature where the contested nature of technologies in education and associated terminology is evident. In referring to *online communications technologies* I mean those tools such as discussion forums, wikis, blogs, instant messaging and chat rooms, which are often encompassed within Virtual Learning Environments as well as existing as separate stand-alone tools. I do not distinguish between Virtual Learning Environments (VLEs), Managed Learning Environments (MLEs) or Learning Platforms (LPs). The intervention made use of both a Moodle VLE for use with children and the University of Brighton's own student VLE, Blackboard. These are referred to as both VLEs or LPs throughout the thesis.

The definition of *e-learning* for the purpose of this thesis was problematic as I discuss in Chapter 2. I prefer to preserve it as a contested notion and question the need to distinguish between *e-learning* or *learning* per se. However, when I use the term *e-learning* in the context of this thesis I do not use it to mean learning involving **any** form of technology. The

term is utilised in this thesis to refer to learning that incorporates the use of online communications technologies to facilitate interaction and collaboration between learners, and between teachers and learners. The term *virtual* is used throughout the thesis interchangeably with *online* and it refers to Internet-based technologies, although again such terms are not unproblematic.

*Mediation and appropriation* are important terms that are used throughout the thesis. I offer the following working definitions of these key concepts whilst also viewing them as inherently problematic and necessarily contested. I define *mediation* as the process by which social reality is constructed and understood simultaneously via various filters; socio-cultural, historical, technological and autobiographical. By *appropriation*, I mean the different ways in which student teachers make cultural or technological tools their own, bringing their own understanding and purpose to tools. These two terms are often used together throughout this thesis as they are conceptualised as being closely interrelated. That is, as student teachers *appropriate* technological tools and make them their own they can also be seen to actively mediate social reality. However this in itself is not sufficient as social reality is also construed within this thesis as being mediated by social, cultural and technological artefacts that exist and are established within the wider cultural environment. Thus *mediation* and *appropriation* should be interpreted throughout in terms of their complex relationship to each other.

*Students* and *teachers* are used interchangeably with reference to the student teachers who participated in the project. The Key Stage 2 children are generally referred to as *pupils* or the *primary school children*.

Another important feature of the approach I have taken to the writing of this thesis is the inclusion of some of my own autobiographical reflections at various points throughout the thesis. These autobiographical vignettes are designed to capture key moments in my own thought processes that have emerged throughout this course of study. Six years, which is approximately the period I have taken to carry out my research and write this thesis is a significant amount of time in the context of any life. I believe it is impossible to hold the experience of researching and writing a PhD at a distance and in isolation from other significant aspects of one's life past and present for such a period of time. Many times during

this process I found myself making connections between my research and my own past experiences, from things that colleagues might have remarked in passing, to memories of family, friends and significant events from the past and present. It is perhaps a reminder of the power of narrative to make sense of our lives and bring meaning to the rich fabric of experiences that constitutes our professional and personal identities as they evolve and cross paths. I have included these autobiographical vignettes to be open with readers who I hope will see this thesis as a narrative, constructed by myself whose personal narrative history has at times entered into this process and influenced my thinking and approach to my research.

## 2 Teachers as active agents in developing e-pedagogy

### *Journeying*

*I spent the day just walking around London and sitting on the top of buses, A to Z in hand spotting street names and watching and listening; people, places everything. I'd lived in London for seven months now, supply teaching, but always taking the tube. For the first time I started to see how London's different and rich geographical features, sights and people were connected and related to each other. I could see how I might come to know this city as I know my own city Birmingham; not by taking the tube. This experience has stayed with me some time and become a metaphor for my ambivalence towards the role of technology in our quest to know and understand more about the world around us. Technology can take us to places faster; places we may not have reached before. But can it also mask our knowledge and understanding, depriving us of the richness and variety of experience to be had from the journey?*

### **2.1 Introduction.**

This literature review begins with an exploration of the background literature within and around English education policy contexts relating to the educational use of online communications tools. In Chapter 1, I discussed why this study of some of the factors affecting student teachers' development of their online pedagogical practice is timely and necessary to the discovery of new ways of harnessing the educational potential of new technologies to enrich children's *educational journeys towards knowing and understanding*. This chapter develops further, some of the current issues surrounding e-learning as a contested area. It argues that in order to develop student teachers' online pedagogy and move towards a greater understanding of e-learning processes and practices, there needs to be a shift towards much greater teacher and student teacher agency in the development of e-learning pedagogy. All research is ultimately limited in scope and with this in mind I will go on to identify the key knowledge bases relevant to the study. Student teachers' professional knowledge and learning about e-learning have been drawn upon as significant theoretical focal points surrounding both the recognition and development of student teachers' online pedagogical practice, which will be explored in depth in chapter 3.

## 2.2 Online communication; a tale of rapid growth

Since its introduction into schooling, the Internet has been thought to offer the potential to transform both the ways in which we learn and the parameters by which we learn. In early studies Harasim (1990) emphasised the ways in which the Internet challenged traditional boundaries of schooling opening up the potential for learning across geographical, social and cultural frontiers commenting:

“Imagine learning with peers, expertise, and resources that are available whenever you want or need them. These ‘classmates’ are from Moscow and Mexico City, New York and Honk Kong, Vancouver and Sydney – from urban centres and rural and remote areas. And they, like you, never need to leave home. You are all learning together not in a place in the ordinary sense but in a shared space, a ‘cyberspace’ using network systems that connect people all over the globe.”

(Harasim, 1990, p.3)

Others (Scardemalia and Bereiter, 1996; Pulkinnen, 1999) focused more on the challenge to traditional pedagogical relationships between teachers and learners that the Internet appeared to pose; learners would now be able to communicate directly with experts beyond the classroom and draw upon a range of resources and information to support them in the learning process. In such an information-rich environment with easy access to fast modes of communication how could the role of the teacher remain unchanged and what might the teacher’s role become?

In the last five years the growth and diversification of modes of communication driven by commercial interests in social networking spaces such as Facebook, MySpace, Flickr and YouTube to name but a few, have exploited increasing bandwidths to enable participants to share and exchange increasingly rich content as well as develop an online identity.

Livingstone and Bober (2004) signalled a shift in young people’s use of the internet from passive receivers of online content to receivers and benefactors of online content. Abbot’s (1999) study of web publishing by young people outside of formal schooling (in Sefton-Green, 1999) in which pioneering and capable young people demonstrated a ‘developed understanding of the capabilities and deficiencies of the [online] medium,’ (p.121) seems to belong to a different epoch. Due to the ease of downloading and uploading content it is now commonplace for many people to have some kind of online presence. In a study for the policy ‘think tank’ Demos (2007) Green and Hannon still found a divide between those young people pioneering new ways of creative engagement with internet technologies and



those making regular use of the internet to communicate and share information such as music, movies and images. However, they also point out that ‘all these young people have something in common – they all use technology in a way that in the past would have labelled them “geeks,”’ (p.11).

### **2.3 Think tanks and policy makers**

The rapid development of a myriad of online communication tools, combined with the normalisation (Livingstone and Bober, 2004: O’Connell, 2004: National Office for Statistics, 2005: Owen et al, 2006: Green & Hannon, 2007) of such technologies within young people’s social and leisure lives has also led policy makers to serious consideration of their use as a vehicle for learning within formal education. For example, Owen et al (2006, p.58) in a report for Futurelab claim:

“The list of social software activity is long and is growing. However, there is also a need for a response in formal education. These technologies do provide a mechanism for transformation in education that appropriates these technologies for educational advantage.”

There does seem to be an element of determinism in such arguments. On the one hand rapid growth of the technologies associated with the rise of social software seems justification in itself for a response from formal education. On the other hand there is also a sense that the appropriation of new communications technologies for learning may also have the potential to yield new, ‘transformative’ approaches to education.

The promise of new educational opportunities across all phases of education afforded by new communications technologies together with their rapid growth has indeed tipped the balance, with the previous United Kingdom Government seeing the use of such technologies in compulsory schooling as a key factor within its educational reforms. Previous UK Government policies (DfES, 2005) have highlighted the potential and desire to harness such tools within formal education, as epitomised by the introduction of an E-strategy, which set out the target for all schools to establish e-learning platforms or Virtual Learning Environments (VLEs) by 2010. Similarly the introduction of e-learning by the Training and Development Agency for Schools (TDA, 2007) in England, into the set of competencies student teachers must demonstrate in order to achieve Qualified Teacher Status (QTS) is also symptomatic of the growth of investment and belief in the potential of new communications

technologies combined with the use of VLEs to transform current systems of education in the UK. So what is the nature of such envisaged transformation?

### *2.3.1 Transformation through personal online learning spaces?*

A more detailed examination of the previous Government's E-strategy (DfES, 2005) reveals the extent to which it is believed by some that new communications tools combined with new online environments can transform current systems of education. The nature of that transformation is also apparent. For example, the Labour Government's E-strategy was integrated with other policies such as Every Child Matters (ECM) and the desire to 'personalise' local and central government services. It is argued in these contexts that such technologies can enable more personalised and targeted services for children, for example:

“Children, especially those at risk, are best supported by professionals who can work together easily and efficiently, exchanging information to develop a shared understanding of the individual needs of the child or family. Once we have safe and secure systems, the technology will support the social care and education workforce in modernising their information systems and reducing bureaucracy.” (DfES, 2005, p.9)

As well as having the potential to transform children's services, targeting support for those in most need through more effective exchanging and sharing of information between children's services such as education, health and social care, claims are made about the potential of such environments facilitated by online communication to develop 'new relationship[s] with learners,' (DfES, 2005, p.11). Such 'new relationships,' it is suggested could place more value and emphasis on 'listening to children, young people and their families when assessing and planning service provision,' (DfES, 2004, p.4) in line with the Every Child Matters agenda. As discussed in Chapter 1, the current political context has changed and it is uncertain as to whether ICT will remain a subject in the next review of the curriculum. Despite this, many schools now have enhanced communication networks where information is often communicated to children and their families via online portals such as VLEs and LPs. Children can access homework tasks online and also in many schools submit their homework electronically. However, other evidence regarding the use of VLEs and LPs suggests that the pedagogical use of such tools in schools varies significantly, with access to adequate CPD opportunities for teachers to develop their knowledge and skills in the pedagogical application of such tools being inconsistent (Younie and Leask, 2010). Hammond (2010) similarly draws attention to the issue of adequate and timely CPD for

teachers wanting to incorporate online communications technologies into their pedagogical practice. However he also identifies teachers' 'doubts about the benefits for learners' (Hammond, 2010, p.28) with regards the use of LPs and VLEs, cautioning that CPD alone is not a panacea for the further development of the pedagogical use of such tools. That is, amongst teachers, the potential benefits and ability of VLEs and LPs to transform pedagogy are as contested as they are within academia.

Much of the rhetoric concerning personalized learning facilitated by the advent of personal online learning spaces for pupils makes fundamental assumptions about the ways in which these spaces will be used by children. Furthermore, there is often little reference to what role teachers might play in facilitating such spaces for educational use. For example:

“Schools, colleges and universities are working to provide learners with their own personal online learning space and will want to develop eventually an e-portfolio where learners can store their own work, record their achievements, and access personal course timetables, digital resources relevant to their own study, and links to other learners,”

(DfES, 2005, p.22)

Such statements raise a number of questions regarding the roles that teachers and children will need to play in order to realise the processes described. For example, where will teachers' and children's motivation to engage with such processes come from bearing in mind Hammond's (2010) evidence regarding some teachers' skepticism? How will children engage with the rich digital resources and other learners that will become available to them? And most importantly at the core of this thesis is; what role will teachers play in this 'new relationship' (DfES, 2005, p.11) with pupils? This latter I argue throughout this thesis can only be addressed through greater emphasis upon teacher agency whereby practicing and pre-service teachers become actively involved in developing the practice and processes of e-learning or online pedagogies.

## **2.4 Teachers as active agents in developing e-learning pedagogies**

The review of some of the policy documents and 'futures' papers coming out of significant think tanks in section 2.3 illustrates the way in which teachers are often portrayed as passive agents in the process of pedagogical transformation through new technologies. In contrast to this, Hammond (2010, p.28) argues that 'the context in which CPD is taking place is changing' adding that 'teachers are seen as bearing a greater responsibility to identify and

address their own development.’ That is, teachers themselves will develop and define the roles they can effectively play with regards to new online spaces and their potential to transform the parameters and nature of formal learning in a technological, networked digital age. This represents a shift towards greater active teacher agency in the process of professional development with new technologies. Since the turn of the new millennium and particularly under the educational reforms initiated by the ‘New Labour’ government there has been a concerted effort to augment the learning process through the use of new technologies. This has led to a growth in terminology intended to capture and describe the nature of this interaction between new technologies and the learning and teaching process; ‘anytime, anywhere learning’, ‘blended-learning’ and now ‘e-learning’ or indeed ‘e-learning 2.0’ with its promise of a more personalized learning approach are just a few of these.

However as Woolgar (2002, p.3) remarks:

“it is worth noting that ‘virtual society’ is one of a class of what we might call ‘epithetized phenomena’ – descriptions used to conjure a future consequent upon the effects of electronic technologies.”

So too one could argue about e-learning. That is, it is merely a term designed to invoke some kind of future learning which, as yet no one is quite sure what it entails other than it utilizes new technologies. As Woolgar goes on to claim (p.8) ‘the discourse of the definitive...pervades rationales for the analysis of technology,’ in education. Technology in itself is often portrayed as offering ultimate solutions to problems faced in education with little regard to the role of human agency within the process. Furthermore implicit within such epithets describing learning and teaching with new technologies is the notion of transformation of the learning process itself. Pachler and Daly (2011, p.18) point out that ‘theories of e-learning are not distinct from theories of learning generally.’ Ontologically, this complicates things further for as Davydov (1999) suggests:

“many changes of natural or social reality carried out by people affect the object externally without changing it internally. Such changes can hardly be called transformations. Transformation means changing an object internally, making evident its essence and altering it.” (p.42)

Thus, to what extent does learning with new technologies transform the very essence of the learning process? Do the implied ‘transformations’ in learning heralded by the various epithets used to try and capture this, such as e-learning, represent anything more than a change in the outer appearance of the learning processes? Such questions cannot be answered it is argued here;

“without a closer examination of theory and practice surrounding the practice of e-learning with a particular emphasis upon the learner-teacher interface. That is, in focusing on human agency we can begin to unravel and examine more closely claims about the potential of e-learning to transform pedagogy.”

(Turvey, 2008, p.319)

From this perspective it is also argued that what is required is a definition of e-learning that recognizes its dynamic and emergent nature as it is constructed and reconstructed by both teachers and learners. Only by recognizing e-learning as a dynamic and emergent phenomenon can we fulfill Fisher et al’s call to be ‘more explicit about the complex and problematic nature of what it is that teachers know and how they come to know it,’ when adapting and adopting technological tools (2006, p.8). With this in mind I will examine some of the current definitions used to describe the practice of e-learning arguing that teachers have an active role to play in the process of developing e-learning practices.

#### *2.4.1 E-learning; defined and redefined by people*

A brief search on the Internet for definitions of e-learning reveals a diverse range from overall explanations to more specific definitions. Some merely describe it as learning with or through any piece of computerized technology for example:

“E-learning comprises all forms of electronically supported learning and teaching. The information and communication systems, whether networked or not, serve as specific media to implement the learning process.”

(Wikipedia, 2011, np)

Other definitions emphasise the specific role played by online communications across networks and therefore imply greater significance to the importance of human interactions within the practice of e-learning. Indeed the trend towards ever new epithets is confirmed with the emergence ‘e-learning 2.0’ which, like ‘web 2.0’ has made its entry into the vernacular as evidenced by the plethora of pseudo-academic literature referring to this on websites such as Wikipedia where it is provisionally stated that:

“E-Learning 2.0, by contrast to e-learning systems not based on CSCL, assumes that knowledge (as meaning and understanding) is socially constructed. Learning takes place through conversations about content and grounded interaction about problems and actions.”

(Wikipedia, 2011, np)

Such definitions as this appear to stress the importance of human agency or teacher-learner interactions drawing attention to the importance of ‘conversations’ (ibid). However, a clear consensus on the definition of e-learning is absent in much literature, which is indicative of the debate ‘around the extent to which specific pedagogical approaches need to be designed into the use of digital technologies’ (Pachler and Daly, 2011, p.11). The Higher Education and Funding Council for England (HEFCE) definition attempts to address this to a degree describing e-learning as:

“The use of technologies in learning opportunities, encompassing flexible learning as well as distance learning; and the use of information and communications technologies as a communications and delivery tool, between individuals and groups, to support students and improve the management of learning.”

(HEFCE, 2005, p.12)

However, this definition is found wanting by others (Haythornthwaite & Andrews, 2007) who criticize the way in which ‘the HEFCE definition appears to portray technology as simply a delivery mechanism,’ (p.2). More significantly Haythornthwaite and Andrews (ibid) argue that any attempt to define notions of learning with new technologies needs to recognise the diverse pedagogical and wider societal contexts within which technologies are deployed for ‘equally important in this technological mix are the people who use the systems.....each bringing to the enterprise their ideas of how teaching, learning and communicating should be enacted,’ (p.6). That is, the status of human agency is augmented within a dynamically evolving and flexible conceptualization of the notion of e-learning. For example, they go on to argue:

“E-learning is *continuously emergent* emanating from the possibilities of ICT in the hands of administrators, instructors and learners, and created and recreated by use. The forms and shapes of technology, learning, and technology-in-use for learning co-evolve, one pushing, pulling, and modifying the other.”

(ibid, p.19)

Within such an ‘evolutionary’ conceptualization of e-learning the active role played by human agents is paramount for it is they and not the technologies that become the active agents of pedagogical change. Pachler, Cook and Bachmair (2010, p.13) have emphasized the importance of a more active definition of agency in the process of e-learning, defining it in terms of subjects’ capacity to ‘deal with, and to impact on socio-cultural structures and established cultural practices.’ That is, agency is an active process involving the appropriation of socio-cultural tools to affect and even challenge the socio-cultural

environments in which technological tools are brought to bear. This echoes Bruner's assertion that teaching is 'a direct reflection of the beliefs and assumptions the teacher holds' about learners, pedagogy and knowledge (1999, p.5). Such 'beliefs and assumptions' (ibid), as Pachler et al (2010) imply can indeed be at odds with the socio-cultural environments in which teachers operate or even with the degree of agency exercised by the children being taught. From this perspective, teacher agency is seen as the capability teachers develop to effectively manage the conflicting and complex tensions as they appropriate the use of technological tools for pedagogical purposes.

A similar conceptualization of the practice of e-learning as an evolutionary and dynamic process being continually 'created' and 'recreated' by learners and teachers as they engage with technological tools yielding new possibilities is also perpetuated by Anderson and Garrison (2003). They argue that the most significant aspect of e-learning is 'its capacity to facilitate communication and thinking and thereby construct meaning and knowledge,' (p.XII). Anderson and Garrison (2003) do not rule out of any definition the importance of face-to-face interaction or a range of technologies, but they lay greater emphasis upon the importance of online technologies' appropriation for communication through networks whose key purpose is human interaction. With the development of different forms of online communication such processes are dynamic and evolutionary requiring active participation by agents.

My own approach to this research project is based upon such an evolving and dynamic conceptualization of e-learning (Anderson & Garrison, 2003; Haythornthwaite & Andrews 2007) and thus argues that what is needed is a shift from policy-led agendas or attempts at fixed definitions, towards greater teacher agency in order for an appropriate professional knowledge-base to emerge and develop. I use Pachler et al's (2010, p.13) notion of agency, as teachers' 'capacity to deal with, and to impact on' the complex socio-cultural, pedagogical environments in which they operate, appropriating technological tools meaningfully into this environment. Thus, my own approach to this issue also 'foregrounds what people do with technology, rather than technology itself' (Pachler & Daly, 2011, p.25).



### 2.4.2 Paradoxes; teacher agency Vs personalised learning

A strong rationale for greater teacher agency in the development of e-learning pedagogy is also evident in debate and discussion of notions of personalized learning. Personalised learning is often linked with discussion of new online arenas whether they be formal online learning environments such as VLEs or 3D social networking spaces such as Second Life as highlighted in 2.3.1. It could be argued that an array of rich online digital content and so many different ways of interacting virtually with different content and people online would appear to mitigate the importance of the role of the teacher. Scardemalia & Bereiter (1996) argue that the boundaries of learning can be limited within a traditional transmission model of education where the teacher's knowledge may actually 'curtail what is to be learned,' (p.155). However, whilst there may be the need for a shift in the dominant teacher-pupil relationship, paradoxically it would appear that the role of the teacher remains vital despite the advent of more personalised online learning spaces with new technologies. Sutherland et al (2004) studied the repercussions of different notions of personalisation across a range of subject domains and highlighted some of the implicit problems associated with different constructions of the concept of personalisation.

In the realm of e-learning and ICT Sutherland et al (2004) noted that learning with technology can lead to highly individualised forms of knowledge construction. They distinguish between 'idiosyncratic' forms of knowledge and 'consensual' knowledge. The implication is that individualised or 'idiosyncratic' knowledge stands in isolation and has less relevance or application beyond the individual. In contrast 'consensual' knowledge is that which is understood between groups and communities and is therefore of more value, representing a shared understanding and way of making sense of the world. It is 'consensual' understanding that enables communities of practitioners and professionals to share a common language and build upon their knowledge they argue. Furthermore, Sutherland (2004) notes that 'effective teaching and learning with ICT involves finding ways of building bridges between *individual*, *idiosyncratic* and *consensual* knowledge,' (p.18, [emphasis added]). Thus teacher agency and the role of the teacher is critical in ensuring that concentrated periods of time developing highly individualised knowledge with ever more powerful and information rich technologies is translated for and by learners into knowledge that can be applied and developed further. As Sutherland states:



“Students are unlikely to develop ideas about mathematical proof from everyday reasoning without the support of a teacher. Nor are they likely to develop ideas about the Italian Renaissance from their ideas about popular culture unaided. If Personalised Learning becomes synonymous with individualised learning, this is likely to limit the knowledge creation of future generations of citizens. If personalisation becomes linked to participation in communities of learning and partnerships between teachers, parents and young people then we will be building a solid basis for educating young people for the 21st century.”

(2004, p.18)

This suggests that teachers have a key role to play in utilising the educational opportunities that new communications technologies could yield, helping learners to make sense of their knowledge and understanding within ever wider and diverse social contexts. If children’s agency over their learning with new technologies is defined as *more* than merely an increase in ownership and freedom to pursue their own individual interests, then teachers have a vital role in helping children to make the connections between their individual experiences and how these relate to society. In this respect, children’s agency over the learning process with technological tools is aligned with the definition of teacher agency as the capacity to ‘deal with, and to impact on socio-cultural structures and established cultural practices’ (Pachler et al, 2010, p.13). Without appropriate teacher intervention it cannot be assumed that children’s appropriation of technological and socio-cultural tools will translate into effective cultural reproduction however that might be defined. As Pulkinnen (1999) points out ‘new open learning environments will introduce an interesting, even anarchistic, perspective on the process of social reproduction; learning can well result in learning that is undesirable from teachers’ and parents’ points of view,’ (p.84). From such a perspective, the development of teachers’ pedagogical capacity to make effective use of the array of new communications technologies across a range of online learning environments would appear to be critical. Furthermore, whilst the new parameters that are being defined by people’s adaptation to digital online environments may well challenge current pervading notions of the role of the teacher it would appear that establishing effective new roles will be critical as Scardemalia and Bereiter point out (1996):

“The teacher remains the leader but his or her role shifts from standing outside the learning process and guiding it to participating actively in the learning process and leading by virtue of being a more expert learner,” (p.155)

Thus whilst it is clear that the role of the teacher will remain critical if learners are to make effective use of new communications technologies, the pedagogic detail about *how* teachers might participate ‘actively in the learning process’ (ibid) is still emergent and evolving.

### 2.4.3 Refocusing e-learning policy on teacher agency and pedagogy

Much policy seems more preoccupied with peripheral issues regarding e-learning. The significance of the development of new appropriate pedagogies for effective e-learning to take place appears only to be expressed indirectly through notions of embedding e-learning. For example the previous UK Government's e-strategy identifies three key areas with regard to e-learning:

“We have to address three critical problems in the provision of e-learning; the quantity and range of resources available to teachers and learners; the quality and degree of innovation of those resources; and the embedding of e-learning and ICT across the curriculum.”

(DfES, 2005, p.27)

With regards to quantity and range it could be argued that there is already a great quantity and range of resources available as a scan of the plethora of hardware and software on show at the annual British Education and Training Technology (BETT) exhibition illustrates. The same could be argued for innovation, with mobile technologies enabling multiple responses from teachers' questions to be collected and analysed in an instant or convey real-time video across networks on different continents. However, with regards to the ways in which e-learning and ICT may be embedded throughout the curriculum many questions remain; what enables some teachers to embed e-learning into their pedagogical practice and how is this done most effectively? As Ravenscroft (2000, p.241) states 'if Virtual Learning Environments are to support real learning, they must promote effective teaching-learning processes and interactions.' He argues that most policy has been focused on developing online environments as portals to rich digital content whereas 'much less attention has been given to the examination of relevant teaching-learning processes and interactions that support learning using these environments,' (p.242). Policy makers and think tanks, perhaps understandably, are more focused on potential than 'relevant teaching-learning processes and interactions,' needed to realize this potential (ibid); that is where we are heading rather than how we might get there. Such processes I argue are in a state of transition within primary education where the educational potential of new communications tools and VLEs are only beginning to emerge. Nevertheless, if we are to learn how new communications technologies are to be utilised effectively for learning within new online spaces, a focus upon teacher agency is vital; teachers, and in the context of this research student teachers, need to be actively engaged in 'relevant' online and offline 'teaching-learning processes and interactions' (ibid).

If, as indicated and implied in both policy and research literature, new communications technologies and online spaces are to yield ‘new relationship[s] with learners,’ (DfES, 2005, p.11) then research that is tuned to recognize, capture and explain the pedagogical processes and interactions at the centre of these through giving greater emphasis to teacher agency is of significant value. Despite there being a tendency towards more personalised learning it is apparent that teachers have a vital role to play in learners’ construction of knowledge; helping them to make sense of the knowledge gained through their interactions with digital technologies in order to apply this within wider contexts. However, agency needs to be defined as more than merely ownership of this process of appropriation as Pachler et al imply (2010). That is, as well as taking ownership of this process of appropriation, agency requires some evidence of teachers’ developing capabilities to ‘deal with and impact on’ (Pachler et al 2010, p.13) the complex socio-cultural and pedagogical environments that are evolving. Thus an approach to professional learning about new communications technologies which prioritises student-teacher agency and engagement with such technologies in authentic pedagogical contexts would appear to be particularly apt if they are to develop anything more than a superficial understanding based upon the rhetoric of policy makers and think tanks.

## **2.5 Summary**

This enquiry into the literature surrounding the background to this research locates my own research position within relevant educational policy and theory landscapes. I have argued that the notion of teacher agency is inherently central to this thesis and attempted to define the approach to teacher agency I take. However, whilst teacher agency is central to this research into factors affecting student teachers’ development of their online pedagogical practice, it is also problematic as I have begun to show. As teacher agency is a central tenet in addressing the question of how we can research the development of student teachers’ online professional practice I will now highlight other aspects of the problematic nature of teacher agency. In the following chapters I will identify what I have discerned from my reading to be other potentially significant ‘categories of experience’ in respect to student teachers’ development of their online pedagogical practice (Laurillard, 2002, p.69). That is, where might we discover other factors emerging that affect student teachers’ online pedagogical practice? Furthermore, how might we research these factors, as they are perceived differently from student teacher to student teacher? As I proceed to discuss a range of relevant knowledge

bases from which other significant factors affecting student teachers' online professional practice might emerge, I will also highlight the ongoing problem of reconciling these against the capricious nature of teacher agency. That is, as teachers appropriate online communication technologies into their professional practice, what factors appear to affect the very different levels and types of engagement between teachers (Younie and Leask, 2010)?

# 3 Authenticity and pedagogical design for professional knowledge and learning

## 3.1 Introduction

Chapters 1 and 2 focused predominantly on the rationale for taking as a central thesis the development of student teacher's online pedagogical practice and arguing for a greater emphasis on teacher agency in this process. This call for increased active agency by teachers comes in an era when children and young people increasingly make use of new communications technologies outside of formal education (Livingstone and Bober, 2004: O'Connell, 2004: National Office for Statistics, 2005: Owen et al, 2006: Green & Hannon, 2007). The response from the Labour Government of 1997 – 2010, was to bring in policy (DfES, 2004 & 2005) that facilitated the provision of online personalised learning spaces for children that attempted to bridge the divide between the formal learning environment and the home or wider community. In this context a spotlight on teacher agency in utilising such tools and spaces is particularly timely and apt. However, I have deliberately avoided hitherto difficult issues concerning questions about professional knowledge and learning, which also lie at the core of this research. These issues have emerged regularly through my engagement with the theory and policy surrounding new online communication technologies. Having set the current policy context surrounding the use of new technologies in education and outlined the rationale for an approach to professional learning about e-learning that promotes teachers' active agency in the development of e-learning processes, I will now turn my attention to other specific knowledge bases relevant to this study.

Together with the significance of teacher agency, three key knowledge bases have been identified as potentially central in tackling the research questions that were first introduced in section 1.2. However as discussed in 1.2 the development of these research questions was iterative and I began by asking:

- What are some of the factors that affect the development of student teachers' online pedagogical practice?
- How do different factors inter-relate to affect the development of student teachers' online pedagogical practice?

In Chapter 3 I explore directly these first two research questions above, through discussion of the knowledge bases of professional knowledge and learning and, mediation and appropriation. Chapter 4 also addresses the first two research questions further with relation to the knowledge base of language and pedagogic form. However in the process of exploring these initial research questions a third research question is raised which has implications for the pedagogical and methodological design of the intervention and research, namely:

- How can we design a pedagogical and methodological approach that captures the tension and complexity between, the technological, socio-cultural environment and individual agents?

This third research question is raised indirectly throughout chapters 3 and 4 but is dealt with more directly in Chapters 4 and 5, which address issues concerning the pedagogical and methodological design of the intervention.

### *3.1.1 Navigating the argument*

Throughout 3.2 the central issue of pedagogical design in Higher Education (HE) for the development of student teachers' professional knowledge is discussed critically. Problems surrounding distinctions and tensions between notions of professional and academic knowledge are highlighted leading to issues of how we design appropriate and authentic activities and experiences for student teachers to develop their online pedagogy. I define 'authentic' in this context in terms of exposing student teachers to the use of online communications technologies, with children in professional contexts and for predominantly educational purposes. I also use the term 'situated' to convey this definition of authenticity. However, what implications and pitfalls are there for module and course design based upon authentic or situated approaches and what is the epistemological base for these? Here I will draw upon theory that attempts to capture and explain the *sympiotic* nature of professional

knowledge and learning (Shulman, 1987: Schon, 1987: Eraut, 1994: Laurillard, 2002: Shulman & Shulman, 2004: Loveless, 2007). I use the term *symbiotic* according to The Concise Oxford Dictionary definition, which explains *symbiosis* as the ‘association of two different organisms living attached to each other, or one within the other’ (Sykes, 1982, p.1082). That is, the variable factors affecting professional knowledge and learning with technologies are conceived as being part of an interdependent *ecology* of mediating influences. Professional knowledge and learning is conceptualised within a dynamic and interactional context of different mediating and socio-cultural contexts leading to professional learning and practice. Thus, I put forward an approach to professional learning that emphasises the importance of professional learning evolving, iteratively from reflection upon authentic and situated contexts, as a significant contingency in the development of student teachers’ online pedagogical practice. Establishing contingencies for professional learning with technologies is a key concern throughout this chapter. Contingency is defined in terms of identifying the necessary pre-requisites or factors for professional learning with technologies.

In 3.3 and 3.4 I develop and explore further the potential of situated or authentic approaches to the development of professional knowledge in relation to technological tools. Having established professional knowledge and learning in 3.2 as being a dynamic and iterative process affected by a range of interdependent factors, I explore the significant body of literature investigating ecological conceptualisations of the appropriation of new technologies in education (Nardi and O’Day, 1999; Zhao and Frank, 2003; Oliver, 2005). Such work builds upon Gibson’s (1979) notion of affordances based upon the latent qualities within tools that may be brought to fruition through human agency. However, what is the balance between human agency and the latent qualities designed into tools? Gibson’s theory of affordances is often used to shed light upon what new technologies might yield within educational settings and to examine the ways in which human experience is mediated by the use of tools. This also resonates with activity theory (Vygotsky, 1978: Leont’ev, 1981: Engeström, 2000 & 2001) where the importance of tools within the mediation of activity is given new significance because as Engeström points out, objects are conceived as ‘cultural entities’ (p.134). However, I argue that although the theory of affordance and activity theory provide useful frameworks for examining the mediation of experience through tools, it is

important not to overlook the importance of human appropriation and agency within such processes. Mishra and Koehler's (2006) extension of Shulman's (1986) model of pedagogical content knowledge (PCK) to incorporate technological affordance (TPCK) is explored as a useful way to conceptualise student teacher's appropriation of new technologies within their pedagogical repertoire on their journey to developing their professional knowledge and understanding of new communications tools. For example, in what ways do student teachers within this study begin to recognise and utilise affordances of online communication tools for learning given the opportunity? Or - equally important – what factors mitigate the realisation of technological affordances for learning within professional contexts? Similarly, many online communication tools exist as 'cultural entities' within non-professional contexts so how could this affect student teacher's perceptions of these tools' pedagogical affordances as they draw on their tacit knowledge developed outside of their formal or professional learning contexts? Such questions highlight the interdependency of mediating factors.

Thus Chapter 3 establishes professional knowledge and learning as a complex and dynamic process affected by an ecology of interdependent factors, raising a more fundamental question of how to capture the tension and complexity between, the technological, socio-cultural environment and individual agents. This argument leads to issues of how individual agents' pedagogical and professional development is or is not made explicit through their actions and utterances; hence the need for a conceptual approach to language, which is addressed subsequently in Chapter 4.

### **3.2 Towards a pedagogical design for learning to learn in professional contexts**

In my own professional role in ITE and ICT education I have often asked: How do student teachers develop the know-how to make effective use of new communications technologies and online spaces to facilitate children's learning? This is a question that has preoccupied me since introducing many of the learning objects such as discussion boards and wikis contained within VLEs and other online spaces to student teachers. It is also a question, noted previously, that begs more complex questions about the nature of professional learning and knowledge as one enters into the complex interface of student teachers' professional knowledge and children's development of knowledge within and beyond subject domains.



This study argues that deep approaches to student teachers' learning based upon authentic activities are needed in relation to developing their pedagogical understanding of the application of new communications technologies. The distinctions between 'deep and surface approaches' to learning are not new (Askew & Carnell, 1998) but it is important to consider both what is implied by such definitions and what characterizes such definitions in order to determine how such theoretical underpinning can be applied to the pedagogical design of learning with new technologies for student teachers. My own understanding that learning is a complex and deep-rooted process stems from an experience I had in my early career as a teacher as I will relate in the vignette that follows in 3.2.1.

### 3.2.1 *Neelam's Story*

*In 1992 I worked as a volunteer teacher trainer in a remote district of Nepal on its border with India. The time spent working and living in this country was a significant learning journey for me and one that has continued to resonate with me since; perhaps because being immersed in such a different culture and language for two and a half years was such a fundamental experience.*

*Neelam was a ten-year-old girl who lived and worked in a makeshift shack made of wood, mud and rough thatch next to the district education office. She spent her days delivering tea, samosas and snacks to the 'thulo manche' (literal translation 'big men') who worked in the district offices. When she wasn't delivering refreshments to the offices she looked after her baby brother, Rajendra, prepared food and washed clothes for her seven siblings. Her family were low caste and extremely poor often having to repair their home repeatedly during monsoon season whilst continuing to serve tea and samosas to maintain an income. She would often visit my office curious about the 'bideshi' (foreigners) in the neighbourhood.*

*A naïve and enthusiastic 27-year-old I decided to try and teach Neelam to read and write Nepali. As part of my role I'd spent three months translating textbooks into English so that I would have an idea of what to expect when observing and trying to support teachers. I got Neelam a textbook, 'My Nepali,' and an exercise book. We started to practise writing and reading the phonetic sounds of various keywords that also had illustrations to aid association between the written word and concepts or objects. Things seemed to go quite well until Neelam stopped bringing her books. When I asked her where it was she just gave me vague answers. She didn't know what had happened to it. Maybe it was lost?*

*A few days later the mystery was solved. Neelam would always deliver the samosas wrapped in newspaper. This day her father sent her to deliver the samosas to the district education office wrapped in the last few pages of the textbook 'My Nepali,' ..... Neelam's textbook.*

*I'd taught Neelam very little but I'd learnt a humbling lesson about the complexities of learning and the assumptions we may make as teachers. I had approached the issue of teaching Neelam to read from a purely mechanistic and cognitive perspective. What was*

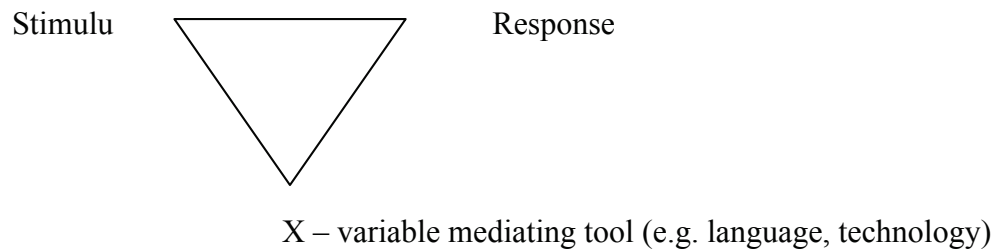
*needed was an approach that recognised the socio-cultural complexities of Neelam and her family's predicament; poverty stricken with very little social or cultural status due to the inequities of the caste system. Furthermore, for families such as Neelam's, there was little incentive to educate daughters due to the dowry system, which encourages the exploitation of young girls for their income generating potential in the home economy. In this complex socio-cultural context a simple object such as a textbook had no meaning as a tool with which to learn. Like Neelam herself, the text book became absorbed into the economic struggle of the family.*

This critical incident with Neelam gave me a glimpse of the need for both deeper and more holistic approaches to learning, which go beyond individual cognition, whether it be children's learning we are focusing on or student teachers' professional learning. Whilst far removed from the issues faced by student teachers this episode does illustrate the ways in which given and complex social, cultural, economic, and religious systems impact significantly to enable or limit individual human trajectories of development. As a young and inexperienced teacher I had seen the issue of helping Neelam to read as a straightforward problem of introducing her to the mechanics of reading, believing she would automatically perceive its value and be in a position to take advantage of an opportunity. That is, the problem was conceived merely as one of stimulus and response. It has since become an epiphanic moment in my own professional development signalling the importance of 'reading' the inter-related and wider complexities of educational issues and contexts as opposed to merely seeing them as isolated issues divorced from other aspects of an individual's life and socio-cultural context.

### *3.2.2 Learning as a socio-cultural process*

This critical incident has continued to resonate with me throughout my career in education. It has come to represent for me the realisation in practice of the significance of Vygotsky's triad (Figure 3.1), depicting mediated actions in which X, the 'complex mediated act..... permits humans, by the aid of extrinsic stimuli, to control their behaviour from the outside,' (1978, p.40). Furthermore as Vygotsky goes on to state, 'the use of signs leads humans to a specific structure of behaviour that breaks away from biological development and creates new forms of a culturally-based psychological process,' (ibid). Thus too student teachers' professional learning, it is argued here, is both internally and extrinsically constructed out of their interactions with a range of socio-cultural activity systems and mediating tools which have

the potential to both inhibit or enable individual professional growth and development but which are also fundamentally socially and culturally based.



**Figure 3.1: Vygotsky's mediated stimulus and response**

This then has implications for the kinds of professional learning experiences we endeavour to facilitate for student teachers, and also raises epistemological issues about how we both value and define different types of knowledge within professional contexts relating to e-learning.

As Eraut (1994) suggests the;

“segmentation and packaging of knowledge for credit-based systems seems inappropriate preparation for professional work which involves using several different types of knowledge in an integrated way.” (p.10)

From this perspective, within and beyond initial teacher education it is not enough merely to equip students with a range of knowledge and competencies about the educational use of various technologies that can then be applied in school contexts. As Barton and Haydn (2006, p.267) conclude ‘a coverage approach to the development of trainees’ capability in using ICT in subject teaching’ is unproductive, having little impact upon their professional practice. Furthermore, in this study the key factors that student teachers reported as impacting upon their own professional practice with ICT most significantly were;

“having a ‘role-model’ while on placement, the modelling of particularly powerful and persuasive facets of ICT, and the benefits of peer learning through working in groups.” (ibid)

In other words, it would appear from this research that an important enabling factor in terms of developing professional practice with ICT was the opportunity for contextualised learning supported by interaction with strong role models and between peers. Consequently, this leads to questions about the nature of professional learning and knowledge that seems so apposite to the benefits of contextualised learning.

### 3.2.3 Professional learning and knowledge – a messy uncertain process

Abstract knowledge is often transformed in practice or found to be lacking, or in need of reconstruction or reconfiguring (Eraut, 1994; Schön, 1987; Loveless, 2007). The application of theory to practice or indeed the deriving of theory from practice can be viewed as a complex, symbiotic process. Shulman captures the complexities of such professional knowledge in his classic theoretical model of pedagogical content knowledge, (1986) which highlights the importance of what he terms teachers' 'strategic understanding' and professional judgement when faced with the contradictory or conflicting issues authentic cases often present. 'Strategic understanding' within Shulman's model is what emerges at the intersection of pedagogic knowledge and subject-related content knowledge when these two are applied in authentic contexts as he states:

“What distinguishes mere craft from profession is the indeterminacy of rules when applied to particular cases. The professional holds knowledge, not only of how – the capacity for skilled performance – but of what and why. ....A professional is capable not only of practising and understanding his or her craft, but of communicating the reasons for professional decisions and actions to others.” (p.13)

Loveless (2007) also gives a useful insight into the complexities novice teachers face in representing subject knowledge effectively for their pupils with technology. In the rich qualitative examples she describes, one teacher, Oliver, finds himself drawing upon his in-depth subject knowledge, combined with an understanding of the affordances of particular technological applications to 'improvise appropriately for the children's responses' (p.517). In other words this suggests the integration and transformation of different types of knowledge through practice as the teacher uses his professional judgement within the given context to represent specific subject knowledge appropriately. As Eraut (1994, p.60) notes 'using a theory involves giving it a contextually specific meaning so there is always an element of reinterpretation or reconstruction.' Similarly, Schön (1987) argues that practice regularly presents practitioners with unique problems irresolvable by the straightforward application of technical or professional knowledge. To successfully deal with such problems he argues the practitioner 'must do so by a kind of improvisation, inventing and testing in the situation strategies of her own devising,' (p.5). Consequently, it is necessary 'to ask what kinds of teacher-development activities will foster the right kinds of learning' to enable student teachers to undertake such complex and transformative processes within their professional practice with online communication tools (Shulman & Shulman, 2004, p.263)?

That is, how far does the opportunity to engage in authentic activities enable students to develop their online pedagogical practice? A potential pitfall here would be to assume that the application and development of their use of new communications technologies within authentic and meaningful contexts will automatically facilitate appropriate development of student teachers' professional knowledge of online pedagogy.

On the contrary, symbiotic conceptualisations that portray professional knowledge and learning as a complex process, could be argued to warrant the design of pedagogical approaches to student teachers' professional learning that attempts to synthesise university-based approaches to the development of professional knowledge, with the kinds of wisdom and artistry (Schön, 1987) in the use of online tools and spaces that might be developed through authentic practice. It would appear that the design of opportunities for deeper and more holistic approaches to student teachers' professional learning based upon authentic experiences could be a factor in developing their capacity to effectively utilise the opportunities that online communication tools afford for learning with children; particularly if they are to develop a deep understanding of the complexities of incorporating such tools into their pedagogical practice. Furthermore an advantage of such a situated approach to professional learning according to Leach and Moon (2000, p.394) is that it 'is sensitive to the wider school community impact on learning, as well as taking account of the role outsiders can play in communities, particularly where ICT is a key element.' However, simply engaging in authentic activities themselves it can be argued does not go far enough.

Eraut (1994, p.71) locates the capacity to theorise as central to a notion of effective professional learning believing that it is this capacity that has the potential to sustain professional practitioners throughout their career. For example he argues:

“the most important quality of the professional teacher, [is] the disposition to theorize. If our students acquire and sustain this disposition they will go on developing their theorizing capacities throughout their teaching careers, they will be genuinely self evaluative and they will continue to search for, invent and implement new ideas. Without it they will become prisoners of their early school experience, perhaps the competent teachers of today, almost certainly the ossified teachers of tomorrow.”

By theorising and reflecting on authentic experience, student teachers are aided in constructing, reflecting upon and adapting their own professional knowledge. In such an approach students witness and respond at first hand to the dynamic phenomenon of

professional knowledge emerging from the often problematic and messy interface of theory and practice. But what exactly does ‘theorising’ mean? I interpret theorising in the context of professional learning to refer to student teachers’ capacity to articulate a rationale for their pedagogical actions or why a particular pedagogical strategy led to certain desirable or undesirable outcomes. This echoes Shulman’s identification of the way in which the ‘what, how and why’ of professional practice distinguishes it from mere craft (Shulman, 1986, p.13). Such an approach calls for a more ‘holistic, iterative form’ of professional learning in which teachers are required to articulate a rationale for their pedagogical actions as Laurillard (2002) notes:

“As the learner iterates through the learning sequence, there is an opportunity for development of perceptions and approaches, creating new experiences that become background for the next in the sequence. For this to be possible, the learning process must be designed to elicit awareness of inconsistencies in conception [and] variation in conception.” (p.71)

This aspect of student teachers being enabled to reflect upon and transform their own pedagogic practice with ICT is an issue that Leach and Moon (2000) also highlight in their critique of the haphazard way in which the UK government represent teachers’ professional knowledge and practice with ICT in the National Curriculum. They argue that a conceptualisation of professional knowledge with ICT should be adopted that promotes ‘practice, firmly based on research into the learning process [with ICT],’ and thus enabling ‘teachers to be sensitive to a range of dimensions when incorporating ICT into their pedagogic practice,’ (p.394). However what are the potential traps and contra-arguments to situated approaches to professional knowledge and learning?

### *3.2.4 Issues of abstraction and transfer in situated approaches to learning*

It can be argued that socio-cultural perspectives of knowing and learning bring into question the abstraction of knowledge that tends to dominate schooling and Higher Education. The study of traditional apprenticeships and work-based learning (Lave & Wenger, 1991: Lave, 1997: Wenger, 1998: Engeström, 2000 & 2001) has offered glimpses of a means to more authentic, rich forms of professional knowledge and learning, based upon an understanding of the complexities of knowledge as it is applied in practice within particular socio-cultural contexts. However, a fundamental problem with this, identified by Kirshner and Whitson (1997) is that it is in danger of merely subverting ‘the functionalist belief in mind-body

dualism' (p.4) and denying the importance of abstraction within processes of transferability of knowledge. As these authors argue:

“This tendency to locate learning entirely within the lived world of daily experience, sacrificing the opportunities that schools provide for abstractive and reflective activity, exposes certain insufficiencies in the anthropological and sociocultural traditions.” (p.viii)

This is of significance to this research. Although the key aim is to determine what and how different factors affect the development of student teachers' professional practice with online communications technologies it also raises questions about what can be abstracted as transferable knowledge from their authentic experiences of using online communication tools within given educational contexts. In other words what knowledge and understanding can they abstract from their use of these technologies as they incorporate them into their own pedagogical practice as professionals within a constantly changing technological and professional landscape?

Another key issue with situated approaches to or studies of professional knowledge and learning is located in the transient and emergent nature of new technologies in juxtaposition to what is often the established and relatively stable subject matter and routines of studies into apprenticeships or work-based learning. As Lave (1997) notes with reference to her study into Liberian tailors:

"This educational form does not involve separation of learning from practice.....People spend a lot of time doing what they are learning and vice versa.....The order does not depend much on intentional pedagogical activities by teachers/masters. Learners know clearly what the curriculum is, and it organizes the basic outlines of their everyday practice but does not specify what they should do or precisely how to do it." (p.22)

Such practices referred to here are already well embedded into the structure, routines and rituals of Liberian society. In taking a situated approach to the development of student teachers' pedagogical knowledge of online communication tools it should be recognised that 'the curriculum' is both emergent and dynamic as noted above in 2.4.1, and that the rate of technological development is rapid, rendering any attempt to define 'the curriculum' problematic. Indeed Pachler and Daly (2006, p.64) refer to learning online as an 'uncertain process' due to the fact that 'online participants are part of a very recent and constantly accelerating history of change in how learning can be organised and conceptualised.' Similarly in making the case for an activity theory approach to conceptualising learning



Engeström (2001, p.137) points out the elusive and transient nature of knowledge and learning stating that;

“In important transformations of our personal lives and organizational practices, we must learn new forms of activity which are not yet there. They are literally learned as they are being created. There is no competent teacher. Standard learning theories have little to offer if one wants to understand these processes.”

Furthermore new communications technologies pervade many aspects of life beyond school and the work place - in ways perhaps that tailoring in Liberian society would not – often being more embedded within people’s leisure lives than in any formal learning context. This potentially leads to tensions and conflicts, as new technologies are appropriated for a plethora of different purposes; recreational, functional, pedagogical. Against such a dynamic and ‘uncertain’ backdrop the abstraction of transferable knowledge and understanding would seem essential for the ongoing and effective appropriation of such technologies. Thus Eraut’s (1994) call for theorising to be a central aim of any pedagogic design for the development of student teachers’ professional knowledge and understanding would appear to be vital. In order to facilitate such an approach, Laurillard claims that there must be:

“a continuing iterative dialogue between teacher and student, which reveals the participants’ conceptions, and the variations between them, and these in turn will determine the focus for the further dialogue.” (2002, p.71)

Consequently, within pedagogic design for the development of contextualised professional knowledge and understanding it would appear that opportunities for critical reflection on practice are vital in expanding student teachers’ ‘capacity to theorise’ as well as potentially enabling them to acquire a deeper ‘knowledge and understanding of the theorising process itself,’ (Eraut, 1994, p.62).

Having discussed notions of professional knowledge and learning and how embedding these within authentic contexts can lead to messy and complex configurations in need of reflection and theorising, I will now focus on the potential role played by technological tools themselves. As Daniels (2001) notes in his discussion of socio-cultural conceptualisations of learning and development:

“*things* contribute to solutions every bit as much as *minds* do; information and meaning is coded into configurations of objects, material constraints, and possible environmental options, as well as in verbal routines and formulas or *mental* operations. (original emphasis, p.71)



The interface between human agency and the latent qualities or affordances within new technologies and specifically new forms of online communication, would seem to offer a kernel from which new online pedagogical approaches and ‘new forms of activity which are not yet’ might evolve (Engeström, 2001, p.137). From this perspective it is necessary to examine this dynamic in more depth if we are to establish potential factors affecting the development of student teachers’ online pedagogical understanding with new communications technologies.

### **3.3 Questions of mediation, appropriation and affordance**

How significant is the notion of affordance in understanding the opportunities for education yielded by communications technologies? This is indeed an important question to ask in relation to this research. If one accepts the importance given to mediating tools as ‘cultural entities’ (Daniels, 2001, p.71) within Vygotsky’s framework of learning and development, and subsequently in work building on these foundations (Leont’ev, 1981: Wertsch, 1998: Engeström, 2000 & 2001), then as Engeström states:

“objects ceased to be just raw material for the formation of logical operations in the subject as they were for Piaget. Objects became cultural entities and the object-orientedness of action became the key to understanding human psyche.” (p.134)

Such a philosophy locates human actors in a direct and dynamic relation to their tools. Thus at a micro level of analysis it becomes necessary to consider the reciprocal influence that technological tools have upon users. There is significant overlap here between Gibson’s (1979) notion of affordances of tools and the importance given to socio-culturally constructed mediating tools within activity theory. But how should we define affordance?

Gibson’s own definitions appear to bridge positivist and interpretivist paradigms claiming that affordance is ‘equally a fact of the environment and a fact of behaviour. It is both physical and psychical, yet, neither’ (1979, p.129). Another way of understanding the notion of affordance is in relation to traditional tools. A hammer, for example, has a handle that affords being grasped, and a head that due to its material properties is capable of being used in the destruction of less solid matter or driving equally hard material such as nails into softer material such as wood to join two pieces together in construction. However, such qualities remain dormant without the active participation of a skilled agent who understands what such properties might yield when the tool is utilised effectively. This focus on both the tool and the

agent as being irreducible is also echoed in Wertsch's analysis of mediated activity that draws upon the phenomenon of pole vaulting to illustrate a holistic unit of analysis thus:

“It is futile, if not ridiculous, to try to understand the action of pole vaulting in terms of the meditational means – the pole – or the agent in isolation. The pole by itself does not magically propel vaulters over a cross bar; it must be used skilfully by the agent.” (1998, p.26)

So too it is necessary to view new technologies and consider dormant qualities and properties that may be put to effective educational use in the hands of skilful agents. From this perspective such latent properties can be seen as potential catalysts for pedagogical change or reconstruction through teacher agency (Leach and Moon, 2000). Indeed Loveless, DeVoogd and Bohlin (2001) claim:

“the use of ICT by teachers and learners provides a catalyst for stimulating an evaluation of what is required of ‘networked’ teachers—identifying both new teaching strategies and those qualities of teaching which will not change, but will need to be honed and refined.” (p.63)

Technology itself is not the driver of pedagogical change but can trigger a rethinking of pedagogical practice by human agents who are able to recognise and make effective use of the new opportunities afforded.

Despite there appearing to be useful parallels to be drawn between Gibson's theory of affordance and the ways in which new technologies are, or are not appropriated, Oliver (2005) takes issue with the value of drawing such parallels. Oliver's main concern is what he perceives to be the positivist basis of Gibson's theory in which learning and cognition in particular appear to be absent. Gibson's preoccupation with the direct affordances of the environment, apparently unmediated by thinking is indeed problematic and reveals a particular ontological and epistemological position. However, Oliver himself highlights Gibson's acknowledgement of the coexistence of ‘mediated’ ways of knowing and perceiving, commenting that:

“Elsewhere he attempts to explain how indirect knowledge differs from ‘normal’ ecological knowledge, differentiating direct perception from mediated knowledge. The latter is still directly perceived (it still acts as a stimulus), but operates differently.” (Oliver, 2005, p.404)

Whilst it would appear that in his focus upon the visual perception of the material world Gibson was preoccupied with the more essential workings of visual perception, he was not concerned with refuting other more mediated ways of knowing in which the theory of affordances may also be of significance. Indeed, this would appear to be consistent with

others' interpretations of the value of Gibson's concept of affordance as Pea (1993) points out:

“Such a meeting of intentionality and artifact in action is thus not simply the direct perceptual pick up of the affordance structure of the object or notation, as radical Gibsonians would have it. Culture and context contribute to its achievement.” (p.52)

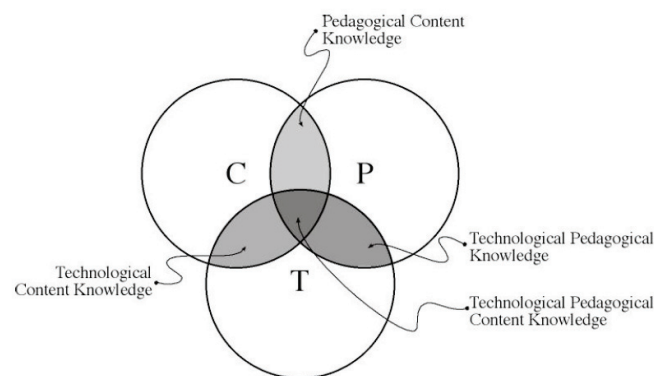
Whilst Oliver claims that Gibson gives ‘primacy to environment over people,’ (Oliver, 2005, p.42), from Pea's perspective (1993), it is also valid to reposition the theory of affordances to recognise the vital importance of agency in human activity involving tools. Furthermore, Greeno (1994) reiterates the indivisible unitary relationship between affordance and agency claiming that ‘neither an affordance nor an ability is specifiable in the absence of specifying the other’ (p.338). Consequently an appreciation of the notion of tools' affordances within the equally significant context of human agency would appear to be a particularly apt approach to examining and understanding the agent-tool interface. It is clear that new technological communication tools afford opportunities for new kinds of human activity. Whether such affordances have their origins within some kind of innate invariants within the tool itself or other socio-culturally constructed designs built into the tools is debatable. However it is clear that in bringing the latent potential of tools to fruition, human agency is key.

### *3.3.1 Micro, meso and macro-level activity*

In the context of this research into factors affecting the development of student teachers' online pedagogical practice, it would appear that on a micro level, individual student teachers' perceptions of and responses to the online communication tools they have access to in representing subject knowledge with their pupils is significant. For example, to what extent do they recognise and utilise the affordances of the online communication tools available? Furthermore, to what extent can we identify such activity as an intentional pedagogical act? In order to do so we need to understand more of the intrinsic nature of such micro-level pedagogical acts brought about by individual agents using technology.

Mishra and Koehler's (2006) adaptation of Shulman's (1986) conceptual model of pedagogical content knowledge (PCK) to incorporate teachers' use of technological tools - technological pedagogical content knowledge (TPCK) - offers a useful framework for understanding the nature of teachers' micro-level pedagogical activities with technology.

Whilst Mishra and Koehler make only a few explicit references to the notion of technological affordances, they do present technological tools as having ‘their own imperatives that constrain the content that has to be covered and the nature of representations possible’ (p.10). Thus technological tools, far from being neutral objects, exist within a dynamic and interactional relationship with the teacher’s pedagogical and content knowledge as represented in figure 3.2.



**Figure 3.2: Mishra & Koehler’s conceptual framework of TCPK**

Moreover, Mishra and Koehler go on to argue that:

“Quality teaching requires developing a nuanced understanding of the complex relationships between technology, content and pedagogy and utilizing this understanding to develop appropriate, context specific strategies and representations” (p.14).

From this perspective effective teaching with technology, it is argued here, harnesses the inherent features of a particular technology, attuning these within a specific pedagogical context in order to represent the subject matter and render it transparent and accessible for the learner. Thus on a micro-level the pedagogical act is not merely mediated by the technological tool but simultaneously by the teacher’s pedagogical knowledge and subject-related content knowledge. How this might be manifest in practice can be illustrated through a personal reflection upon my own developmental narrative with regards pedagogical practice, technology and subject domains. The vignette described and then analysed in 3.3.2 attempts to capture TPCK in operation.

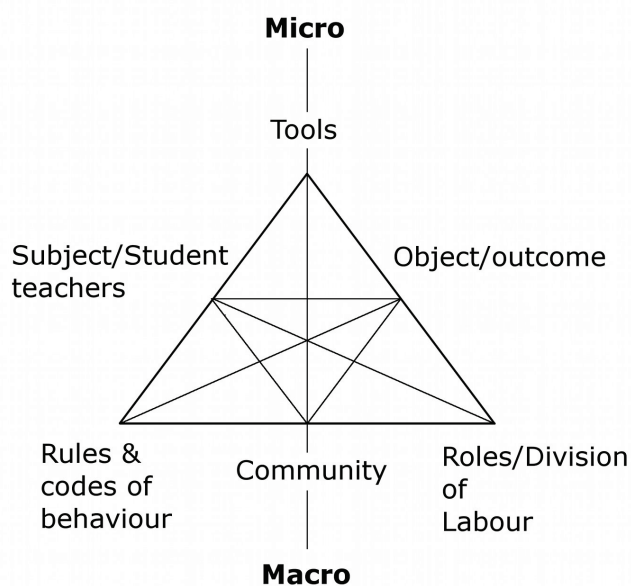
### 3.3.2 Floor turtles and mathematical misunderstandings

*A group of PGCE students are solving the problem of programming a Roamer to draw an equilateral triangle. Two misconceptions emerge as they collaborate to solve the problem. The first misconception is that they need to program Roamer to turn 30 degrees to the right before programming it to draw the triangle. The second misconception concerns the angle of each turn that they need to program, with some of the group saying it's 60 degrees and some of the group looking doubtful. This is a scene I've witnessed as I'm sure have many others when using Roamer to explore the properties of shapes.*

*I could intervene early as they grapple with their thinking and what they know about equilateral triangles. I could ask them to imagine an equilateral triangle in their mind and tell me what orientation it is in; is it resting on a straight edge or base and is it really necessary to turn Roamer 30 degrees to begin with? Can they imagine the triangle in a different orientation? I could ask them whether they think it's the internal angles or the external angles that are significant in trying to identify the angle of turn the Roamer must make. Instead I let them try out their ideas and reflect on the outcomes. I want them to discover for themselves. If they falter I will offer some trigger or perhaps get one of them to be the turtle; what direction are they facing? Where do they want to be facing next? How far have they turned? I want them to construct their own understanding of the misconceptions that have emerged.*

Within this vignette it is possible to illustrate how the different elements of Mishra and Koehler's (2006) TPCCK model are held in interactional tension with each other in the pedagogical moment. For example it is the dynamic representation of geometrical shapes in space afforded by the programmable toy and the task set that give rise to the students' mathematical misconceptions. However, the mathematical misconceptions themselves are useless pedagogically if they are not recognised as such by the teacher - or knowledgeable other in the group - in order to inform their questioning and reasoning about the problem. Equally, these misconceptions are useless pedagogically and remain as misconceptions if the teacher lacks the pedagogical know-how to facilitate an appropriate level of self-reflection on the part of the students to retrace the seeds of their own mathematical misconceptions and adapt their understanding to take account of this. Consequently at this micro level the learning is mediated not simply by the technological tool but by a complex symbiosis of affordances of the technological tool, the teacher's and the students' subject knowledge, and the pedagogical environment facilitated by the teacher; these are all essentially tools, physical and conceptual (Figure 3.2).

However, it is also possible to identify other layers of mediation. At a meso level within the scenario described, group dynamics are important. Have this group of individuals collaborated with each other before? What are their attitudes towards each other and mathematics? Past experiences of the subject (Mathematics/ICT) and each other may influence current dispositions towards the problem being tackled resulting in tensions and contradictions between subjects (student teachers) thus both facilitating or inhibiting outcomes (Figure 3.3). Similarly, macro level influences may also be mediating the scenario. As the teacher or facilitator in this situation I am aware that the pedagogical approach I am taking to the use of technology to support the teaching of mathematics is significantly different to the approach that is often promoted in UK Government policy documents and materials where a three-part lesson and the sharing of learning intentions at the start of a lesson are given prominence. Thus certain rules governing behaviour within the ITE community may be complied with or challenged, as encapsulated by the base of the activity triangle (Figure 3.3).



**Figure 3.3: The activity triangle (Adapted from Engeström 1987 & Somekh 2007)**

Thus one can determine from such an analysis that restricting notions of affordance and mediation to the micro level of activity and proximity of the present is not sufficient. As Cole and Engeström (1997) posit, cultural activities can be seen to represent ‘history in the present’ (p.9). Similarly as Somekh (2007) comments:

“Human action takes place ‘in interrelationship with things’ and ‘embodies the histories’ of its cultural and institutional contexts. It is ‘adaptive’ to these contexts and their normative values and organisational structures.” (p.12)

That is human action, is mediated on a number of levels and is intersected historically by a range of mediating tools both symbolic and physical. It is part of an ongoing historical discourse with its own internal and external spheres of resonance, and dissonance which I follow up in Chapter 6 and my explanation of the first iteration of the narrative ecology model. Thus we may question the apparent unity of human action in the moment in the way that Foucault (1972) questions the apparent unity of everyday objects such as the book stating that:

“beyond the title, the first lines and the last full stop, beyond its internal configuration and its autonomous form, it is caught up in a system of references to other books, other texts, other sentences: it is a node within a network.” (p.25)

Similarly it is argued here that in developing their online pedagogical practice with new communications technologies student teachers may also find themselves ‘caught up in a system of references .....to other texts’ (ibid.) in the looser sense; the underlying texts of software developers whose pedagogical designs may be implicit within the affordances of the tools; the pervasive texts around being a student teacher required to prove themselves against specific standards and module assessment criteria, and; the turbulent texts of being given a space within which to experiment with new technologies in a primary classroom. Any technological tool such as a discussion forum or a wiki does not exist in a cultural vacuum; such tools are cultural products. Such complexities suggest the need to create experimental spaces for student teachers to explore the pedagogical potential of online communication tools. However, beyond this it also suggests that focusing on authentic contexts alone is not sufficient as more meso- and macro-level influences need to be taken into consideration. That is, a broader view of affordance needs to be adopted that does not merely seek to understand the potential of specific online communication tools but also endeavours to make sense of the affordance of the complex mediating environments in which they are applied and the different meso- and macro-level mediating influences encountered within such environments.

As signposted in 3.1.1, two key theoretical approaches to examining innovation in education with new technologies have emerged in the last two decades, which attempt to capture the complex multi-levelled interrelations at play when new technologies are introduced into



classrooms. The ecological approach (Nardi & O'Day, 1999; Zhao & Frank, 2003; Luckin, 2005 & 2008; Loi & Dillon, 2006) develops Gibson's (1979) tool-centred approach to ecological perception and affordances, addressing 'design problems [that] originate in a larger context – the social, organizational, or political setting in which a tool is used' (Nardi and O'Day, 1999, p.30). Similarly, Cultural Historical Activity Theory (CHAT) it is argued has built upon socio-cultural historical theories to provide theoretical 'tools for combining analysis with development, integrating research with purposeful action in the study of innovation in education with new technologies' (Somekh, 2007, p.14). So what do these approaches have to offer in the identification of *how* different factors affect the development of student teachers' online pedagogical tools?

### **3.4 Ecological systems of mediated activity**

In the next section I will argue that there is much to be gained from a hybrid conceptual model, which draws upon both ecological and activity-systems approaches to understanding the complexities and potential of new technologies for learning. On the one hand ecology-based approaches with their design-centric roots offer the opportunity to gain a richer understanding of both pedagogical and technological tool design for learning. I argue that such ecological approaches offer greater insights into the nature of the micro-level interface between pedagogical design and learning. On the other hand it should not be forgotten that despite the most careful consideration given to pedagogical designs or the design of specific pedagogical tools, the desired educational outcomes are also contingent upon various enabling factors or constraints within the wider socio-cultural system as represented by the variation upon Somekh's (2007) adaptation of Engeström's (1987) activity triangle (Figure 3.3). As Somekh points out:

“In this system individuals and/or groups engage in activities with purposeful outcomes, assisted or constrained by the unique features (affordances) of the tools themselves and the rules, structures and divisions of labour that govern the micro and macro social groupings in which the activity occurs.” (p.152)

However, a critique that can be leveled at such activity systems approaches to conceptualising learning is that they negate the significance and importance of pedagogical design for learning; whether the affordances of tools and the wider affordances of the socio-cultural contexts within which action takes place combine to 'assist' or 'constrain' learning



seems more a matter of chance than intentional design. This is inherently problematic, as it would suggest that within the context of my research questions any attempt to develop student teachers' online pedagogical practice is futile unless it is possible to go beyond merely identifying the various socio-cultural loci of the various enablers or constraints. It becomes necessary to understand the nature of such enablers and constraints and the pedagogical forms upon which they may or may not be contingent. Thus particular enablers or constraints may be more effectively harnessed or negated through intentional pedagogical design. So how can we shift the balance of student teachers' professional learning about the educational use of online communications technologies with their pupils, away from the realm of chance and towards a more intentional pedagogical design framework for professional learning? I will now posit a theoretical approach which, it is argued gives more weight and significance to design for learning and contingencies for student teachers' professional learning.

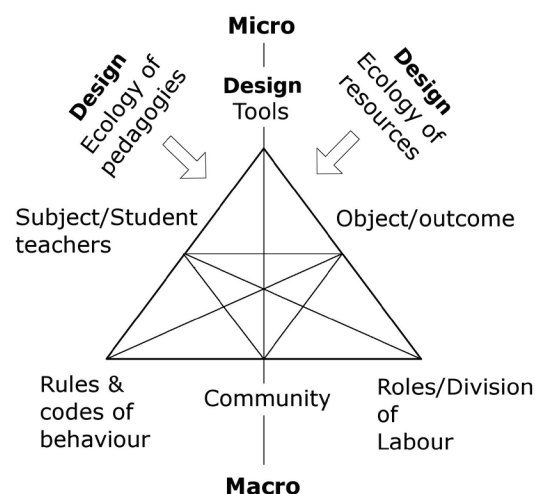
### *3.4.1 Designing contingencies for learning*

In the earlier section 3.2.3, I argued in tune with Eraut (1994) and Laurillard (2002 and 2008) that the complex nature of teacher's professional knowledge and understanding as highlighted by Shulman (1986 and 1987) and Mishra and Koehler (2006) required a dynamic approach to professional learning that aimed to develop student teacher's capacity to theorise. I interpreted this capacity to theorise in terms of teachers' ability to articulate a rationale for their pedagogical actions and the associated outcomes? In figure 3.3 which is an adaptation of Engeström (1987) and Somekh's (2007) iterations of the activity triangle I have identified the various loci of influence and mediation in student teachers' professional learning. At the base of this triangle it would be appropriate to ask the extent to which student teachers are aware of and can theorise about the impact of different macro and meso level influences such as policy, school organisation or their own status within a professional hierarchy upon their professional practice with technological tools. However student teachers have little power to change these and other macro or meso level influences. Alternatively, the upper section of this further adapted activity triangle (Figure 3.4) although not impervious to macro and meso level influences, I argue, is where student teachers can have greater agency and control over professional activity as they make pedagogical choices and orchestrate the resources they will make available to their learners. The importance of the role of teachers in taking control and designing the micro-level ecological learning context, drawing upon resources, tools'

affordances and different pedagogical approaches is emphasised by Luckin (2005) who states:

“The nature of the context is a vital component in an individual’s development, that different contexts will result in different social interactions and in so doing in the development of different mental processes within that individual. . . places a large responsibility upon those responsible for providing the context within which learners interact.” (p.4)

From this perspective, and bearing in mind the upper section of the adapted triangle (Figure 3.4), which attempts to identify those critical contexts or domains over which student teachers do have greater agency, we can probe the degree to which student teachers are able to theorise about ‘how to identify and provide what it takes to learn’ (Laurillard, 2008, p.140) with online communication tools, in online environments. That is, what does it take to enable student teachers to design contingencies for *their* pupils’ learning? Contingencies for learning as first defined in section 3.1.1 operates on two levels; the pre-requisites for student teachers’ professional learning and their pupils’ learning?



**Figure 3.4: Conceptualising the micro-resource ecology**

Consequently the upper section of the activity triangle is conceptualised here (Figure 3.4), as a micro-ecology in which the individual student teacher is a key player in designing contingencies for learning. It is envisaged that they will do this through their creation or selection of relevant pedagogical forms, tools and resources applied to achieve particular outcomes. Loi and Dillon (2006) describe such an ecology thus:

“In an ecological view of learning, any part of the environment, human or physical, may be regarded as a resource: emphasis is placed on tools for mediating between people and resource. Again tools may be conceptualized broadly, but their use cannot be dissociated from pedagogies and contexts. Interventions may be designed to promote the generation of intellectual and creative *niches* through the connections that people make with each other and the ways in which they utilize resources, tools and information.” (p.365)

Important here is the view that pedagogies, mediating tools and contexts cannot be separated, reinforcing the idea illustrated earlier that the various entities and complexities of professional practice and professional learning exist in symbiotic relation to each other. Also significant in Loi and Dillon’s (2006) ecological perspective is the notion of contingency as teachers or knowledgeable others design interventions to support desirable outcomes. This also echoes Hudson et al’s (2002) and Owen et al’s (2006) emphasis on the need for intentional and structured design within pedagogical activities if they are to promote desired outcomes. Other design-for-learning approaches with technologies have also emphasized the holistic character of such approaches and the need to ‘document pedagogy as a teacher and learner text’ (Yelland, Cope and Kalantzis, 2008, p.203). Furthermore, Yelland et al define the parameters of the ‘teacher and learner text’ broadly to incorporate institutional and organizational factors (ibid). The micro-ecology conceptual model, Figure 3.4, can also be applied on two levels to encapsulate the ‘teacher and learner text’, reflecting a design of contingencies for student teachers’ professional learning with technologies as the teachers design contingencies for their own pupils’ learning.

### *3.4.2 Application to professional practice*

There have been several attempts to apply similar conceptual models to the one I have outlined here, to professional practice with technology (Luckin 2005 & 2008; Luckin et al 2006; Laurillard, 2008). Luckin has provided a useful ‘framework for the characterization of a learning context’ (2005, p.8). Further research has also carried out valuable work in characterizing the relationship between learners and their learning context – referred to as their ecology of resources – with a view to identifying the processes by which teachers designing contingencies for learning ‘match models of learners with models of their context’ (Luckin, 2008, p.453). Luckin (2005 & 2008) and Luckin et al (2006) argue that the teacher has a significant role to play in designing and facilitating the learner’s journey towards the Zone of Proximal Development (ZPD). They characterise this journey as being one in which the teacher steers learners from the Zone of Available Assistance (ZAA) into a Zone of

Proximal Adjustment (ZPA). Within the wider learning context or ecology of resources the ZAA is a landscape of broadly conceptualized tools and resources that are available to the learner and the teacher. From this wider ecology of tools and resources a narrower ecology of tools and resources are selected by the learner and teacher based upon knowledge of the learners' needs. This framework has been put to empirical test within the design of the HOMEWORK system, which attempts to bring together a broad spectrum of resources for teachers and learners across school and out of school settings. The pattern is one of progressive focusing of the micro resource ecology available to the learners; a process over which the teacher and learner exert agency.

Similarly, Laurillard (2008, p.139) has carried out a useful analysis of contingencies for learning with new technologies and focused on capturing 'generic pedagogic form,' arguing that such an approach provides teachers with the means to select, adapt and transfer pedagogic approaches between disciplines and learning contexts as they design contingencies for learning. Laurillard identifies pedagogic sequences matched to particular learning objectives arguing that these can then be abstracted and repurposed as appropriate for other learning objectives as she argues (2008):

"Few teachers will be involved in teaching information searching, but all teachers are involved in introducing students to new procedures at some stage, in particular, raising their awareness of the effects of different inputs on the outputs of a system, or tool, or model. We could therefore also derive the generic version by abstracting the general form, and describing the nature of the specific content to be inserted" (p.152).

In attempting to capture and illustrate the character of interaction and relations between learners, teachers and the mediating resources available to both, Laurillard (2008) and Luckin (2008) go beyond merely describing and locating the different spheres of influence within the learning context, attempting to capture the specific nature of the ecological relations between the various resources through which learning may be mediated, to provide contingencies for learning. However, useful as these analyses are, they are also problematic within the context of this study as I will explore now.

### *3.4.3 Blueprints for professional practice?*

The characterisation of contingencies for learning described hitherto is problematic ontologically in that what is true for one context may not be for another. The abstraction of

pedagogic form might be compared to the abstraction of symphonic form in music; being able to recognise symphonic form when listening to a piece of music falls a long way short of being able to compose a symphony oneself. The process of musical composition is contingent upon so many other factors such as understanding the melodic range of the instruments chosen, how to combine the different instrumental voices or timbres and how melody works, not to mention the use of harmony or contrapuntal devices such as canon. Laurillard (2008) acknowledges this when she remarks that ‘teachers who want to innovate want control over the process, not the uncritical adoption of others’ products’ (p.144). There are then questions of empowerment that need to be addressed and acknowledged in any attempt to conceptualise professional practice and learning as Kress and Pachler identify:

“In all learning these are the central issues: whose agenda is at work, with what power, with what principles of recognition of learning. How is that agenda presented and is it accepted or recognised by those who are potential learners? As ‘learning’ escapes the frames of institutional pedagogy – a matter in which the e-technologies are deeply implicated – these are questions of increasing importance” (2007, p.19).

Kress and Pachler argue strongly that the proliferation of new networks and mobile devices promulgates ‘a new habitus of learning’ (2007, p.27). That is, learning itself has become mobile with learners aligning themselves differently towards knowledge and internalising different dispositions towards the process of learning. Within this context it is argued here that what is needed is not to create new institutional pedagogic frames be they physical or virtual but to empower future teachers to critically adapt and create their own pedagogic forms capable of embracing where appropriate, the rich ecologies of resources that are becoming available to both teachers and learners through the development and growth of new technologies.

The conceptual model posited earlier (Figure 3.4) could work on two levels as noted hitherto; the design of contingencies for student teachers’ professional learning, or children’s learning with new online communications tools. However the central thesis to this work is that student teachers need opportunities to engage in, experiment and explore for themselves the complex and symbiotic micro ecologies at play when utilising online communications tools towards particular learning goals. This thesis has been derived from my own experiences of working with student teachers in HE as well as reviewing the body of research literature in order to reflect on my own professional role in HE with student teachers. This is akin to both Somekh (2007) and Laurillard’s (2008) call for a more teacher-as-researcher approach to innovation

and technology integration. The micro-ecologies (Figure 3.4) conceptual model is intended to act as an initial framework for designing contingencies for student teachers' professional learning with new technologies. Merely providing opportunities for experience in authentic contexts is not sufficient in itself. As Yelland et al's (2008) design for learning framework sets out, beyond authentic experience, teachers also need opportunities to conceptualise, analyse and re-apply their knowledge in different ways. As Laurillard claims:

“If we problematise teaching and learning, confront the need for innovation, and turn the teaching community into a profession capable of being experimental innovators and reflective practitioners, then we release a huge resource of energy and imagination for tackling the core educational problem of enabling what it takes to learn (2008, p.140).”

If we also accept Kress and Pachler's (2007, p.19) analysis of learning 'escap[ing] the frames of institutional pedagogy,' then there is the need within Initial Teacher Education to take advantage of opportunities to explore with our student teachers the 'habitus of mobility' (ibid p.28) that they too might escape these frames and become part of the process of innovating and designing ecologies of resources and pedagogies within a 'mixed economy of pedagogy and learning' (ibid, p.29).

### **3.5 Summary**

In this chapter I have attempted to unpick and provide an ontological frame for my research by drawing on and synthesising the knowledge bases of professional learning and knowledge and, mediation and appropriation. I use the word ontological deliberately to reflect the fact that the review of these knowledge bases has provided me with what I believe are the relative truths from which to build this research further. I have presented a view of professional learning mediated and influenced in the moment by a number of factors at different historical and structural levels. On one level this has involved drawing on educational theory to identify some of the key factors in student teacher's development of their online pedagogical practice as they utilise online communication tools for learning in authentic contexts with primary school children. Some influences are clearly represented by the immediate stimulus of micro-level factors such as the technological tools themselves or teachers' perceptions of their learners' needs. However, meso and macro-level spheres of influence are also significant such as student teachers' prior experiences of technological tools in their own personal lives and the wider socio-cultural discourses surrounding technology and pedagogy. In the process of exploring these different areas of influence I have attempted to lay bare the complex and

interconnected nature of professional learning, portraying it as an ecology of symbiotic mediating influences.

On another level within this chapter, theory that examines the character of the relationship between broadly conceptualised tools and learning has been used to illustrate that learning need not be a solely chance occurrence and that contingencies for learning may be designed intentionally, in terms of the pedagogic forms created or adapted and the ecology of resources that teachers are able to access to create or adapt resources for their learners. The main argument has been that for student teachers to develop their own online pedagogical practice with new technologies they need access to micro ecologies in which they are able to explore and experiment, designing their own contingencies for learning within and beyond online environments. This approach is based upon a conceptualisation of agency as being beyond mere ownership as discussed in Chapter 2, and seeing student teachers as able to ‘deal with, and to impact on socio-cultural structures and established cultural practices’ (Pachler, et al, 2010, p.13). Thus authenticity and access to situated learning experiences is vital. However, whilst authenticity is vital, authenticity itself is not enough. If future teachers are to successfully fulfil the role of innovators with new technologies and become teacher-researchers they also need an understanding of the conceptual tools to enable them to reflect critically upon their activity within authentic contexts. The complex and interdependent nature of professional learning with technological tools in authentic contexts that has been discussed in this chapter raises a more fundamental question, namely:

- How can we design a pedagogical and methodological approach that captures the tension and complexity between, the technological, socio-cultural environment and individual agents?

Until now I have deliberately left the role of language to one side in order to focus more specifically on theory and research relating to the human-technological interface. However language as a mediating tool for pedagogical and professional development with technological tools would appear to be of significant importance in capturing and making sense of the complexity of student teachers’ and children’s interactions either face-to-face or online.

In the final chapter of this literature review I will draw upon some of the relevant contributions to the corpus of literature surrounding language and learning (Vygotsky, 1978; Bakhtin 1981; Bernstein, 1990; Mercer, 2000; Ravenscroft, 2007; Wegerif, 2008). Similarly, theory and research into computer-mediated conferencing will be utilised (Salmon, 2002; Rovai, 2002; Anderson et al, 2001; Blake, 2000; Anderson & Garrison 2003; Dennen, 2005). However while the aim will be to identify key ways of making sense of student teachers' and children's online interactions, this is not with a view to providing student teachers with blueprints for online teaching and learning texts. Rather, it is with a view to exposing the conceptual tools that empower student teachers to make informed decisions about the way that they employ language online within the broader pedagogical framework and ecology of resources they make available to their learners. That is, further developing the stance established in this chapter of student teachers as researchers of their own pedagogical practice with online communication tools, it is important to consider how student teachers' developing pedagogical practice might be *expressed* through their actions and utterances. Just as tools take on important significance as cultural entities within human interaction and activity (Vygotsky, 1978) so too language as a culturally imbued system of signs, I argue, is central to understanding factors affecting the development of student teachers' online pedagogy. In particular, to what extent do student teachers begin to utilise online 'texts' – in the loosest sense of the word – to embody pedagogical utterances? And to what extent do student teachers' utterances – spoken or textual – capture the tensions and complexities of their professional development as they engage with technological and socio-cultural tools within authentic pedagogical contexts?



# 4 Conceptualising the Role of Language

## 4.1 Mind the gap!

Vygotsky (1978) observed the intrinsic interconnections between thought, language and activity as humans develop internal speech as a mediational means of organising our thoughts and activity. Language is intrinsic to any study of pedagogy as the rich analytical and historical debate around this issue can attest. Wegerif (2008, p.349) has also pointed out the tendency for each new generation of scholars to revisit ‘textual fragments from ancient Greece’ in order to grapple with the issue of language in all its forms from thought to utterance. However, my own positioning towards language in this study appeared yet more vital owing to a number of potential pitfalls regarding the assumptions I might make about the significance of student teachers’ external utterances across a range of settings and in a range of formats; for example, from digital or oral communication with their children and peers to oral, written and digital communication with me as tutor and researcher. The assumption that the gap between student teachers’ external utterances and their ‘internal mental function’ (Vygotsky, 1978, p. 89) can be bridged through the capture and analysis of the external artefacts of communication is an easy trap for researchers to fall into. Wertsch (1985) highlights Vygotsky’s perspective on language as a bridge between the interpsychological and intrapsychological worlds of the individual. Accordingly, the interpsychological and intrapsychological are inseparable and only through understanding the ‘ties as well as the genetic transitions’ between these can one ‘hope to build an adequate account of higher mental functioning’ (Wertsch, 1985, p.94). Wertsch emphasises the complexity of such a view of language; a complexity that warrants a holistic conceptualisation of language but even still may only provide ‘an adequate account’ (ibid) of agents’ ‘internal mental function’ (Vygotsky, 1978, p.89). Thus, the aim of this chapter is to make explicit the stance taken towards language and different forms of communication within this thesis, and identify the aspects of this knowledge base that appeared most pertinent to understanding the mediating role language plays in the development of student teachers’ online professional practice and professional learning with communications technologies.

In order to identify a focus within the corpus of literature surrounding language and its use within the context of an educational communicative environment, two key questions are identified with which to approach this knowledge base, namely:

- What role can language play as a vehicle for student teachers' pedagogical presence online?
- What are student teachers' perceptions of the value and legitimacy of online dialogue for learning?

Both of these questions, I argue here, require us to approach the gap between the interpsychological and intrapsychological with caution, recognising that language, pedagogy and online communication are socio-cultural tools adapted and adopted differently by individuals.

## **4.2 Establishing the legitimacy of online dialogue**

The close analysis of the communicative environment of the face-to-face classroom has been a common approach within educational research for some time (Bernstein, 1990: Wegerif & Scrimshaw, 1997: Mercer, 2000: Wragg, 2001). Some of this has led to taxonomical approaches to making sense of pedagogical dialogue both in the face-to-face environment and the online environment, represented by the body of research into Computer Mediated Conferencing (CMC). However, it could also be argued that taxonomical approaches to evaluating the effectiveness of communication between teachers and their pupils - be it face-to-face or online - that focus on external indicators, assume a causal link between the use of certain types of communication and learning. For example, teachers modelling and encouraging children to use 'exploratory talk' when working collaboratively to solve problems was suggested to improve children's ability to reason (Wegerif & Scrimshaw, 1997). However Ravenscroft and Wegerif suggest that:

“re-analysis led to the claim that the key factor was not the way the words were used so much as the increasing capacity to take the perspective of others and the generalised other.”  
(2007, p.10)

It is useful here to reflect on Wertsch's (1985) emphasis on the need to understand the relations and transitions between the intrapsychological and interpsychological detailed by Vygotsky. Ravenscroft et al suggest that the significance of 'the way the words were used' lie

not in the words themselves or their outer form, but in an inner transformation within the individual's ability to consider other perspectives. The words themselves were an outer expression – interpsychological - of this intrapsychological transformation. However, in acknowledging that the words themselves were not the key factor, Ravenscroft et al flag the potential pitfall of separating these two domains when analysing the role of language.

Irwin and Hramiak (2010) studied student teacher identities whilst on school placement, by analysing language patterns in their exchanges in a discussion forum during the period of their school-based placement. They found the need for more research into the student teachers' perceptions in order to understand what other factors affected the construction of their teacher identities as expressed through their online utterances. Focusing merely on the student teachers' exchanges and patterns of language use in a discussion forum facilitated by a tutor could not capture potentially important factors in the construction of teacher identities outside of the discussion forum. As Xin and Feenberg (2006) have argued 'utterances serve multiple purposes' whereas 'much of the existing work classifies various communicative actions into one category' (2006, p.3). They also go on to argue for a holistic conceptualisation of language for 'dialogue is not merely a cognitive process, but involves the whole person' (ibid, p.16). That is dialogue is the product of both the intrapsychological and interpsychological worlds of individuals and as such 'there can be no final or fixed interpretation of an utterance' (Wegerif, 2008, p.349).

This raises important questions about the reliability of merely analysing the types of language used. That is, purely lexical approaches to language raise issues concerning the legitimacy of certain types of dialogue over others. This legitimising of one style of communication over another was an issue that Bernstein's (1990) work raised, claiming that there were often discrepancies 'between the forms of communicative practice required by the school and the form of communication which the pupils spontaneously moved towards' (p.94). From these perspectives, the development of student teachers' online 'communicative practice' is complicated by their own and others' perceptions of legitimacy using online communication tools. This may be further exacerbated if one considers the degree to which new communication technologies such as chat rooms and discussion boards are embedded within student teachers' and children's social and leisure uses of ICT. As Loveless (2003) highlights

‘teacher’s perceptions of ICT in Education’ are influenced ‘by their own experiences of using ICT for personal reasons within a social and professional context’ (p.315). Irwin and Hramiak (2010) acknowledge that different genre of communication technology can also affect the way in which participants express themselves; for example a blog often yields different forms of communicative practice and patterns of utterance to a discussion forum. This is important from the perspective of Davydov who remarks that any form of ‘communication can exist only in the process of different kinds of activity realisation by people’ (1999, p.47). What is not clear from Irwin and Hramiak’s study is the extent to which the student teachers involved were communicating by FaceBook or through other forms such as text Messaging which lay outside of the study. This could have impacted upon the way the student teachers positioned themselves and their professional identities when communicating with each other through the tutor-facilitated discussion forum which was the focus of the research.

This would suggest the necessity to examine student teachers’ communicative practices with online communication tools both within a teaching and learning context and the wider social networking contexts in which such tools may be used differently and more informally. Thus, to what extent does student teachers’ use of online communication tools in their social and leisure lives and their communicative practises with such tools, mediate the ways in which they adopt and adapt language when using such tools within the environment of formal schooling? It is inevitable that to some extent the outer, interpsychological expressions of language adopted by student teachers, may reflect significant aspects of their intrapsychological functioning and ‘intrinsic motivations’ (Xin and Feenberg, 2006, p.1), the importance being not to divide these or assume these represent ‘fixed or stable identities’ (Wegerif, 2008, p.349). Such holistic approaches to language in research and pedagogy have also been emphasised by Warschauer who argues for a broad yet unified approach to the analysis of language because for any form of communication to be meaningful it has to relate to participants’ intrinsic needs (Vygotsky, 1978: Warschauer, 1996). From such a perspective lexical analysis is useful but only if ‘issues of linguistic form.....are subsumed within a meaningful context’ (Warschauer, 1997, p.477). So what of existing understandings of online pedagogical presence?

#### 4.2.1 *Online cognitive dialogue*

Since the inception of the internet and different forms of online communication much research has focused on what such new forms of communication yield in terms of potential for learning. The asynchronous nature of various forms of communication online is seen by many to offer increased opportunities for reflection (Sproull & Kiesler, 1993; Harasim et al, 1995; Preece, 2000; Salmon, 2002). Blake (2000) argues that when a ‘proper ecological relation between’ face-to-face and online learning exists then distance or online learning can be ‘at least as good or even better as a model for teaching’ (p.184). He bases his argument upon the affordances of online dialogue compared with the face-to-face classroom, and draws upon Austin’s (1962) earlier work on speech acts to argue that the decontextualised online communication environment lends itself to cognitive dialogue. That is, the development of ideas and concepts can be stripped of the physical cues that often accompany and potentially hinder the development of face-to-face dialogue for learning. This argument also resonates with Wertsch’s (1985) analysis of Vygotsky’s ‘account of conceptual development’ which ‘is based on decontextualised linguistic organization, that is, on the potential of language to serve in abstract reflection’ (p.108). Language can shift on a continuum between abstraction and contextualisation with abstraction offering the potential for critical reflection. Darabi et al (2010) have compared the use of different pedagogical strategies in online dialogue including the use of role play. They found that role play strategies demanded ‘higher-level cognitive processes through assuming a role, assessing the implications of their decisions in that role and finally justifying their decisions’ (Ibid, p.9). From this perspective role play appears to involve both abstraction as a role is identified and reified, only to be re-contextualised within the parameters of the online role play.

Some might question the role of online communication tools for learning in secondary or primary phases of education, where the importance of physical cues and contextualised information for communicating praise or encouraging positive dispositions towards the learning process could be argued to be much more integral to the learner’s stage of development. Nevertheless, Blake does identify the importance and centrality of the notion of the ‘teaching and learning text’ within the online classroom; but what of the nature of such texts? Pachler and Daly (2006, p.68) argue that ‘the text should operate as a thinking tool,’ again implying the importance of language in terms of its potential for ‘abstract reflection’

(Wertsch, 1985, p.108). This raises questions regarding what distinguishes an online teaching and learning text from every-day online communication, and how student teachers might develop the knowledge and understanding to engage effectively in learning dialogues with their pupils online. These are issues to which I will turn now.

#### *4.2.2 Indicators of online pedagogical presence*

Laurillard et al (2000), focus on the role of narrative in cognition and argue that within any media, for learning to take place, ‘the negotiation of the narrative must be shared’ (p.6). They make the distinction between ‘narrative guidance’ usually but not exclusively issued by the teacher and ‘narrative construction’ where a student might for example work individually or with another student to construct a solution to a problem responding to guidance. What is clear from this argument is the importance of ‘teaching presence’ and how this is manifest within a ‘teaching and learning text.’ Darabi et al (2010, p.10) stress the importance of the role of the teacher in scaffolding the online discussion ‘by posting meaningful questions and leading the discussion towards resolution and consensus’ whether a role play strategy or other strategy such as argumentation is adopted. Furthermore, Oh and Jonassen (2007) ascertained that the scaffolding of online argumentation by teachers or facilitators can provoke elaboration and verification in participants’ responses. Similarly, Anderson et al (2001) comment regarding the importance of the role of the teacher when learning online that:

“while control must be shared and choices provided, the discourse must also be guided towards higher levels of learning through reflective participation as well as challenging assumptions and diagnosing misconceptions.”

(p.3)

Indeed, Anderson et al go further in identifying key indicators illustrating different ways in which teaching presence may be manifest within online teaching and learning dialogue. They distinguish between ‘facilitating discourse’ which is characterised by a range of indicators such as illustrating agreement or disagreement between discussants, and ‘direct instruction’ whose indicators would be summarising discussions and diagnosing misconceptions amongst others. Such conceptualisations take us again towards taxonomical or lexical approaches to the analysis of online teaching and learning texts. These are useful analytical tools and could be used to evaluate student teachers’ effective use of the medium to facilitate learning

dialogues online. However, such approaches in themselves do not go far enough in that they do not lay open to scrutiny the intrapsychological motivations or functions of individual student teachers' pedagogical approaches. Vitaly, such approaches potentially ignore student teachers' decisions about when and how to summarise a groups' ideas for example or when to question further, neglecting Xi and Feenberg's identification of 'intrinsic motivations' as an important factor driving and sustaining effective online dialogue (2006, p.1). The mere evidence of certain lexical features or speech acts within online dialogue is not necessarily synonymous with effective learning or teaching. Whilst the facilitation of online argumentation by a facilitator might lead to more elaborate and complete explanations from participants, Oh and Jonassen (2007) also detected a connection between students' epistemological beliefs and their willingness to challenge each others' ideas and understanding online. It would be reasonable to assume from this that teachers' motivations for adopting argumentation strategies when facilitating online dialogue may also be affected significantly by their own epistemological beliefs.

The issue of focusing too tightly on language features can also be highlighted in Dennen's research (2005). In attempting to capture the pedagogical effectiveness of teaching and learning texts online Dennen (2005) states that if messages are 'lacking in sufficient quantity, quality, timing and purpose then it is less likely that the learning objectives will be met' (p.128). Whilst the inclusion of notions of 'timing' and 'purpose' hint at the important intrapsychological functioning of the agent and author of the messages, there remains a danger again of focusing too much upon the external linguistic shell in trying to evidence learning online. Rovai (2002) takes a different approach in trying to establish how online courses build a sense of community. Whilst acknowledging the importance of quantity, quality and timing in online dialogue, he looks beyond this, focusing on 'voice' within the dialogue. By 'voice' he refers to the underlying personality traits that messages can convey about participants. For example, an authoritarian voice or tone separates a participant from other contributors and can be a threat to the effectiveness of the online community. He concludes that a 'connected voice supports classroom community building whilst the separate voice does not' (Rovai, 2002, p.8). In focusing on voice or tone, Rovai draws attention to the ways in which the outer, interpsychological cask that is language cannot be separated from the variously constructed meanings they convey. Whilst quantity is an easily measurable



indicator in terms of number and length of messages, could not a one-word reply uttered at a particular moment in time and in a particularly crafted voice represent a significant amount of deep thinking and pedagogical presence in the same way a very short response in a certain tone or voice can also cause the disintegration of an online community?

#### *4.2.3 Summarising approach to language*

The aim of this discussion of language as a meditational tool was to identify some of the core problems relating to the analysis of language and the various ways in which student teachers might utilise language for pedagogical purposes online. It has clarified for me that a holistic approach is needed to language in examining the various ways in which student teachers use and adapt their utterances online to express their pedagogical presence through text. As Wertsch draws on Bakhtin's analysis of language to illustrate, utterances involve both 'repeatable and unrepeatable aspects' (1998, p.72). Often most tangible are the words or fragments of text themselves, but these are only one aspect; the interpsychological carrier of much less tangible intrapsychological meanings and moments. As Wertsch goes on to argue 'any account of mediated action that focuses exclusively on one or another of these moments in isolation is bound to be incomplete, if not seriously misleading' (1998, p.74). This raises further issues for the approach taken to language in my research.

As Blake (2000) concludes, the effective orchestration of a range of online pedagogical strategies is dependent upon teachers' 'insightful interpretation' of their pupils' written texts (p.193). This implies the ability to see beyond the text itself. Consequently, how do I design a methodological approach that captures the richness and complexity of such insights that student teachers gain, which does not reduce these to a one-dimensional textual analysis but captures their 'intrinsic motivations to participate' (Xin and Feenberg, 2006, p.1). Similarly, if one accepts that 'communication can exist only in the process of different kinds of activity realisation by people' how do I design a methodological approach that attempts to capture the interplay between these 'different kinds of activity realisation?' (Davydov, 1999, p.47). How does student teachers' use of online communication tools outside of their pedagogical use affect their professional adoption of the tools? These questions and issues suggested the need to approach language from a broad perspective in order to gain an 'understanding of the social, affective, and cognitive processes involved in computer-mediated collaborative



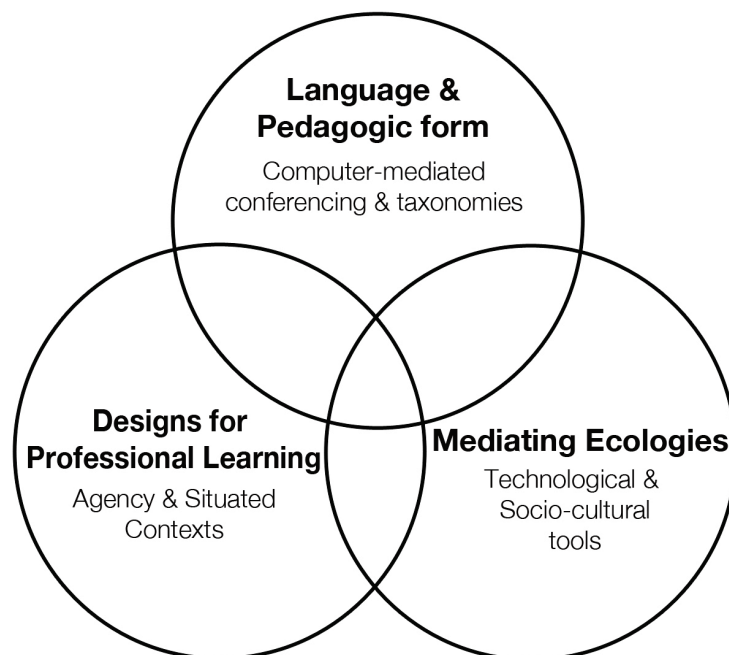
learning' (Warschauer, 1997, p.478). This review of some of the most pertinent literature to my research, surrounding language as a tool for mediation had ramifications for the design of my methodological approach, which I discuss further in 5.6.

### 4.3 Summary of the knowledge bases

In Chapters 2, 3 and 4, I have discussed a range of knowledge bases that were identified as having significant relevance to the initial research question:

- What are some of the factors affecting the development of student teachers' online professional practice with new communications tools?

Whilst these are clearly distinct areas of knowledge the review of literature revealed the interrelated nature of these knowledge bases as represented in Figure 4.1 below.



**Figure 4.1: Representation of inter-related knowledge bases from literature review**

Chapter 2 developed the case for greater student teacher agency in professional learning with technological tools. The importance of the role of the teacher in facilitating online learning and developing appropriate e-learning strategies was highlighted. This led to a consideration

of approaches and designs for professional learning, which emphasise authentic experiences within situated professional contexts. Such approaches are not unproblematic. Learning within situated contexts is mediated by a range of complex factors, as discussed in Chapter 3. Thus ecological conceptualisations of the process of mediation were argued to be a useful approach to capturing the inter-related and symbiotic ways in which different technological and socio-cultural tools mediate student teachers' professional experiences. Chapter 3 explores and synthesises socio-cultural and ecological conceptualisations of professional learning with and about technological tools in order to expose the complexity and problematic nature of locating student teachers as central agents in the process of their own professional development. Thus, the knowledge bases relating to the design of professional learning and mediating ecologies reflected in Figure 4.1 begin to synthesise and intersect. From this exploration of factors affecting the development of student teachers' professional practice with communications technologies, a second underlying research question emerged of:

- How do different factors inter-relate to affect the development of student teachers' online pedagogical practice?

The various tensions between broadly conceived tools, technological and socio-cultural, and their agents was also a central theme in Chapter 4. Language is conceived as a socio-cultural tool mediating agents' actions, in line with the school of social psychology stemming from Vygotsky. Thus, speech and text are the tangible socio-cultural vessels enabling and constraining activity. However, in their adapting and creating of utterances, agents are not merely passive. As Bakhtin (1986) wrote:

“But at the same time, each text (as an utterance) is individual, unique, and unrepeatable and herein lies its entire significance (its plan, the purposes for which it was created).”  
(p.105)

At the centre of the concept of language as a socio-cultural tool is this tension and duality between individual agents and their appropriation of socio-cultural tools; the ways in which agents both shape and are shaped by socio-cultural tools.

The exploration and understanding of this tension at the core of the processes of mediation and appropriation has led to the identification of a more fundamental question underlying both my initial research question and my second questions regarding how different mediating factors inter-relate. It is no longer sufficient to merely ask what are some of the factors that affect student teachers' development of their online professional practice and how do these factors inter-relate. A more fundamental research question underlying both of these is:

- How can we design a pedagogical and methodological approach that captures the tension and complexity between, the technological, socio-cultural environment and individual agents?

Chapter 5 addresses this more fundamental research question. It sets out to explain the methodological journey I took in order to develop a holistic approach that captured to some extent the nuanced ways in which student teachers appropriate technologies as they develop their online professional practice. Although at this point in the thesis I conclude my review of the literature, the exploratory and iterative nature of my research took me on a complex methodological journey in which the knowledge bases discussed in Chapters 2, 3 and 4, continued to form and synthesise in my own mind. Thus Figure 4.1 summarising and characterising the relationship between the various knowledge bases investigated in the previous chapters was also an important tool helping me to bridge the various exploratory periods of my research. Figure 4.1 returns in section 5.6 where I use it to further synthesise and position the knowledge base surrounding language and pedagogic form in light of my pilot study. Similarly, a further iteration of Figure 4.1 returns in section 6.3 reflecting my continuing synthesis of the various knowledge bases to form the narrative ecology model. It was an iterative journey that led me to explore, adapt and appropriate, what were for me, new methodological approaches. Hence the title of my methodology chapter, 'Researcher as Toolmaker.'

# 5 Researcher as Toolmaker: Methodology

*It's not the notes you play, it's the notes that you don't play*

*Miles Davis*

## 5.1 Introduction

In the previous chapters I have identified some of the different loci of influence upon student teachers' professional learning with new online communication tools and technologies, that it may be possible to identify factors leading to the development of their online pedagogical practice. However, discussion and investigation of the three broad knowledge bases in the previous chapters revealed professional learning as a complex, socially and culturally constructed phenomenon leading to a more fundamental and additional research question:

- How can we design a pedagogical and methodological approach that captures the tension and complexity between the technological, socio-cultural environment and individual agents?

As such this also recognises that 'individuals are always intersected by multiple subject positions,' (Schostak, 2006, p.157). In this I also include the researcher; that is researcher and participant activity is nuanced and mediated by the often unspoken, unseen and unheard scripts in the milieu of lived experience. The art of the researcher then is to bring the background to the fore; to speak that which is unspoken, see what is unseen and hear what has been hitherto unheard; the normally invisible frames that determine and enable us to make sense of our unfolding stories or 'the notes you don't [normally] play' (Davis, No Date).

This chapter will tell the story of how I conducted the research and developed the tools over a period of three years as an insider researcher, researching the potential to develop my own students' online pedagogical practice through a series of short limited interventions. These interventions were carried out through the design of a module, 'E-learning and Citizenship,'

conducted with primary ICT specialist student teachers on an Initial Teacher Education (ITE) course.

The aim of this chapter is to chart the mainly inductive methodology that evolved throughout the course of the research; a course, which at best, was often uncertain and difficult to grasp from my own perspective of insider researcher. The chapter will chart this evolution of a methodology through the discussion of three key and inter-related methodological issues, namely;

- The emergence and development of a coherent and appropriate methodological approach within an interpretivist paradigm;
- The process of writing research as an insider with the associated ontological, epistemological and ethical assumptions this invokes;
- The potential and limitations of a pilot study that was carried out.

Addressing these key issues played a key role in my own development as an insider researcher struggling to find an appropriate stance and voice. Furthermore, this process was an important pre-requisite for the construction of a suitable and plausible method of data collection and analysis that facilitated the generation of meanings within and between the complex inter-textual sites of the research project, which I address in Chapter 6.

*Saturday 7<sup>th</sup> February 2009*

*Have spent the last few opportunities I've had reading and re-reading Richardson's (1999) comprehensive review of phenomenographic research and making comparisons with narrative approaches. My mind is awash with half thoughts, fragments and terms as I add to the milieu of what I thought I already knew about methodology. Case study, constructionist, action research, narrative, phenomenology; where are the boundaries? Some connections are starting to emerge but a lot is still hazy. I don't feel ready to tackle these yet and so I'm going to write up my methods. But even this is pretence; how can I write up my methods when I'm still struggling with the bigger picture. I'll continue for now but I'm sure reader you won't be fooled even if this wandering is relegated to my appendices; this process is messy and the process of writing is how I'm finding my way through this messy and difficult landscape.*

## 5.2 Methods

The nature of this research was mainly inductive and located in an interpretive paradigm. That is, its main preoccupation was centred on inductively generating theory concerning factors affecting the development of student teachers' online pedagogical practice. Rather than presenting a fully formed proposition or premises for deductive analysis, the previous chapters have identified a broad conceptual framework for capturing the richness and complexity of student teachers' professional learning as they incorporate the use of online communications technologies into their pedagogical practice. However it should also be mentioned here that a simplistic distinction between deductive and inductive reasoning is inherently problematic for me within an interpretive paradigm for this research is built upon a belief that we cannot rid ourselves of the premises we have internalised culturally and socially. How can we be certain that at some deeper level we are not involved in some form of deductive reasoning? This is a theme that I will return to later when I will explore the epistemological and ontological assumptions of the chosen research paradigm and the implications regarding reflexivity. However, at this point I will explain how the research was carried out so that the various complexities and paradigmatic tensions within this may be drawn out and discussed later.

### 5.2.1 Conduct of the research

Table 5.1 below illustrates the conduct and timescale of the research for the Pilot phase and Phase 1. Phase 1 of the project took place between October 2007 and February 2008. Phase 2 took place from February 2008 to June 2008. Phase 2 is not detailed in Table 5.1 as it was conducted in the same manner as Phase 1 with some minor variations as I discuss in 5.2.3.

Initially I wrote and had validated a new module – *E-learning and Citizenship* – that was designed to give student teachers on a Primary ITE course with an ICT specialism, the opportunity to develop their practice with a Virtual Learning Environment at first hand. The first iteration of this module from February 2007 to May 2007 constituted the pilot phase of the project. During the pilot phase, a random sample of five student teachers was chosen to be interviewed regarding their experiences of the module and two online discussions were purposefully selected for analysis as they appeared to be interesting cases which challenged some of the assumptions I had made about online discussions for learning with children. This

approach proved to be problematic as I discuss later in 5.6. After the initial pilot phase some changes were made to the module programme, which I will discuss when examining the pilot phase and data from this in more detail. Similarly, the initial ethical clearance and the ongoing ethical issues were not straightforward and I will return to these later in 5.5.

Activity Phase	Time Frame	Remarks
<b>Pilot phase</b> Trialled new module - “E-learning and Citizenship” in which ICT specialist student teachers collaborated online with Year 5 class in a local primary school	February 2007 – May 2007	Permissions from parents and children sought Five student teachers interviewed Two online dialogues analysed
<b>Phase 1 Ethical approval</b> Negotiated with senior management, teacher, parents and children of Primary School 1 to seek informed consent Negotiated with Phase 1 Student Teachers regarding informed consent. Submitted proposal the University of Brighton Faculty Research Ethics Committee who gave ethical approval	Completed October 2007	Provided school management with information sheets, parental and child consent forms. Discussed measures taken regarding safety and confidentiality  Provided information sheets for student teachers together with consent form.
<b>Baseline survey</b> Survey of Phase 1 Student Teachers to determine current use of online communication tools.	Completed end of November 2007	Questionnaire was also given to non ICT specialist student teachers in order to position sample group
<b>Intervention 1</b> As part of the new module Phase 1 student teachers created online resources for a group of Y4 children with whom they had met. The topic was e-safety. Synchronised online discussions were also held on the theme of e-safety.	Completed end of October 2007	An online code of conduct, identifying appropriate and acceptable forms of communication online was established. Student teachers worked in pairs with one based online and another with the children in school
<b>Intervention 2</b> Phase 1 student teachers designed and facilitated an online discussion activity using their own area of the VLE with a small group of children at a distance on the topic of looking after the environment	Completed beginning of December 2007	Ethically it was important that there was a clear educational purpose and outcome for the children involved; thus the teaching and learning objective for the children was to enable them to express and develop their understanding of the debate about climate change. Linked to National Curriculum – Citizenship.
<b>Semi-structured interviews with student teachers</b> 5 Phase 1 student teachers were interviewed in total	Completed end of March 2008	Ethically the timing of this was important. The interviews were carried out after students’ assignments had been marked and handed back.

**Table 5.1: Conduct and timescales**

### *5.2.2 Phase 1 Interventions; who and how?*

As part of their module programme the student teachers were given administrator access to a VLE and spent three, three-hour sessions in University discussing the potential of VLEs in education, orientating themselves to the tools that were available within a VLE from a teacher's perspective and then planning for the use of a VLE with a group of Year 4 children from a local primary school with whom they would be working. As part of the first intervention they were given the task of creating an online resource area and activity they could use to develop the children's knowledge and understanding of e-safety. This was an important starting point ethically when working online with children and also had direct links to the Citizenship curriculum. When negotiating access to the local primary schools this was also an approach, which the teachers involved felt was appropriate as well as something they were keen to develop in their own approach to using VLEs in their school.

The link with the Citizenship curriculum was further developed in the second intervention the student teachers carried out with the children. The teaching and learning objective in the second intervention was for the children to be able to express and develop their understanding of the debate about climate change. The nature of these interventions was felt to be apt because of the links to the curriculum but also because they encouraged the sharing of children's views and current knowledge and understanding through the online communication tools. They were also issues they were likely to have come across before both in formal education and their leisure and home lives. This was important, as there was limited time available for the school-based interventions.

Consequently this formed the basis for the student teachers' planned interventions using the VLE and online communication tools with the children. Figure 5.1 below



**Social Forum**

1 **Hi There!!**

☺ It was good to see you last Wednesday. You can still add things to our discussion. It doesn't matter if no one is online. Leave a message and we can answer you when we see it. Remember you can also visit **SOCIAL FORUM** for chat about other subjects. 😊

**This week we would like you to :**

- have a go at the quiz (if you haven't already)
- play one of the **FOOT ZONE** games in 'hedgehog'

So, till we see you again, stay safe!

2 **Discussion - How do you get to school?**

📺 How do you get to school?  
📋 Rules!

Look at this video clip. Could a walking bus work for your school?

🚗 Car Chaos  
🚌 Walking bus

We will be discussing safety aspects around walking to school, considering the benefits. For example; getting exercise and caring for the environment.

Recent Activity

Figure 5.1: Screenshot of a student teacher's online resources

illustrates the kind of ways in which the student teachers resourced their online courses to support the two interventions using a range of visual and textual information to try to make their online areas engaging and accessible to the children. Figure 5.1 also illustrates how they used a range of tools such as discussion forums, which can be used to post messages and exchange information by the children and student teachers and wikis, which allowed multiple users to contribute and edit content. As well as visual and text-based content links were made to relevant online interactive games and short videos.

### 5.2.3 Phase 2 interventions; who and how?

A second phase of research was conducted from February 2008 to June 2008 in which the module 'E-learning and Citizenship' was re-run with another group of ICT specialist teachers. As far as possible this phase mirrored Phase 1 (Table 5.1) with the programme for the module remaining the same together with the content of sessions and the collaboration with a class of primary school children from a local partnership school. Ethical clearance with the participants from school was established. As in the pilot and phase 1, parents and children were given information and consulted by letter (Appendix A) and their informed consent sought. Similarly the second cohort of student teachers was informed of the parallel research agenda of the module and their informed consent sought. The same methods of data collection from Phase 1 outlined in Table 5.1 were employed during this second phase of

research culminating in a random sample of five student teachers being interviewed about their experiences of the module after the module was completed. A key variation between Phase 1 and Phase 2 was the age of the children involved. In Phase 2 the student teachers worked with a class of Year 5 children. Another variation was the socio-economic make-up of the children in the Phase 1 and 2 schools, which was significantly different. Linked to this also, the school taking part in Phase 2 did not want the children involved to access the VLE out of school hours whereas the school in Phase 1 of the project were not concerned about this. These variations were beyond the control of the research project and since the main focus of the research was the student teachers' professional learning and development of their online pedagogical practice, it was felt that a reflexive awareness of these variables could add to the richness of the data.

Thus I have described the conduct of the research embedded as it was within the teaching of a module that took place at a number of sites; university lecture room, primary school, school-based VLE, university-based VLE. What was particularly challenging was developing a coherent methodological design across such different locations and within a module which was intended to act as both a vehicle for student teachers' professional learning and my own research purposes. Similarly, the amount of data generated by both cohorts of students from Phase 1 and 2 was problematic. As I discuss later in Chapter 6, I refocused the research to construct five narrative cases, which drew on the experiences of four students in Phase 1 who I name Karen, Laura, Maria and Jo, and one student teacher from Phase 2 of the project, given the pseudonym Heather. The decision to focus on only five of the ten students I had interviewed across Phase 1 and 2 of the interventions was a response to the way the design of the research evolved inductively into five narrative cases as I set out in the rest of Chapter 5 and Chapter 6. I will now turn to this issue of methodological design.

### **5.3 Methodological design; teaching and learning as research**

The overall methodological design of the research evolved over time. However it was steered by the important guiding principle discussed in Chapters 2 and 3, that student teachers should have agency over their own professional knowledge and learning. This then had implications for the methodological design of the 'E-learning and Citizenship' module and programme. A consequence here was the blurring of the boundaries of teaching, learning and research both

for the student teacher participants as practitioner researchers and myself as a participant practitioner researcher. The resultant methodology that emerged was a hybrid of action research and case study approaches. The case study emerged out of the student teachers' and my own action research into using online communication tools in context. I include myself within the action research component as much as the student teachers for I was acting as participant researcher going into school with the student teachers and working online with them. I will now consider this in more detail.

### *5.3.1 Building the case through action learning*

The module – 'E-learning and Citizenship' - that was developed as the vehicle for the research project and the conduct of which I have outlined above was loosely based upon an action research model of professional learning. I say loosely however as although there were clear opportunities within the design of the module and research schedule for student teachers to engage with the characteristic features of action research such as planning, acting, observing and reflecting (Hopkins, 2002; Altrichter et al 2005; Somekh, 2006), the student teachers were not introduced formally to action research as a methodology. Similarly, although the student teachers generated data through their interactions with the children online and within the school setting and reflected on this data, this process could not be described as rigorous or systematic (Altrichter et al, 2005). Despite these limitations action research with its integration of 'the development of practice with the construction of research knowledge' appeared to offer an appropriate approach to framing the process the student teachers underwent in engaging in situated professional learning (Noffke and Somekh, 2005, p.89). It was a model that cast them in the role of student teachers as researchers and as such appeared to hold the potential for them to begin 'to take control of their professional lives,' (Hopkins, 2002, p.45) an emancipatory quality often assigned to action research (Cohen et al, 2000). Furthermore it was a model that also appeared particularly relevant to working to innovate with new technologies in education. Somekh argues strongly that 'action research should be the methodology of choice for social science researchers focusing on innovation,' due to the nature of the knowledge such an approach can potentially generate (2006, p.2).

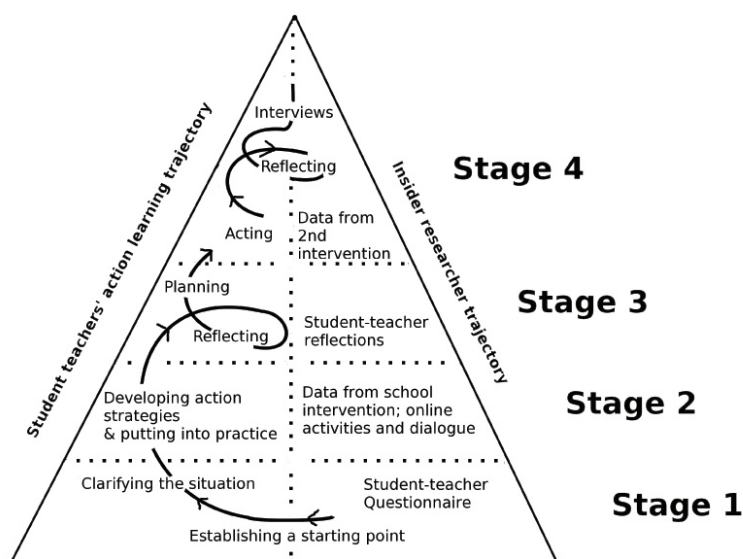


Figure 5.2: Building the case

Figure 5.2 illustrates the different cycles the student teachers progressed through with opportunities to identify issues, reflect and also act within near authentic classroom contexts using online communication tools. The left hand side of the diagram represents the student teacher trajectories whereas the right hand side of the triangle represents my own research trajectory. Noffke and Somekh note that in relation to action research:

“This tradition places importance on an outside facilitator who has expertise in supporting the practitioner researchers. The relationship between the facilitator and ‘insiders,’ such as nurses, social workers or teachers, is crucially important but it raises ethical issues related to their differential power.” (2005, p.90)

The issue of ‘differential power’ and ethics in action research has also been raised by Goodson (2005) and is something I discuss in 5.4.3, as the insider nature of this research and the fact that my own students were at the centre of this research raised these issues regardless of the particular methodological design.

However the distinction of ‘insider’ and ‘outsider’ as used here is one that was problematic. From the perspective of my own research agenda it could be argued that I was looking in from the ‘outside.’ However, embedding my own research within my practice implicated me deeply within the research. At times throughout the process both the student teachers’ and my

own trajectories were in close proximity both physically and cognitively. At Stage 1 (Figure 5.2) for example in some ways we were in a similar place; establishing a starting point, I as lecturer and they as students but both as insiders within the University system which validated their undergraduate studies and my postgraduate study and significantly enabled these two to be brought together. Thus within the context of university I introduced them to the tools within a VLE, we discussed readings I had set and we evaluated and discussed some samples of teaching and learning dialogues between previous student teachers and children generated by the pilot study. Although we were all starting from different points, in many ways I was as much an insider as my students at this point having a significant input into the framing of the module and the research.

The student teachers' and my own physical and cognitive presence varied throughout the module and the course of the project; sometimes the student teachers were working on their own to plan the next stages of the intervention whereas at other times we occupied the same space to discuss issues. After establishing a starting point and clarifying the situation, aspects I had a significant input into, the student teachers developed their own strategies and plans (Stage 2) about how they would use the resources they could access with the children but still presumably with a view to how they could then use this experience to pass the module assignment; a module which I had authored. Data was generated in the form of online resources created by the student teachers and the dialogues they had with the children. My own influence and view of the project at this point was more removed although I was present in the classroom when they were working face-to-face and online with the children and I did become involved from time to time in discussing issues with the student teachers as they arose. In order to try to provide some insight into the nature of the student teachers' thinking and reflections upon their actions they were encouraged to post their reflections on their school-based activities to a discussion forum on the University VLE. These reflections also gave some insight into their planning for the next cycle of action; Stage 3. The final reflections on the school-based and online interventions were captured through a one-to-one interview (Stage 4) carried out by myself with a random sample of ten student teachers from each phase and carried out on the University campus. These interviews again brought me into close physical and cognitive proximity with the student teachers. Interviews were semi-

structured but the direction they took was a product of the interaction as Schostak (2006) points out:

“There is no primal, unmediated, raw, brute content-as-data that can act as the objective conditions, the foundational ground prior to representation for analysis and interpretation,” (p.142).

That is, interviews were co-constructed and sites of complexity with my own position adding as much to that complexity as the interviewees’. What had emerged was not a piece of action research with me as the ‘outside’ facilitator whilst my student teachers enacted successive cycles of planning, acting, observing and reflecting in response to the issues in developing their online practice as they perceived them. Instead, we had created a particular case. The case was a particular example of the pedagogical application by student teachers of online communication tools with children in two local primary schools. Within this phenomenon, which I had been instrumental in bringing about, the task was as Stark and Torrence convey, to;

“engage with and report the complexity of social activity in order to represent the meanings that individual social actors bring to those settings and manufacture in them. Case study assumes that ‘social reality’ is created through social interaction, albeit situated in particular contexts and histories, and seeks to identify and describe before trying to analyse and theorize,” (2005, p.33).

That is, in following their action-learning trajectory the student teachers and myself as participant observer had inductively identified and described the case for future and further analysis and theorising; we had built the case together (Figure 2). We were all insiders within the case albeit occupying different positions and roles. This then also raised certain issues regarding the epistemological and ontological assumptions underpinning the research. To what extent could the traces of our activities left behind – online activities, online discussions between children and student teachers, transcripts of interviews – represent or offer any truthful insight into the meaning of the phenomenon we had all engaged in?

### *5.3.2 Summary*

I have outlined the process by which my methodological design developed from my desire to enable the student teachers to take ownership for their own pedagogical development with the use of online communications tools. This was coupled with my own research aims to discover how different factors affected this process producing an amalgam of action learning and case study methods. However, this messy and complex process also prompted me to a

deeper understanding of the ontological questions and assumptions underlying the interpretive paradigm in which I was working. I will now examine this aspect.

## **5.4 In search of a paradigm; a narrative case study**

### *5.4.1 Parameters of a narrative case*

I had identified early on in the research process that I would be working within an interpretive paradigm. The complexity of the potential variable factors affecting the student teachers' professional learning with online communications technologies required a deepening of my own 'understanding of the way in which the individual creates, modifies and interprets the world in which he or she finds himself or herself,' (Cohen, Manion, Morrison, 2003, p.7). This was a world I had, as explained earlier, played a significant part in creating, through the writing of a module and initiating and participating in the school-based experiences the student teachers engaged with. However, identifying an appropriate paradigm was far easier than the struggle I had positioning the research within that paradigm. Even within a paradigm there are ontological issues to resolve or at best merely acknowledge. My own position as an insider within the research was a constant issue emerging at significant points throughout the project.

One significant point was acknowledged in a tutorial reflecting on how my interviews with the student teachers had gone. I felt the interviews I had carried out with the student teachers had 'taken on a life of their own and become more a part of the process' (Tutorial notes). On the one hand I was feeling uncomfortable with this from the perspective of trying to do what at the time I believed to be 'good' research; feeling I was becoming too reflexive through the process. Ontologically, how could one hope to come to any 'truthful' conclusions when the process seemed to be so out of my control? Despite this, I was also reading Schostak's work on qualitative research and interviewing in particular (Schostak, 2006). I was beginning to see, as Schostak notes, that 'listening and talking are acts of sculpting and being sculpted in order to embody meanings,' and as such there can be no 'raw' data (ibid, P162). That is, the interviews I had carried out with the student teachers were a jointly constructed narrative of the school-based intervention we had carried out, constructed from our different perspectives. I found that despite having developed a semi-structured interview schedule (Appendix B) in order to try and ensure that I captured certain aspects of the student teachers' experiences,



each interview appeared to follow its own distinctive course. Consequently I needed to understand the philosophical basis of such as position and recognise the implications of this in terms of my capture and later analysis of the data.

#### 5.4.2 *Capturing the inimitable: Individuals and their experience*

Reflecting on the distinctive character of the interviews I had conducted and the implications of this led me to revisit phenomenography as a particularly appropriate approach to research in educational settings (Marton, 1988, Richardson, 1999). I had first encountered arguments relating to phenomenography as an appropriate methodological approach when reviewing the literature in relation to professional learning. Laurillard claims that through capturing ‘how students experience learning,’ that is the inimitability of their experience, ‘it provides an empirical base that can inform our approach to teaching,’ (2002, p.69). Whilst this had influenced my thinking in the design of the module for student teachers and subsequent methodological approach, early on I had not appreciated the philosophical basis of phenomenography. On further research into phenomenography I became more aware of its resonance with my own approaches but also its limitations.

Within phenomenography the recognition that there is no ‘raw’ or ‘unmediated’ (Schostak, 2006, p.142) data with which to work and research, is articulated through the philosophical distinction made between first order and second order phenomena and experience. In phenomenography Richardson asserts that the second order perspective is given precedence (1999). Thus, instead of capturing student teachers’ experiences to discover commonalities, which might reveal some universal precept upon which the particular observed phenomena is based, the data is captured and analysed in a way that allows for its distinctiveness to be established. From this perspective what is important is ‘the qualitatively different ways in which different people experience, conceptualize, perceive, and understand various kinds of phenomena’ (Richardson, 1999, p.53). Or, as Marton himself puts it, the starting point in a phenomenographic approach is ‘the relation between the individual and some specified aspect of the world,’ (1988, p.146). From this perspective, that the interviews had seemed to follow their own course became in itself of methodological importance for as Marton relates ‘the object of the research is the *variation* in ways of experiencing phenomena,’ (1997, p.111, original emphasis). Furthermore Marton relates that in phenomenography the aim is to



exhaust the potential for variation in the different ways in which participants experience phenomena; phenomenographic researchers 'seek the totality' of variants, (1997, p.121).

However, where phenomenographic approaches seem more problematic is in accounting for the mediating role of the researcher. Marton acknowledges this issue and suggests that the researcher must learn to 'bracket' their first order observations or judgements relating to the validity or otherwise of the 'ways of experiencing' their participants share with them. For example he writes:

"Whereas the people whose experiences we are studying are oriented toward the world they are experiencing, we as researchers are oriented toward the various ways in which they experience some aspect of the world. Here, then, is an obvious asymmetry. They can very well experience the world without our studying their experiences, but we cannot study their experiences, without their experiencing the world. Experiences are reflected in statements about the world, in acts carried out, in artifacts produced. Now in the light of what we know about the world, such statements can appear more or less valid or consistent or useful, the acts more or less skilled, the artifacts more or less functional. Judgements of this kind belong to the first-order perspective. When adopting a second-order perspective we have to bracket such judgements." (1997, p.120)

This notion of the researcher 'bracketing' their judgements is interesting in that it implies a level of researcher detachedness, which belied to a certain extent my own experiences as an insider researcher. Phenomenography offered a useful philosophical basis for identifying the parameters of my unit of analysis, namely my student teachers and their distinctive relations to the phenomena of online communications tools in their professional experiences and beyond. However, questions regarding my own positioning as an insider researcher remained problematic; to what extent was I being 'sculpted' or doing the 'sculpting' as the student teachers' narratives were given meaning? Narrative methodology appeared to grapple more with issues of researcher and narrator voices, albeit a dynamic and constantly evolving approach (Chase, 2005).

#### *5.4.3 From phenomenography to narrative*

Chase cautions that those coming to the field of narrative methodologies for the first time 'will find a rich but diffuse tradition,' of 'multiple methodologies in various stages of development, and plenty of opportunities for exploring new ideas, methods and questions' (2005, p.651). This seemed particularly akin to my own view of research methodology as a creative and uncertain process described by Bassey as 'an intellectual struggle,' (1999, p.84).

However, beyond this, the emphasis on the biographical also appeared to be particularly compatible with an approach that sort to understand the unique nature of student teachers' engagement with the phenomena of online communication tools within their professional practice. Furthermore, narrative methodologies appeared to problematise notions of narrator and researcher voices, which was an issue that remained for me.

Indeed, Goodson makes a strong argument for the role of narrative in what he describes as 'a crisis of scholarly representation' within the field of educational research (2005, p.223). That is, his argument, albeit with certain caveats, is that narrative approaches have the potential to support a more equitable and productive relationship between teacher and researcher voices. On the one hand it is vital that teachers' voices are heard and that their life stories, enmeshed as they are with their professional identities, are given voice. On the other hand, Goodson also warns about romanticising the teacher voice and it is here that the researcher has a vital role to play in contextualising teachers' stories in order to reflect the ways in which they relate to the wider socio-cultural structures. For example Goodson cautions that another;

“form of apartheid could easily emerge if teachers' stories and narratives remain singular and specific, personal and practical, particular and apolitical. Hence it is a matter of some urgency that we develop stories of action within theories of context – contextualising stories, if you like – which act against the kinds of divorce of the discourses that are all too readily imaginable.” (2005, p.231)

This was a powerful and important stance to take within my own context, where the vulnerability of the student teacher within the student-lecturer relationship is all too evident, which I will explore further when examining the ethical issues. However, Goodson's perspective on researcher and teacher voice in narrative methodologies was significant in that it clarified my own role as an insider researcher. It was necessary for me to encourage the student teachers to tell their stories in relation to the intervention they had carried out with the children and where possible, how this related to their past and wider experiences within their professional lives and beyond. As Schostak points out, in this process 'the interviewee is positioned as the teacher, the expert in their own ways of seeing,' (2006, p.149). That is I needed the student teachers to 'tell me how' they 'live in [their] world' (ibid) or as Chase asserts '*during interviews* the narrative researcher needs to orient to the particularity of the narrator's story and voice,' (2005, p.661, original emphasis). But beyond this how do we then represent the narrator's voice and do we need to represent it at all? Indeed, Chase outlines a

number of ways in which narrative researchers have addressed this issue, from letting the narrative speak for itself to developing authoritative or supportive researcher voices (2005). From my own perspective I adopted Goodson's (2005) approach that highlights the need to develop supportive researcher voices capable of locating teacher voices and narratives within wider socio-political contexts. Without such further interpretation and development there is the risk, as Goodson points out, of assuming that 'power and politics have somehow ended' and that all that is needed is to enable teachers to find their voice and narrate their stories (2005, p.230). Such a naïve view could potentially lead to the increased personalisation and isolation of teacher knowledge easing 'the continuing administration of power' according to the predominant and prevailing hierarchical structures. From this perspective my own researcher role became significant in terms of contextualising the student teachers' narratives, which is a theme I pick up again in my concluding chapter in considering again the complex role of teacher educators researching our own practice.

However locating the student teachers' narratives within the wider socio-political contexts was not the only significant facet of my researcher role that emerged. In discussing narrative methodologies Riessman emphasises the importance of sequence and contingency commenting that 'a speaker connects events into a sequence that is consequential for later action and for the meanings that the speaker wants listeners to take away from the story' (Riessman, 2008, p.3). In this sense a personal narrative account of a particular event becomes part of a meta-narrative for implicit within the notion of narrative is the notion of audience or listener. I was the audience for the student teachers when they posted their online reflections relating to their work with the children, as I was the audience when posing questions during the interviews. However, this again implies neutrality on my part, which I did not feel as mentioned earlier. I was not a passive recipient as the student teachers constructed their narratives. Furthermore, it was clear sometimes in the longer pauses during the interview process that I was not merely collecting the student teachers' stories to 'take away,' (ibid) but was actively reflecting these stories in a way that sometimes prompted them to review their narrative account of their experience of the intervention. The mere act of telling to another appeared to be transforming the narrative into a site for further learning. As Clandinin et al note:

"There is also a reliving part of restorying. In reliving their stories, teachers may begin to imagine themselves in new ways and to change their practices, the ways they live in the world. As they

gain a deeper awareness of their stories to live by, they begin to shift those stories as they continue to go about their days.” (2006, p.10)

In this way, my own researcher voice and presence became something to recognise as an active and legitimate force within the researcher-student teacher relationship for as Schostak notes ‘language’ and to that I would add, the narrating of our personal experiences through language ‘is both the condition for entrapment and emancipation,’ (2006, p.162). Indeed, not to engage actively with the students in the construction of their narratives could be criticised on ethical grounds. Furthermore, to return to where this paradigmatic debate began in terms of positioning my own researcher voice and the student teachers’ voices the shared construction of the student teachers’ narrative cases offered a genuine opportunity for collaboration as Goodson points out:

“The teacher/researcher offers data and insights; the external researcher, in pursuing glimpses of structure in different ways, may now also bring data and insights. The terms of trade, in short, look favourable.” (2005, p.240)

That is, to have listened with the pretence of an ‘impositionless agenda’ would have been duplicitous at worst and at best naïve (Schostak, 2006, p.145). In coming to a deeper understanding of the philosophical basis of a narrative approach, I felt I had a more developed understanding of the importance of my own researcher role and voice. Moreover this had ongoing implications within the methodological approaches.

Thus the problems I faced with notions of speaker and voice within the five case studies produced were mitigated to a certain extent by recognising them as constituent narrative cases. That is, ownership both for the construction and the telling of these cases belonged to myself and the student teachers; ‘two active *participants* who jointly construct narrative and meaning,’ (Riessman, 2008, p.23). The implications of this in terms of methods were that it would have also been questionable for me to commit the student teachers’ narratives to this thesis without giving them further input and opportunity to advise on the ways in which their personal narratives, constructed from a range of data, had been interpreted and assembled into a whole. With this issue in mind, I approached the analysis of each personal narrative in four stages. Firstly in each student teachers’ narrative case I transcribed the interviews and collated all of the data that they had produced; online discussions with the children, online reflections posted after working with the children, the online resources they had created for

their groups of children within the VLE and their written assignments produced at the end of the module. Secondly, this data was then analysed from the perspective of the theoretical framework and themes I had developed in order to construct an initial narrative summary. The detail of this process of analysis will be examined in Chapter 6. In the third stage of the process I e-mailed the narrative summary to the particular student teacher for their consideration. Finally, I developed a more detailed narrative analysis of the student teacher's case from the narrative summary, presenting more of the raw data to support the narrative. Karen's narrative summary is available in the appendices (Appendix C). Out of all of the cases her response to this process was the most noteworthy. Whilst the other four student teachers offered little in the way of further responses other than to confirm that they felt the portrayals and my interpretations of their cases were accurate, Karen offered further clarification on her position with regards to some of the interpretations I had made in the narrative summary of her case (Appendix C). For example she returned the narrative summary with comments inserted in a different colour for clarification as can be seen in the following extract from the summary:

*“That is Karen had significant reservations about the age appropriateness of engaging in online discussions with KS2 children. (As per my quote above – I did say the youngest KS2 children. I was working with Y3/4 I believe – and some of them low achievers. I thought at the time, and still do, that older KS2 pupils could engage better with forum, as they could probably articulate better) Furthermore this appeared to resonate with her wider views and concerns about the use of social networks by young people in general.”*

(Extract from Karen's narrative summary showing Karen's response in italics)

Similarly again in response to another extract from Karen's narrative summary she felt the need to further clarify but also justify her actions with the children based upon my interpretation of these within her narrative summary, for example:

*“Concerned with the pace of some (this was more that I felt individual skills with typing and literacy hampered the children's answers, and therefore limited their ability to express themselves fully. This is why I volunteered to type what they wanted to say) of the children's typing and the shortness of their replies Karen resorted to typing for some of the children when she was working face-to-face with the children.”*

(Extract from Karen's narrative summary showing Karen's response in italics)

This last extract in particular illustrates, I believe, the limitations even of narrative approaches in attempting to reconcile issues of tension and equity between teacher voice and researcher voice. Cortazzi and Jin (2006) draw attention to issues of representation in narrative research; that is who is doing the telling and 'how do researchers get, translate and

represent voices authentically in narrative research' (p.28). It is clear that Karen felt vulnerable regarding her professional practice on these issues. Her need to clarify, in her own voice as opposed to my voice, her reasons for typing for the children can be seen to be indicative of this vulnerability and also Karen's feeling that I had not represented her voice authentically (Cortazzi and Jin, 2006). It is for this reason that Goodson notes 'we need to avoid an immediate and predominant focus on practice,' and that 'practice should at least partially, be replaced by a focus on the teacher's life,' (2005, p.239). This was guidance that I had heeded up to a point. However, within the limitations of my own study, the extent to which the research could focus on the student teachers' lives was also influenced by other issues such as my responsibilities as the student teachers' lecturer and the amount of time I could reasonably expect them to dedicate to the research project without jeopardising their course of study. Although my approach was narrative, it fell short of life history. In the limited scope and time available for the project it was only possible to incorporate some token features of life history methods creating spaces for their life stories to enter into the case where this arose. I can only speculate what stories might lie beneath some of Karen's vulnerability about her professional practice. These are methodological and ethical tensions that no specific approach could resolve fully and that continue to resonate in methodological debates. Taking a narrative approach helped significantly to understand my own reflexive role within the research process and to a certain extent facilitated a deeper understanding of how the student teachers' professional identities interfaced with their wider experiences and beliefs particularly in the field of ICT and education. However, tensions remained between my own researcher voice as the main teller of the narratives and the voice of the student teachers. These tensions also reverberated on a number of ethical levels, as I will explore now.

## **5.5 Ethical considerations arising on different levels**

The overall design of the research project made for a number of complications in terms of ethical considerations. The overall design was characterised as pedagogical research. That is, there were pedagogical and research commitments on two tiers; that of the student teachers and that of the children with whom the student teachers were working. It was important from a pedagogical perspective that the research was purposeful and a worthwhile endeavour both to the student teachers and the children involved. Whilst the main focus of my own research

was the factors affecting the development of the student teachers' online pedagogical and professional knowledge and understanding, the research design also encouraged the student teachers to become active researchers of their own online professional practice. Thus they were not only participants, but also participant-researchers in their own right with their own participants. The planned activities needed to meet appropriate ethical standards at both the level of student teachers and the school children taking part. It was important therefore to ensure that in line with the University of Brighton ethical guidelines and the revised ethical guidance published by the British Educational Research Association (BERA, 2004) that the research design took account of these potentially conflicting complexities. Thus, a detailed ethical protocol was drawn up (Appendix D) and submitted to the University of Brighton, Faculty Research Ethics Committee, that attempted to clarify the expectations and commitments of all of those involved including myself, be they participants or researchers. I will now examine these further, firstly from the lecturer to student teacher perspective and then the lecturer and student teacher to school children dimension.

### *5.5.1 Researching my own students*

I have already problematised the issue of researcher and participant voices and discussed how a narrative approach helped in legitimising both of these voices within the constituent cases we constructed; albeit with the caveat that certain limitations upon the scope of the narrative approach meant that there remained inevitably some tension between my own voice and the student teacher voice. Such an open and discursive relationship as described hitherto with the student teachers in the research project located the project firmly within an ethical paradigm of 'ethical relativism' (Hammersley and Atkinson, 1995). That is, although where appropriate and necessary research conduct was governed by adherence to the BERA ethical code and that of the Faculty Research Ethics Committee, University of Brighton, such adherence did not adequately and wholly resolve all of the points of tension throughout the project. There were a number of ethical issues that could only be mitigated against in terms of researching my own students, as Punch indicates:

“The generality of codes often does not help us to make the fine distinctions that arise at the interactional level in participant observation studies where the reality of the field setting may feel far removed from the refinements of scholarly debate and ethical niceties.” (1994, p.89)



Furthermore as an insider researcher with a number of competing roles and responsibilities it was at the 'interactional level' that the ethical tensions arose.

A key point of tension centred on the notion of informed consent and coercion. All of the student teachers were initially given a letter (Appendix E) explaining that the module – 'E-learning and Citizenship' – was also the focus for a research project, which they could choose to take part in. The design and aims of the research were explained to the students in the first taught session of the module. As mentioned previously I provided them with an ethical protocol, which outlined a number of expectations that they could anticipate in terms of my own research conduct, illustrated in Figure 5.3 below. As can be seen, (ibid) I was careful not to give guarantees of anonymity in accordance with the University of Brighton ethical guidance as this was beyond my capacity although I explained that I would take measures to try to secure this. Again, in accordance with the University of Brighton ethical guidance the student teachers were encouraged to take away the information about the project together with consent forms and the ethical protocol so they would have time to give proper consideration to their potential participation in the research aspect of the module. Some of the student teachers returned their signed consent forms at the end of the first session whereas others took the information away with them and gave them to me in the second session of the module. Out of the two cohorts of student teachers with whom the research was conducted two students out of twenty-two did not give their consent to participate in the research project. My own interpretation of the fact that there were some students who declined the opportunity to participate in the research project was that the level of coercion felt by the students in general was not great and that on the whole they perceived it to be a worthwhile endeavour.

**What student teachers can expect:**

- Student teachers can expect to be consulted fully and given written and oral information about the aims of the project.
- They will be given time to consider before becoming involved in the project and they may withdraw at any point. Participation is voluntary.
- Should any student wish to withdraw from the research component of the module (interviews, questionnaires) they can do so in the knowledge that this will have no impact upon their progression in the taught module or the rest of their course.
- The project is designed to have direct relevance to student teachers' professional development as ICT



- specialists offering them the opportunity to develop their own knowledge, understanding and skills in using online communication tools within an educational context.
- Measures will be taken to minimise any impact upon student teachers' workload particularly during assessment periods. The collection of any data not generated through the normal participation within the module will take place at the beginning of the module and then when the module has been completed; thus avoiding any periods of formal assessment.
  - Raw data, in the form of interviews, questionnaires or exchanges between the student teachers and the children will be kept securely by the researcher.
  - Any data used to disseminate findings from the project will be anonymised, although absolute anonymity cannot be guaranteed due to the identity of the researcher and their place of work being in the public domain.
  - Student teachers participating in the research project will be invited to a debriefing session at the end of the academic year when the researcher will share any preliminary findings and invite the participants to respond either orally or in writing.
  - All research activities within the project will have been scrutinised by the University of Brighton, Faculty Research Ethics Committee
  - Should a student teacher have any concerns regarding the conduct of the research which they are unable to share with the researcher, they can contact the researcher's line manager, Lorraine Harrison, Head of the School of Education, University of Brighton, on Brighton 600900.

**Figure 5.3: Extract from ethical protocol**

Nevertheless, despite the assurances and commitments outlined in the ethical protocol the issue of informed consent versus coercion remained problematic due to the fact that the potential link between my role as a lecturer with the ultimate responsibility of assessing their work and my role as researcher, inviting them to participate in a project I had designed, was axiomatic. Whilst in the ethical protocol I gave the student teachers I had taken steps to try to minimise any potential conflicts in this respect the fact remains as Homan has raised that certain expectations or concerns may nevertheless have been set in motion thus:

“We have to consider the possibility that long-term co-operation in such a project, like being a teacher's helper at school, may predispose a tutor to a positive assessment and favourable expectations of students.....What is at issue is no more than the hope of participants and the suspicion of those who decline to take part that they will be reciprocally favoured or disadvantaged in assessment.” (2005, p.224)

I took further measures to mitigate the potential impact of the conflict between my role as both lecturer in a position of power and researcher. As far as possible, interviews conducted with the student teacher participants were conducted outside of the module assessment period in order to reduce the pressure of workload on the students but also to increase the distance between the module assessment point and the data gathering or analysis in the hope that this

might reduce tension between these ambiguous roles. Of course, none of the measures taken fully alleviated the ethical tensions arising from researching my own students' pedagogical practice and professional learning. Consequently, as Bulmer notes 'there are no cut-and-dried answers' to such issues (2001, p.57). The issue came down to a matter of my students putting their trust in my own professional integrity both as a researcher and their lecturer and me putting my trust in them not adopting inappropriate expectations for agreeing to take part. Sanger draws attention to the fragility of this tie of trust claiming that as researchers, 'in our recognition of plural perspectives and contextual ambiguity, we need to convince our audiences that we are coming as clean as we can,' (1996, p.113). This is a somewhat utilitarian view, but I like to believe that combined with such a view I also made a significant effort throughout the research process, including the analysis, interpretation and write up of this thesis, to build upon and develop the trust between myself and my participants. Indeed, locating the student teachers as the central focal point of my narrative approach also seemed compatible with trying to negate some of the ethical tensions generated by this inevitable imbalance of power between the student teachers and myself. If this trust had faltered throughout this process then the student teachers were given the details of my own line manager with whom they could raise any concerns (Figure 5.3).

Whilst the lecturer-student teacher dimension created ethical tensions related to the issues encountered when researching ones own students, there was another equally complex dimension, which needed careful consideration. As noted earlier, the pedagogical research design cast the student teachers participating in the module and the research project as participant researchers in their own right, the school children being the participants. This was particularly problematic on a number of levels, from the pragmatic issues within the context of the school through to the wider socio-cultural contexts surrounding issues of e-safety, as I will examine now.

### *5.5.2 Student-teachers researching their pupils*

Although, as stated, the children were not the main focus of this research project Homan (2009) identifies the ethical ambiguity within notions of participants and subjects. For example, parents may easily and unwittingly become subjects within a research project designed to focus predominantly on children. In responding to the simplest of questions children may knowingly or otherwise inform on aspects of their home life in which their

parents are deeply implicated. This same ethical issue lay at the core of my own research, for although I was interested in the student teachers' professional learning and practice online, it was difficult to disentangle this from their interactions with the children. From this perspective, I took the cautious step of securing informed consent from the children, their parents and school gatekeepers such as the head teacher and class teacher. On the part of the children and their parents, this involved providing them with an information leaflet and letter about the activities we intended to undertake and a brief rationale for carrying out the research in terms of how I believed it could be of benefit to both the children and the student teachers (Appendix A). On the part of the school I exchanged e-mails and discussed the issue on the phone with the head teachers and class teachers involved. All of these participants were also provided with the ethical protocol, which had a section clearly identifying what children, parents and the school could expect thus:

#### **What the partnership school can expect**

*The word 'participants' is used here to refer to all of those involved in the project at school level; children, parents/carers, teachers, head teachers. The term 'researcher' refers to the project leader (Keith Turvey)*

- All participants can expect to be consulted fully and given written and verbal information about the aims of the project.
- Participants will be given time to consider before becoming involved in the project and they may withdraw at any point. Participation is voluntary.
- The design of the project will give careful attention to ensuring that the children are engaged in relevant educational activities related to the curriculum and with appropriate learning objectives.
- Measures will be taken to secure the anonymity of the children and school in any dissemination of the findings through publications or presentations. However 100% anonymity cannot be guaranteed, due to the identity and work place of the researcher being in the public domain.
- The student teachers' and children's online dialogues will be downloaded from the VLE and kept securely by the researcher.
- The virtual learning environment used by the children and student teachers will be password protected and kept on a 'secure' server, although it is impossible to achieve 100% security. In the event of a breach of security such as an unauthorised person gaining access to the VLE it will be shut down immediately and the relevant authorities informed.
- The researcher will establish a code of conduct regarding the appropriate and safe use of the VLE with the children and student teachers. The use of the VLE will be monitored regularly by the researcher.
- There will be a clear end point to the school phase of the project with children and student teachers given the opportunity for closure in their discussions.
- At the end of the school phase of the project, the researcher will share the findings with the school-based participants in the form of an informal written report to which they will be invited to respond if they wish.

- If the participants have any concerns regarding the conduct of the research, which they are unable to share with the researcher, they can contact the researcher's line manager, Lorraine Harrison, Head of the School of Education, University of Brighton, on Brighton 600900.
- The researcher has completed an enhanced CRB check and will provide the school with a copy of the certificate at the beginning of the project.

**Figure 5.4: Extract from ethical protocol**

As can be seen in the extract taken from the complete ethical protocol (Figure 5.4) some of the assurances given covered the typical ethical measures to facilitate informed and voluntary consent, together with measures to keep the specific identity of the school and children out of the wider public domain without offering guarantees of anonymity. I did discuss this issue with the schools concerned rather than assume that they would not want their name associated with the project. One of the partnership schools involved in the pilot study were quite content with having their name associated with the project whilst the other school involved did not want to be named in any write up of the project. As with the ethical guidelines relating to the student teachers, the ethical protocol devised in relation to the school-based participants, was informed by the BERA (2004) ethical guidelines and those of the University of Brighton, Faculty Research Ethics Committee. However, as closer examination of the extract (Figure, 5.4) from the ethical protocol illustrates, the nature of the project necessitated specific measures to minimise any risks to the participants emerging from the use of the online medium. This created additional ethical tensions surrounding e-safety.

I had encountered issues around e-safety and managing risks when carrying out research online with children during my MA Education research. My own reflections on the ethical issues behind researching online with primary children had been developed in a paper I wrote and presented at the BERA conference (Turvey, 2006b). This process was an important one, enabling me to engage with the complexities of research in the online medium with children; an important step in gaining the trust of the schools, parents, children and student teachers. So what were the ethical complexities thrown up by the virtual medium and concerns about e-safety?

### 5.5.3 Covert versus overt

One of the key complexities thrown up by the virtual medium was its tendency to blur the boundaries between covert and overt methods at both the level of the student teachers and the children. Whilst informed consent had been obtained from all involved, the lack of physical presence within the online medium together with the a-sited nature of online research can yield opportunities to observe covertly or lurk (Preece, 2000; Salmon, 2002). The a-sited nature of research online has led some to question the legitimacy of online methods within an ethnographic paradigm (Hine, 1998, Lahiff, 1999). At the very least, the boundaries between covert and overt research become fuzzy for as Steven et al point out, there is a fundamental ambiguity at the centre of Internet spaces regarding their construction as public or private spaces (1998). Homan has similarly argued that such ambiguity can be highlighted in physical sites of research noting in his study of Pentecostal worship that ‘the distinction between casual and purposeful observation is both arbitrary and difficult to establish for the purpose of ethics,’ (1980, p.57). Nevertheless, the issue would appear to be more acute online as the lack of the researcher’s physical presence can ‘render their activities clandestine’ despite their best intentions (Turvey, 2006b, p.8).

Indeed some have actively exploited the surreptitious nature of online research for the greater good, making use of the limited provision for subterfuge that the BERA guidelines permit. For example, the guidelines advise that researchers should ‘avoid subterfuge unless their research specifically requires it to ensure that the appropriate data is collected or that the welfare of the researcher is not put in jeopardy’ (BERA, 2004, p.6). One example where such methods could be argued to be justified was O’Connel’s research into online grooming (2003) where she states:

“I have posed in teen chat rooms as an 8, 10 or 12 year old child, usually giving the story that ‘my mum and dad are always fighting, children are cruel to me at school and I’m really unhappy.’ The aim was to explore paedophile activity in teen chat rooms and get a better insight into online grooming practices.” (p.38)

Alderson and Morrow take an absolutist viewpoint on this issue claiming that ethical codes that permit subterfuge in certain circumstances are based upon ‘old ethical views that treat research subjects as ignorant objects’ (2004, p.109). However, the opposite would appear to be the case in O’Connel’s employment of deception; the clever yet morally deficient deceptions practised by online groomers legitimised O’Connel’s own subterfuge. Any

protests about the use of deception could arguably be easily outweighed by the increased capacity for online child protection due to the knowledge and understanding gained about the tactics employed by online groomers.

Engaging with these complexities enabled me to recognise and understand where my own ethical responsibilities lay in terms of the children we were engaging through the research. It was clear that my own research lay at the opposite end of the ethical spectrum to O'Connell's (2003). To engage online with the children without raising their awareness of the safety issues involved in using the medium would have been ethically irresponsible. In a paper I presented to BERA in 2006 I argued that *not* to engage online with children and educate them about the online medium was ethically indefensible. This is an issue that many schools are now facing up to in response to the review of e-safety (Byron, 2008).

Despite this, there still persists at best a cautious attitude to many online or networked technologies in schools, epitomised by the banning of mobile phones by many schools. Such a legacy could be seen to stem from initial fear of such technologies in formal schooling. Whilst carrying out my MA education research in 2004 I encountered fearful attitudes towards online technologies from teachers as expressed by one ICT co-ordinator I interviewed who told me that in his school:

“All chat rooms are no no.....they don't happen....we don't promote it. Well in fact we actively discourage it in every way shape or form. Too many horror stories to even contemplate it.”  
(Turvey, 2004, p.60)

Such attitudes also stemmed from the ambiguity and uncertainties surrounding online technologies expressed within policy at the time as in this extract from the then National Grid for Learning (NGfL).

**Note:** Although the term 'chat' is probably not appropriate in an educational context we use the term here for ease of reference.  
**Guidelines and what to look for:** Children should only be given access to educational chat rooms. The use of 'chat' in an educational context should always be supervised and pupils should be taught to understand the importance of safety within any chat room.”

(NGfL, 2006, online)

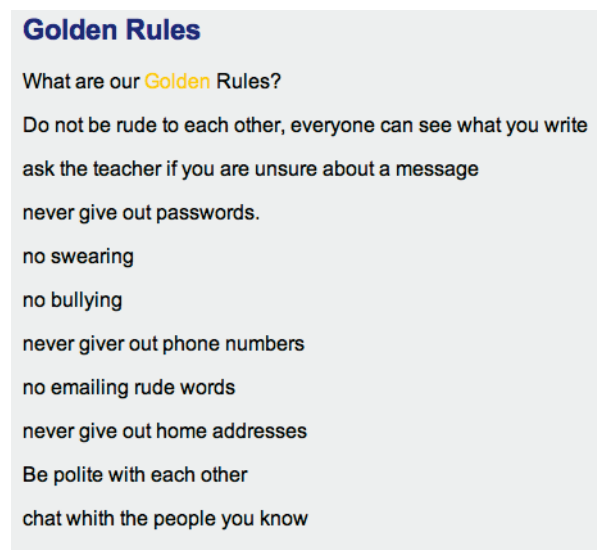
Whilst the inappropriate and unsafe uses of new communications technologies do and should raise alarm regarding the safe use of the Internet by children, I also believed that taking an absolute ethical stance regarding the educational use of such technologies is anachronistic at best and renders children vulnerable to exploitation via these media at worst. This research took place within a risk-averse climate in schools with respect to online communication technologies although as mentioned, there has been much clearer expectations with respect to schools' responsibilities with the Byron review (2008) calling for a;

“move from a discussion about the media ‘causing’ harm to one which focuses on children and young people, what they bring to technology and how we can use our understanding of how they develop to empower them to manage risks and make the digital world safer.” (p.2)

That is, Byron appears to herald a new era in which schools are encouraged to engage with the digital worlds that children inhabit in order to help them to develop their critical understanding of such virtual worlds where real world risks and opportunities co-exist. Consequently it was against this complex backdrop of mixed feelings and attitudes towards online communications technologies that I tried to identify the key ethical issues surrounding the student teachers' engagement with the children online. I identified a number of additional ethical measures, which I will outline here in brief.

#### *5.5.4 Minimising risks to the children*

A key area of risk to the children identified involved their conduct online. For example there was the potential for the children to use the online communication tools inappropriately due to a lack of understanding of the impact the medium can have on their peers. In order to minimise the risk of the children causing harm to each other through their inappropriate use of the medium the student teachers agreed to start their intervention by discussing this issue and drawing up an online code of conduct with the children they were working with. This was established through face-to-face discussion mostly although some groups also used a wiki tool within the VLE to develop their code of conduct and remind the children about their expectations regarding how they conducted themselves online (Figure 5.5).



**Figure 5.5: Screenshot from online wiki code of conduct**

As well as establishing an online code of conduct with the children I decided as discussed above that it would have been ethically irresponsible to engage with the children online – contributing to the further normalisation of this kind of communication – without addressing issues of e-safety. Thus the theme of e-safety in general was adopted by the student teachers and became an important aspect of the subject content in the initial intervention with the children.

There were no issues with inappropriate comments online between the children throughout the duration of the project. However another measure taken to mitigate against this risk was developed after a discussion with a colleague. I discussed my proposed project with a PSHE and Citizenship adviser from the Local Authority with whom I had worked before and she advised that it was important not to set up unrealistic expectations in the children that the student teachers would always be available online, even after the project. Thus the student teachers and I gave clear indications to the children when the project was concluded and ensured that there was time for the children to share their final observations. As well as providing closure for the children, this also ensured that the online forums were not left dormant for the children to continue to use unsupervised.



I also felt it was important to give a clear message to the student teachers regarding their own responsibilities with regards to the issue of potential risk to the children. To this end I included a section making explicit my own expectations of the student teachers with regards to their support in monitoring and facilitating the children's safe use of the VLE throughout the project. These expectations were made clear in the ethical protocol that was given to all involved in the project and are highlighted in the extract below Figure 5.6

**What the researcher expects**

Student teachers must abide by the online code of conduct negotiated with the children regarding the appropriate use of the online environment and support the children in the safe use of the VLE.

Student teachers must support the researcher in monitoring the use of the VLE and report anything that concerns them immediately to the researcher.

**Figure 5.6: Extract from ethical protocol - researcher expectations of student teachers**

As I have illustrated the ethical issues that emerged from this research were multifaceted. They were complicated by the two tiers of pedagogical responsibilities; to the student teachers and the children. This was further complicated by the two tiers of research; my own research of the student teachers' online pedagogical practice and their own research approach to their online practice with the children. Other risks such as the potential of the VLE being hacked into by strangers were also considered under the ethical considerations. The VLE was password protected and hosted behind the security of University of Brighton firewall. Whilst this did not eliminate fully, the potential of someone hacking into the VLE, the fact that the duration of the contact with the children online was kept to a minimum, helped to mitigate this risk. The student teachers were also clear about their responsibility to monitor and report any suspicious activity, which acted as a further measure in this respect. In terms of the ethical responsibilities to the children I felt that I had given full consideration to this issue and developed throughout the project a series of safeguards to minimise any potential harm to those involved. The multifaceted nature of the research meant that it was vital 'to be constantly ethically aware' (Bulmer, 2001, p.57).

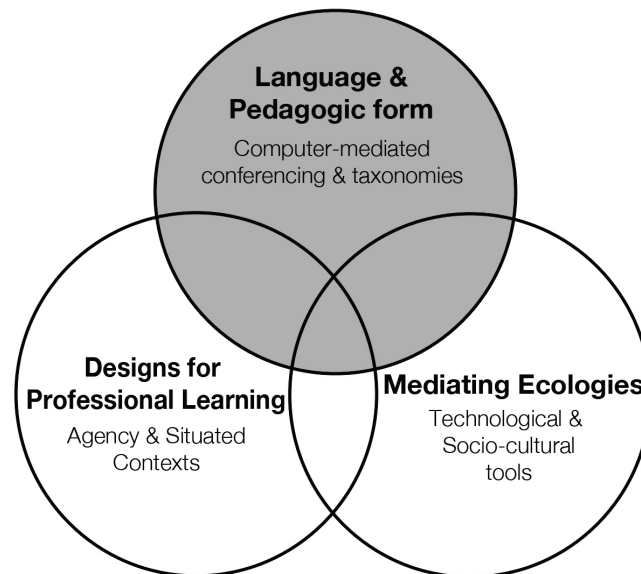
### 5.5.5 Summary

So far in this chapter I have plotted the inductive development of my methodological stance as an insider researcher in relation to the methodological design of the research. This was a creative journey with uncertainty and challenges throughout; no less so during the writing up process which has also been an integral tool in setting out my methodological stance. At the start of this chapter I identified that the aim was to plot:

- The emergence and development of a coherent and appropriate methodological approach within an interpretive paradigm;
- The process of writing research as an insider with the associated ontological, epistemological and ethical assumptions this invokes.

I feel much more secure about the methodological stance that I have detailed here. This sense of increased security has been achieved through grappling and at times struggling with the ontological and epistemological boundaries I have met along the journey. One such significant boundary was recognising the limitations of the phenomenographical approach I had taken. In grappling with these limitations as discussed above, I turned to narrative methodologies to partly resolve some of the issues of researcher and participant voice. However, my turn towards narrative approaches was also influenced by the experience and understanding I gained from struggling with the analysis of the data from the pilot project I had carried out. This experimental phase of data analysis proved to be instrumental in helping me to develop a more systematic and holistic approach to the narrative analysis of the main project. I will now address the lessons learnt from the pilot study in order to illustrate this progression in approaches to analysis.

## 5.6 Lessons learnt from the pilot study



**Figure 5.7: Focusing on Language and pedagogic form**

The key focus within the pilot phase of this research project was the ways in which the student teachers I was working with expressed their pedagogical presence online through their utterances together with their perceptions about the use of online communication tools in primary education. In Chapter 4 I examined the broad knowledge base surrounding language and online pedagogical presence (Figure 5.7) including various taxonomical approaches to the analysis of computer mediated conferencing (Salmon, 2002: Rovai, 2002: Anderson et al, 2001: Blake, 2000: Anderson & Garrison 2003: Dennen, 2005). The application of taxonomical approaches proved problematic as I will examine through illustrating the lessons learnt from trying to capture the student teachers' online pedagogical presence.

It seemed reasonable to assume, based upon the literature discussed in Chapter 4 that student teachers' pedagogical approaches could be captured to some extent through their online utterances. I believed at the time that online dialogue between student teachers and their pupils was a potentially important unit of analyses, if I was to capture aspects of the

development of student teachers' online pedagogical practice. Ravenscroft (2000) identifies the need to focus attention on 'teaching-learning processes and interactions that support learning' within online environments, and such processes and interactions it could be argued are embodied within online dialogue (p.242). This led initially to a taxonomical approach to the analysis of online teaching and learning dialogues based upon Anderson et al's research identifying key indicators relating to the expression of teaching presence online (2001). Ravenscroft's notion of argumentation to promote thinking and conceptual change through what he terms 'dialogue games' was also adapted as a way of both characterising and categorising the online utterances of the student teachers and the children in order to capture online pedagogical presence (2007). Similarly, the balance between what Laurillard (2000) categorises as 'narrative guidance' and 'narrative construction' was regarded as a useful way of analysing the roles taken on by the student teachers and their pupils throughout the online discussions. That is, to what extent was the online learning dialogue being constructed by the teachers or their pupils? However, carrying out this process of analysis also led me to a realisation of the limitations of such taxonomically bound approaches, as I will highlight now.

### 5.6.1 Categories and indicators of online pedagogical presence

Different categories of online pedagogical presence were identified from the literature summarised in 5.6 and discussed at more length in chapter 4. Various indicators were then identified within the online teaching and learning dialogues as representative of different categories of online pedagogical presence. This is illustrated in Table 5.2.

Categories of online pedagogical presence	Indicators	Examples
Facilitating discourse	Questioning, re-assuring, praising, naming individuals, introducing new ideas,	"Good idea...what do you think about"
Challenging misconceptions, attitudes/beliefs	Persuasive questioning/argumentation	"I know what you're saying but..." "I'm not disagreeing with you but..."
Direct instruction	Advisory tone to message	
Conceptual revision	Reassessment of point of view or understanding	"I never thought....." "I've changed my mind about...."
Agency over dialogue narrative	Who is guiding/constructing the narrative	Child starts a new thread or asks question. Teacher/child asking most of the questions

**Table 5.2: Categories of online pedagogical presence with indicators and examples adapted from Anderson et al (2001), Ravenscroft (2007) and Laurillard (2000).**

Thus a taxonomical approach was established for coding and analysing the online teaching and learning dialogues that the student teachers had engaged in with their pupils. Two pilot online dialogues were selected for analysis based upon their strong contrasting features and initially these looked promising in terms of yielding evidence of online pedagogical presence in the exchanges between the student teachers and their pupils. This can be seen in the pilot online dialogue 1 (POD1) Figure 5.8, which illustrates an exchange between three teachers and a group of pupils who were asked about their strategies for dealing with bullies.

<b>Thread posted by teacher - How should we deal with bullies? What is your advice?</b>	<b>Line</b>
<i>Child 1: i would tell the teacher and tell your mum. i would not fight back.</i>	<b>1</b>
<b>Student Teacher 1:</b> That's great to hear. It is really important to share your worries with an adult that you trust because they will always do there best to help you - don't be scared into suffering in silence!	<b>2</b> <b>3</b> <b>4</b>
<i>Child 2: Hello Sarah. If i was being bullied I would leave the school or if it was out doors I would go out with my mum and hold her hand.</i>	<b>5</b> <b>6</b>
<i>Child 3: Run away and tell the techer.</i>	<b>7</b>
<i>Child 4: If you see someone getting bullied go and tell someone</i>	<b>8</b>
<i>Child 5: Don't retaliate and try and ignore them</i>	<b>9</b>
<b>Student Teacher 2:</b> All excellent ideas. David you are certainly correct there is no point in wasting time retaliating, most of the time that's what they want you to do. Sam - Definitely best to tell someone like a teacher or adult, much safer than getting involved yourself. Matthew – Good idea to run away and let the teacher deal with the bullies. Does anyone else have any more ideas?	<b>10</b> <b>11</b> <b>12</b> <b>13</b> <b>14</b>
<i>Child 6: We would deal with bullys by walking away from them and telling an adult we could stop bullying by making posters and being nice to each other. From Leanne, Scott and Kayleigh</i>	<b>15</b> <b>16</b> <b>17</b>
<b>Student Teacher 3:</b> I think making posters would be a lovely idea. It would make more people aware of how to stop bullies wouldn't it?	<b>18</b> <b>19</b>
<b>Student Teacher 2:</b> That would be an excellent idea. Posters are a good way of displaying who you can turn to and talk to if you are being bullied and the different ways of getting some help and advise.	<b>20</b> <b>21</b> <b>22</b>

**Figure 5.8: POD1 online teaching and learning dialogue from pilot phase**

There was clear evidence in this dialogue of the student teachers facilitating the discourse and also giving direct instruction using an advisory tone. For example, in the extract (Figure 5.8) the student teachers engage regularly in summarising or referring back to what children have said, praising them and naming them in order to personalise their responses and engage them in the dialogue in much the same way a teacher might in a face-to-face classroom. The facilitating discourse indicators are all present in lines 10-14. The student teachers can also be heard to adopt an advisory tone as they give direct instructions such as ‘posters are a good way of displaying who you can turn to...’ (lines 20-21) and ‘it is really important to share your worries...’ (lines 2-3). This extract was fairly unproblematic in that the student teachers’ pedagogical motivations can be seen in the surface dialogue, as they adopted strategies to facilitate the discourse with the children and occasionally gave direct instruction by adopting a slightly more advisory tone in their replies. Similarly, taking Laurillard’s perspective (op cit) of the importance of maintaining a balance between ‘narrative guidance’ and ‘narrative construction’ many of the ideas put forward here for how to deal with bullies are offered by the children (Lines 1,5, 6, 7, 8, 9, 15, 16) thus giving them a key role in constructing the narrative, although the student teachers retain overall agency in guiding the online dialogue.

The second online teaching and learning dialogue sampled during the pilot phase contrasted greatly from POD1. The length of the online dialogue and general responses from the children and student teachers were much longer (POD2, Appendix F). Using extracts from POD2 I will illustrate how its taxonomical analysis contrasted to POD1 and subsequently highlighted the problematic nature of such approaches to analysis based upon a tightly constructed unit of analysis.

POD2 (Appendix F) differed to POD1 (Figure 7) from the outset in terms of narrative agency as the pupil and not a student teacher initiated the dialogue. The pupil began a new thread in the general discussion with a clear statement about their own views followed by a question and invitation to others to share their views on the issue they had framed thus:

“I think bullies should be punished like any other people who hurt a person. What do you think?”

This shift in narrative agency from the outset of POD2 in contrast to POD1 appeared to provoke a much more argumentative approach from the student teachers participating

throughout the dialogue. For example, throughout this extract the student teachers appeared to express their teacher presence by challenging what they perceived to be the child's misconceptions about why children bully, adopting an advisory tone to give direct instruction as this extract illustrates:

**Child 1:** *I understand what you're trying to say but some bullies just bully for the sake of it. They go around looking for trouble and try to cause a problem.*

**Student Teacher 1:** I do agree with you \*\*\*\*\*, but what I'm also saying is that there are children who bully because they have problems and need help themselves. We can try and stamp out bullying, but I don't think we will ever completely get rid of it.

**Child 1:** *Children who bully have probably got problems but why do they take it out on other children they have no excuse for that.*

**Student Teacher 1:** I know there are no excuses for bullying others \*\*\*\*\*, but some children who bully and have problems take it out on others because it is a way of getting noticed. They don't know how to ask for help straight out, so when they bully it may be a way of them saying to someone "help me, I need help".

It is interesting that in contrast to POD1 not one question was posed by any of the student teachers throughout this dialogue. From the perspective of the narrative although the child initiated the thread, there was a balance between the responses of the child and the student teachers. However, the narrative was not developed beyond the two points of view taken in the argument; bullies should be punished versus bullies should not be punished because they also have their own problems. There does appear to be some conceptual revision (Ravenscroft et al, 2007) on the part of the child towards the end of the online dialogue. This can be seen from child 1's remarks about having 'changed my mind' in response to another child's encouragement:

**Child 2:** *I think you are write \*\*\*\*\* they [bullies] should be treated the same horrible way.*

**Child 1:** *Thank you \*\*\*\*\* you're the only one who's agreed with me, although some people today have changed my mind slightly but only on the fact that they [bullies] might have a problem.*

**Child 2:** *so why dont thy agree with you you maake a good point.*

It appears from this discussion that the student teachers perceived their role here as one of 'direct instruction' (Anderson et al, 2001) and challenging misconceptions, construing the child's call for bullies to be punished as being based upon a misconception or lack of understanding about why bullies bully. Other approaches to this dialogue could have been taken by the student teachers. For example, early on in the dialogue where student teacher 1 confirms their disagreement with the child's position the child could have been asked to explain what they felt was an appropriate punishment for bullies. Furthermore, the child's stance of insisting that bullies ought to be punished is not unreasonable but why did the student teachers responding believe the most appropriate response to this stance was to emphasise and empathise with the plight of the bully?

The key issue highlighted by my analysis of this second sample of online dialogue (POD2, Appendix F) using taxonomical approaches was that although there is surface evidence again of the student teachers' online pedagogical presence within the dialogue, their motivations for the particular stance taken in their responses can only be tentatively and arbitrarily inferred from their utterances. Why was it that student teacher 1 and subsequent student teachers took such an argumentative pedagogical approach to the discussion the child had initiated rather than using questions to probe the child's stance further? The student teachers knew the children from the face-to-face sessions conducted in school. Was their decision to take such a pedagogical stance to the discussion based upon some perception of the pupil, established in the face-to-face context or merely based upon their response to the child's online stance in the discussion? Any intentionality in the student teachers' utterances remained latent within the data, highlighting the problems of a purely taxonomical approach focused on a narrow unit of analysis; the online dialogue or single messages.

### *5.6.2 Interpretation and latent meaning*

Proponents of Qualitative Content Analysis (QCA) discuss this issue of identifying latent variables and meaning at length. Garrison and Anderson in particular distinguish between manifest and latent variables and indicators in approaches to the coding and analysis of online dialogue. However, as they point out themselves even 'experienced content analysts argue that measuring latent content is inherently subjective and interpretative' (2003, p.141). Garrison and Anderson explore a number of measures to increase the validity of latent meaning assigned to textual utterances including the use of inter-rater reliability. However



whatever approach is taken it is difficult to see the process of linking latent variables to manifest indicators within the surface text as anything other than an arbitrary, subjective act.

In my own research this then lead to questions regarding my unit of analysis. My brief foray into the analysis of the student teachers' and children's online dialogues had served to illustrate the limitations of a narrowly focused unit of analysis divorced from its original context. Although, to some extent it could be argued that aspects of the original cognitive context in which the dialogues took place were embodied within the utterances of the student teachers and their pupils, access to the particular thought processes and intentions of the authors was at best obscure. Furthermore, Daly (2008) warns against the trap of potential disconnection at the data analysis stage of any research, which focuses on professional learning in situated contexts stating that such research 'must be constantly located in the specificities of the context' (Daly, 2008, p.79). Without the specificities of the context of utterances, there is more of a risk of separating the unity of the intrapsychological and interpsychological that Wertsch places such importance upon as discussed in Chapter 4 (1998). Like Daly, I believed that I needed to respect the integrity of the data, which had been generated within a specific context of situated professional learning. Abstracting the student teachers' online dialogues from this context, for the purposes of analysis, also ran the risk of embarking on an analytical journey of 'relentless abstraction' (Schostak, 2002, p.22) such as is practised by some advocates of grounded theory. Deeper analysis and understanding of the student teachers' professional learning with new communications technologies, lay not in the persistent generation of analytical categories to apply to the data, but in seeking out the deeper narratives underlying the surface and near-surface themes and categories. I say 'near-surface' themes because I acknowledge that one cannot completely eliminate interpretation. As Schostak points out, language is not innocent and 'interpretation begins with the interview itself, before, during and after' (2006, p.72). That is, interpretation cannot be suspended. However, the process of interpretation also reveals the gaps in our understanding of the other person's world. The decision is whether we choose to fill in the interpretive gaps that have opened up by turning towards further abstraction and validation or whether we enable the participant voice further 'elaboration until the picture is filled as far as memory allows' (ibid, p.28).

In the pilot study, I did also interview a small sample of 5 student teachers about their experience of working online with children. However, I was still unclear about my unit of analysis as I was when analysing the online dialogues. Just as my venture into QCA had highlighted issues with my framing of the unit of analysis, the interviews I carried out also drew attention to this issue. I had carried out interviews with the student teachers in order to garner their perceptions about the use of online communication tools with primary school children. However, my detached approach to the interviews did not adequately enable the underlying narratives behind the experience to emerge as I will briefly show now.

### 5.6.3 Pilot interviews

The interviews carried out at the pilot phase of the project were conducted with a random sample of five student teachers. Significantly, as I will illustrate shortly, none of the interviewees were involved in the two sample dialogues I had chosen to analyse which I have set out in 5.6.2. The aim of the interviews was to try to capture the student teachers' attitudes and values regarding the use of VLEs in the light of their work with the children. An interview schedule was drawn up (Appendix G), which illustrates the general focus of the interviews. Each interview was transcribed. Afterwards, the interviews were coded and analysed with general themes identified and generated across the interview accordingly. A range of themes was identified in this data regarding the different attitudes and values towards the use of VLEs and in particular online communication tools. The student teachers also commented on the design and nature of the module with its school-based intervention using the VLE. These themes identified in the interviews are set out in Table 5.3.

Range of attitudes expressed about use of VLE	Indicators
Valued in its own right	General enthusiasm on the part of student teacher
Valued as a complement to face-to-face environment	Comments regarding the potential of the online discussion to spark face-to-face discussion
Scepticism about how to integrate with face-to-face classroom environment	'But in a class of 30 children...'
Disappointment at responses of children in online discussion	Often expressed as doubts about the quality, depth and quantity of the children's online postings
Pleasure at the enthusiastic response of the children	'I was surprised how well the children...'

Valued or unvalued with reference to their own professional or personal identity	'I'm just not that kind of teacher' 'I hate chat rooms and all that kind of stuff'
Frustrations with technical difficulties	Software issues e.g. downloading/uploading limits on network
Frustration with organisational issues	'3 children to one computer'
Desire to know more about how to set up a VLE	Expressed as questions as to why the technical aspects of setting up a VLE were not covered as part of the taught module
Desire to have more control over the use of the VLE	Expressed as criticism of the way the nature of the school-based intervention using the VLE was pre-planned
Concern about access out of school	Many students expressed concerns about those children that do not have good home access to computers or an adequate Internet connection
Enthusiasm for learning about the VLE alongside the children	Expressed in phrases such as 'real picture' or an antipathy towards university-based theory being 'unrealistic'
Scepticism about the value of learning about the VLE alongside the children	Expressed as concerns that the VLE was an add-on and not integrated into the children's learning

**Table 5.3: Themes and indicators for coding pilot interviews**

It was clear that the school-based intervention using the VLE with the children prompted a range of responses from the student teachers as reflected in Table 5.3. Some of the student teachers' responses were explicit and uncomplicated in the interview data. For example, all of the students at some point mentioned their concerns about the children's access to the online resources beyond school demonstrating their belief that the use of technological tools in education should promote fair access. However, in other respects the student teachers' responses appeared more complex and nuanced than at first sight, as I will explore now.

#### *5.6.4 Analysis and discussion of pilot interviews*

This nuanced response was particularly evident in the different ways in which the student teachers appeared to perceive and value the potential for online interaction with the children. On the one hand student teachers perceived the online interaction as an integral aspect of the wider classroom discourse whereas on the other hand they also tried to value it in its own

right. This latter view often led to disappointment either with the perceived quality and nature of the children's online responses or the fact that children were not taking advantage of the online tools to log on and exchange ideas, or engage in online communication beyond the school-based sessions. This was illustrated in the following interview response:

“I think it's difficult because of access issues at home, maybe they are not engaged with it outside of the classroom but we need to find out why and if there's way of improving their access or their motivation or whatever it is, trying to find out the reason for them not engaging.”

(Extract from Pilot Interview 2, October 2006)

Similarly, other student teachers took issue with the level of engagement of the children beyond the intervention, remarking in response to my invitation to share their highlights or frustrations, ‘frustration.....the children don't seem to be logging on, that's one of the problems’ (Pilot Interview 4, October 2006). This concern with levels of online engagement was interesting from the literature discussed in Chapter 4. That is, Dennen's (2005) notion that posts to discussion forums should be sufficient in quantity and quality to become legitimate learning and teaching texts. This perception certainly prevailed amongst some of the student teachers. This perception appeared to parallel Bernstein's (1990) research highlighting discrepancies between different types of ‘communicative practice’ expected by teachers and their pupils. For the VLE to be valued as a legitimate educational tool there was a sense that it needed to capture sufficient evidence of pedagogical online interaction.

However, despite this, the student teachers also perceived the communicative environment afforded by the VLE in terms of its complementary status to the face-to-face classroom environment and exploited this in their pedagogical approach as indicated in the following extracts from the pilot interviews:

“when working with the pupils at school I tried to ensure that I referred to their online contributions in face-to-face settings and also talked about their experiences in the classroom when online.”

“Yeah, I think the main thing is that you do spark conversation. They were discussing what they thought were good and bad ways of dealing with it, bullying. So that's the good thing really that people can express their own ideas and obviously they're learning from that.”

(Pilot Interview 4, October, 2006)

In this way the interviews with the student teachers reflected a complex and nuanced perception of the intervention. This was most evident in some of the more personalised responses from the student teachers where aspects of their individualised personal and

professional identities appeared to be significant. For example, some of the student teachers gave insights into their personal attitudes and prior experiences with respect to the technologies they were exploring with the children. This supports Loveless' (2003) view that the assimilation of technologies into teachers' pedagogical repertoire is influenced significantly by their experience of such technologies in their wider social and professional lives. This personal aspect and significance of prior experience can be seen in the following response from Pilot Interview 3:

"I am not the type of person to log on and join in with them all, it's just not what I do. So it's been good because it's sort of opened up what it's all about and I have gained an understanding of the whole..... It's not that they [social networking tools] don't appeal to me it's just that I spend so much time typing and using the computer for uni the last thing I want to do in my own spare time is sit and look at a computer."

(October, 2006)

The student teacher from Pilot Interview 1 expressed their own views towards social networking technologies in even stronger terms and was clearly grappling with her own personal stance to the technological tools that we were now being tested as she explored their use in formal education, for example:

"I can't bear chatrooms, I can't bear these bits about what you did, what you did in the holidays and it coming back and it being a bit...I'd far rather have a chin wag, I can't do that sort of thing online. To me that's not purposeful, it's idle and it's wasting time but from the children's point of view that's probably, trying to put myself in their shoes, maybe that's the way forward for them to just get comfortable in using that means of communication."

(October, 2006)

In other words, not being 'the type of person' to use such technologies in their leisure or professional lives caused both of these student teachers difficulty in justifying the use of the technologies with children. The student teacher from the latter interview appeared to find the educational use of the tools more problematic than the former. These responses appeared to support Davydov's (1999) claim that any mode of communication cannot be viewed in isolation from its position within the wider social discourse. However, from a narrative standpoint they also implied a connection with student teachers' ongoing personal narratives beyond the immediate frame of the intervention and their experiences with the children. That is, their experiences within the frame of the intervention appeared to resonate with questions

about the ‘type of’ person and the ‘type of’ professional they saw themselves as becoming; a meta-narrative which arguably had implications for the possibilities that might be opened up or even closed down by the experiences they had gained using the tools with the children.

This realisation that the kinds of experiences the teachers encountered within the arbitrary frame of the pedagogical-research design connected fundamentally with much wider personal narratives and experiences, both prior and ongoing, represented another important lesson for me. As Goodson notes ‘narration is not only about the construction of a particular ‘version’ of one’s life; it is at the same time a construction of (a particular version of) the self’ (2010, p.17). Merely identifying a random sample of online learning and teaching dialogues together with a random sample of student teachers to interview did not go far enough in enabling the student teachers’ personal and ongoing narratives in relation to the intervention to emerge. I was given glimpses of these in the data I had collected and analysed, but my unit of analysis was too fragmented to illustrate the connections between data that resonated at the deep levels of the kinds of professional and personal identities that student teachers were actively creating. Each student teacher appeared to bring a range of variables to the experience from different prior experiences to different values and attitudes to the educational use of the technologies. How such variables manifest themselves in the pedagogical approaches adopted by the student teachers and the way these resonated with their ongoing narratives about the kind of person and professional they aspired to be, could only start to emerge through a tighter focus on the individual student teacher and their relationship to the phenomena of the technological tools.

My own data capture and analysis needed to take account of this focus on the student teacher and their distinct relationship to the phenomena of online communication tools within educational contexts and beyond. I needed to be certain that in my data capture and analysis I was capturing as near-complete a picture as was possible under the circumstances and with the resources available. Furthermore this picture needed to be ‘filled’ (Schostak, op cit) as much as possible by the voice of the student teacher themselves as discussed previously. Thus the lessons learnt from the pilot study enabled me to understand further the significance and importance of a narrative approach in ensuring that the student teachers’ personal voices

were heard and represented as fully as possible within the research as opposed to treating them as a homogenous group of student teachers.

### 5.6.5 Summary

The pilot study helped me to clarify further my unit of analysis; the student teacher and their ongoing narrative in relation to the phenomena of online communication tools. As my thinking developed reflexively to the pilot study data and the associated knowledge bases drawn upon in the literature review, a holistic approach to the data became imperative. The question of *how* to research student teachers' professional online practice had become as fundamental an issue as the question of what are some of the factors affecting this process? I arrived at this point in my research from a number of roads as I have discussed hitherto. On the one hand, my epistemological and ontological struggle with the validity of the researcher voice and the researched voice, led me to a realisation that the narrative cases being built were co-constructions of both my own and my students' endeavours. On the other hand my exploration of the data generated within the pilot study reinforced the need for an approach to the final analyses that recognised the integrity of the data in terms of the personal narratives reflected within. The personal narratives were the glue that gave significance to the variable ways in which the student teachers responded to working with the online tools with the children.

In the next chapter I will set out the range of data used to develop each narrative case and explain the first iteration of the narrative ecology model I developed. I will also show how the various knowledge bases I drew upon in the literature review fed into my analytical tool. It was a necessarily problematic journey to reach a point where I believe my methodology and in particular my approach to the narrative analysis would stand up as best it could to methodological scrutiny whilst also offering the insights I was searching for, into the problematic area of researching student teachers' professional development with online technologies. The development of a consistent analytical approach beyond the pilot was iterative and took several months of reflecting on the theoretical knowledge bases identified in the literature review and responding reflexively to the data. The initial task was to draw out the potential variables from the theoretical knowledge bases, bearing in mind what I had learnt from the pilot study and my methodological journey; that the most significant variable was the student teacher.



# 6 Building a teacher-centred narrative ecology

## 6.1 Positioning the narrative ecology



**Figure 6.1: Screenshot of Vlog recorded on January 18<sup>th</sup> 2011, by Asmaa Mahfouz and uploaded to Facebook**

*I, as I would imagine many others, experienced a flood of mixed emotions as the Arab Spring unfolded and I watched, as I continue to watch, from a position of safety and comfort. Asmaa Mahfouz's Vlog has come to symbolise the incredible courage shown by many across the Arab world in the face of oppression. I don't want to suggest naively that the role technologies are playing in such struggles are in themselves leading us to a fairer world. The factors affecting these struggles are far more complex. But I was surprised as I watched shaky mobile phone footage featured on international and national news channels, and shared on YouTube, by the ways in which technology and social media gave voice to the people-centred aspects of this struggle for freedom. Social media and technology are implicated significantly in this ground-up movement for freedom and democracy. This nexus of human struggle for freedom resonated, albeit on a much smaller scale with my own bottom-up approach to this research and the ongoing issue of how technologies can be implicated in the teacher-centred development of professional practice and learning.*



McLuhan (1964) argued powerfully that media are an extension of our senses and as such have the power to ‘configure the awareness and experience of each one of us’ (p.23). As a consequence of such power within media, he argued that research into culture should be focused more on the media ecologies themselves and less on the message or content carried by media. Media and cultural study he claimed ‘considers not only the “content” but the medium and the cultural matrix within which the particular medium operates’ (McLuhan, 1964, p.11). Others have also argued for more organic or ecological analyses of technologies and media but focusing on how they are appropriated in specific contexts as technologies ‘merge with our social, physical, and psychological beings’ and can ‘reinscribe existing inequitable power relations’ (Bruce and Hogan, 1998, np). McLuhan’s luminary work, seminal as it is, emanates from an era when access to the means of media production was far more limited and before the current paradigm characterised by the democratisation of the Internet (Castells, 2004). The inception of the Internet and increasing access to the means of media production through a range of technologies, fixed and mobile, can be viewed as a reconfiguration of media itself to encapsulate not only our senses but also our many and diverse voices. Bruce and Hogan (1998, np) also argue that ‘when technology is used to accomplish specific goals, for certain individuals, in a particular setting, it can be used to liberate or oppress.’ Such a view portrays individuals as paradoxically more or less actively appropriating technology, and can be argued to be as relevant to wider political struggles and movements epitomised by Asmaa Mahfouz’s Vlog, as it is to micro-level developments within teachers’ professional practice. At the heart of both contexts are individual narratives of varying significance and importance from which we can learn and which need to be narrated. Albeit for a short period of time the world’s media wanted to know more about Asmaa Mahfouz as they clambered to discover more about her story and reconstruct it for different audiences; a Google search on her name returns 261,000 results in a range of languages from across the Internet including her own FaceBook page.

The narrative ecology model, which I set out in this chapter, should be understood from this person-centred perspective. That is, whilst the narrative ecology model draws on ecological approaches to understanding human activity in specific and complex contexts, the synthesis of narrative and ecology I believe offers the opportunity to avoid the trap of structural analyses which can characterise the human-technological interaction merely as a top-down

imposition of established power relationships and structures. The narrative ecology model, as I will explore in this chapter, approaches the human-technological interface from the teacher-centred perspective countering the argument that ‘once a technology is admitted, it plays out its hand; it does what it is designed to do’ (Postman, 1993, p.7). This is not to refute that media ‘changes the mindscape of the user’ (McLuhan and Zingrone, 1995, p.9) or that technologies and media are significantly implicated in the configuration of human experience and awareness. But it does contest that it is **only** ‘the medium that shapes and controls the scale and form of human association and action’ (McLuhan, 1964, p.9). As Sey and Castells (2004, p.364) note, ‘the actual influence of the Internet on politics, and on the quality of democracy, has to be established by observation, not proclaimed as fate’. Thus the narrative ecology model is a bottom-up or teacher-centred model that seeks to give expression through narrative of the nuanced and complex factors observed to be at play as student teachers appropriate technologies in their professional practice. This chapter charts how the narrative ecology model evolved through engagement with the data and the literature, to tell the story of student teachers’ complex socio-cultural and autobiographical ecologies as they incorporated technologies into their professional practice. That is, the narrative ecology model sought to explore the rich socio-cultural and autobiographical compost influencing student teachers’ actions with technologies in specific contexts from a teacher-centred perspective.

## **6.2 An holistic approach to data – exploiting intertextuality**

Having established the need for a teacher-centred approach to the five student teachers and their relationship to the phenomena of online communication tools through variable lenses - socio-cultural and autobiographical - I also needed to identify the data set that was associated with these and position the data within the narrative ecology framework. The research had developed from a single case study of student teachers’ pedagogical practice with online communication tools in general to five individual narrative case studies, selected for their diversity, narrative intensity (Biesta et al, 2008) and convenience. Atkinson and Delamont (2005) identify the need for an eclectic approach to what constitutes data in narrative analysis stating that:

“We need.....to analyze narratives and life materials so as to treat them as instances of social action, that is, as speech acts or events, with common properties, recurrent structures, cultural conventions, and recognizable genres.” (p.825)

Indeed they go on to construct a strong case for the analysis of a range of data from artefacts and technologies themselves to the places and spaces that constitute the sites of ethnographic study. In relation to my own research the sites were both virtual (VLE) and physical (the primary classroom, the university interview room, the lecture room). The artefacts could be anything from the online trail of speech acts and events initiated and left by the student teachers to the online communication tools themselves. In this respect the rich intertextuality and complexity of the data lent itself to an ecological conception and a recognition that ‘one significant change generates total change’ within any system (Postman, 1993, p.18). However, it is important to also clarify that my own conception of the narrative ecology also recognises that any change generated is itself a momentary point of stability within a dynamic and evolving ecology. This is a position that Fuller (2005, p.1) extrapolates in relation to media ecologies in which he states ‘parts no longer exist as discrete bits that stay separate; they set in play a process of mutual stimulation that exceeds what they are as a set.’ Furthermore, Fuller goes on to qualify that ecological conceptions ‘are concerned with the interaction of multiple parts without positing the existence of a resulting whole’ (2005, p.168). This is important in recognising that in drawing on ecological models to help our understanding of how agents appropriate technological tools faced with a range of inter-related factors, such factors are ‘always variable’ (Fuller, 2005, p.4). From this perspective telling teacher-centred stories about an ecology has the potential ‘to look more closely at how technologies are realized in given settings’ (Bruce and Hogan, 1998, np) in order to capture the complexity. I will now clarify the extent of the data set used for analysis in more detail.

The five student teachers were given pseudonyms to protect their identity and a common data set was identified for each of the student teachers although there was some variation in the quantities of data between the cases reflecting the difference in approaches. Table 6.1 represents the common data set associated with each narrative case.

Student teacher	Karen	Maria	Joe	Laura	Heather
Baseline questionnaire	1	1	1	1	1
Online discussion postings	44 posts	33 posts	40 posts	104 posts	46 posts
Online chat postings or messages	0	25 posts	13 Posts	0	0
Personal reflections	3	3	2	2	1
Screenshot VLE content	1	1	1	1	1
Interview	1	1	1	1	1
Written assignment	2000 Words	2000 Words	2000 Words	2000 Words	2000 Words
Narrative summary	2230 Words	1405 Words	1340 Words	1140 Words	1600 Words
Email response to narrative summary	Yes	Yes	No	Yes	Yes

**Table 6.1: Dataset used to construct narrative analysis of each case**

Table 6.1 showing the dataset can be read as a timeline from the baseline questionnaire through to the student teachers' responses to the narrative summary. It can also be read in conjunction with Figure 5.2 in section 5.3 as these two reflect the construction of each student teachers' case and the data that was generated. However, the main analytical challenge presented by this data was its intertextuality. In constructing the cases the student teachers had generated a diverse range of texts. That these texts were generated from the same source - the student teachers' and to some extent my own construction of each narrative case in response to the pedagogical-research design – lent itself to critical discourse analysis (CDA). That is, the close proximity of the various texts lent themselves to analysis which attempted to establish how 'one text play[ed] with the next text,' (Finley, 2005, p.686). As Gee posits further:

“The themes and values that enter into Conversations circulate in a multitude of texts and media. They are the products of historical disputes between and among different Discourses.” (2005, p.50)

That is in the Foucauldian sense, the apparent unity of texts belies their inherent complexity and interconnectedness beyond their immediate shell; a connectedness to wider ideological discourses within society. A text, Foucault claimed is a 'node' on a 'network of references.' Furthermore, if one questions the unity of any text 'it loses its self-evidence; it indicates itself, constructs itself, only on the basis of a complex field of discourse' (Foucault, 2002, p.26). In order to gain a deeper understanding of the development of the five student teachers' online pedagogical practice I needed to exploit this intertextuality in the data and

bring to the fore the interconnected personal and social-cultural narratives that could be traced within and between the textual data. Thus I was not merely focusing on the media ecology (McLuhan, 1964: Fuller, 2005) but also trying to understand the rich and complex autobiographical compost influencing student teachers' actions within the ecology. In this respect my own approach to the analysis differed to CDA; that is, together with seeking to depict the influence of wider discourses around each student teachers' pedagogical use of online communication tools I was also trying to capture the more personally nuanced factors at play. Primarily, my aim was to seek a deeper understanding of the different personal and individual narratives at play. As Goodson notes, 'narratives are stories with an organising principle by which the contextual meaning of individual events can be displayed and articulated' (2010, p.18). Thus, I was attempting to unravel the surface, depersonalised unity of the texts that had been generated within the intervention to reveal a deeper unity at the personal level of each student teacher. Or as Bruner puts it, the narrative analysis sought an account 'of what one thinks one did in what settings in what ways for what felt reasons,' (Cited in Goodson, 2010, p.17).

From this perspective, my review of the literature had revealed a number of potential autobiographical and contextual factors affecting the development of student teachers' online professional practice. However student teachers' active agency discussed in Chapters 2 and 3 was an important over-arching principle in the analysis of each narrative case. This active agency was also seen as synonymous with their intentionality; for example what the student teachers thought they were doing and for what reasons in the given context. That is, what were the 'organising principle[s]' that appeared to be at play within each student teachers' narrative case? (ibid). This guiding principle within the narrative analysis will be explored further as I explain how the knowledge bases fed into the conceptual model, and then how this was applied to build the narrative cases through analysis of the data. I use the term 'variables' to refer to the different mediating factors that appeared to be at play in the student teachers' cases.

### 6.3 From knowledge bases to conceptual model

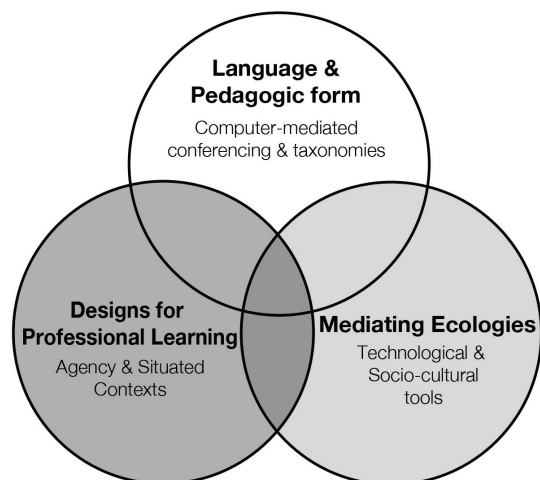


Figure 6.2: An holistic approach integrating the three knowledge bases

My review of the literature in earlier chapters encompassed three broad knowledge bases. Whereas in the pilot study I had focused mainly on *language and pedagogic form*, I now sought a holistic approach that integrated aspects of all three knowledge bases as represented in Figure 6.2 above. The problematic nature of multiple facets of these knowledge bases was underlined particularly when examined from the perspective of individual teacher agency within dynamic and situated educational and socio-cultural ecologies. This prompted me to identify other underlying key questions regarding the problem of what factors affect the development of student teachers' online professional practice and how we can research this multifaceted and complex professional development that takes account of teacher agency. Critique of the broad knowledge bases led me to an appreciation of the potential of both ecological and narrative perspectives in understanding the complex human-technological interface in professional contexts from a teacher-centred perspective. It was important in focusing the research and delineating the variables within the data, which also led to the development of the first iteration of the narrative ecology model (Figure 6.3) as I will examine now.

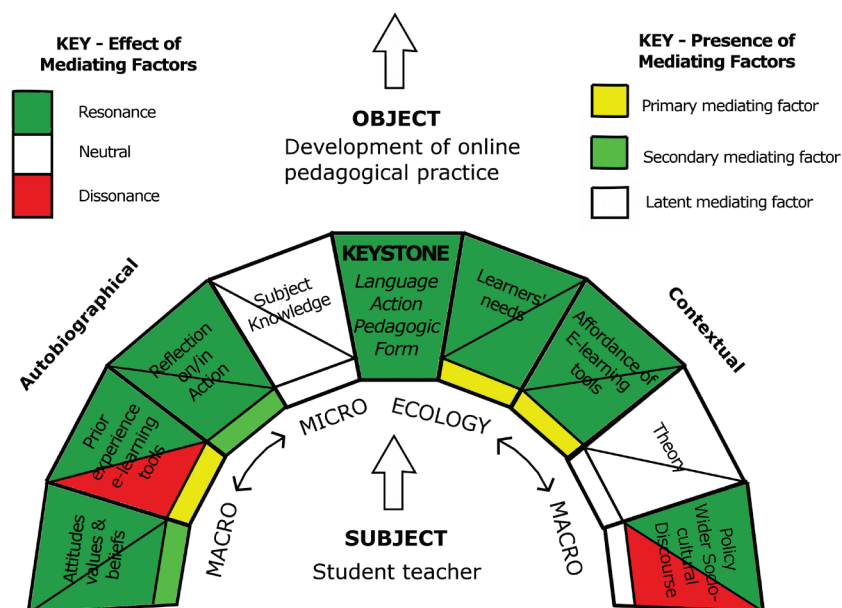


Figure 6.3: Diagrammatical representation of narrative ecology; first iteration

#### 6.4 The analytical instrument; first iteration

Figure 6.3 represents in diagrammatical form the first iteration of the theoretical instrument I used to analyse the intertextual data gathered for the first three narrative cases; Maria, Laura and Joe. As discussed in 6.1 to 6.2 I attempted to capture the ‘organising principle[s]’ (Goodson, 2010, p.18) underlying each student teacher’s narrative as their professional learning experience was mediated by a range of variable factors emanating from a range of contexts; technological, socio-cultural and autobiographical. It was felt that being able to represent this diagrammatically could yield a greater purchase on their narrative. Thus, the diagram was adapted to model each student’s case as the data was analysed. The model acted as a dynamic aid for storying each student teacher’s experiences of the intervention emerging from a synthesis of the themes from both the literature and the student teachers’ data.

Examples of this process can be seen in Appendix H, which shows an analysed interview transcript and Appendix I, which shows an example of the narrative ecology model as it was used to gain a purchase on the themes across the student teacher’s data set. Transcribing all of the interviews myself also helped significantly with coming to know aspects of the data. However, it is important to point out that my motives for this approach were not driven by concerns for precise measurability. On the contrary it seemed the most appropriate way of

coming to grips with and synthesising multifarious variables within a complex theoretical framework. That is, it enabled me to identify more clearly the ways in which the different variables were manifest within an ecological theoretical framework in order to build a narrative case for each student teacher.

The variables used within the analytical instrument, represented by each block in the arch shape, were delineated from the literature and applied to the dataset through the identification and framing of further questions as I discuss later in 6.5 to 6.6. Next, I will explain how the different theoretical viewpoints are represented in the first iteration of the analytical instrument, before going on to illustrate more specifically how it was used to analyse the data.

#### *6.4.1 Making sense of the variables; effect*

The range of variable mediating factors was represented by each building block in the arch of the analytical instrument (Figure 6.3). The student teacher (subject) was located at the focal point of the arch to symbolise the narrative focal point in a way that located the student teachers at the hub of their own professional development with new technologies (Daly et al, 2009). The variables were also conceptualised on a continuum between *autobiographical* and *contextual*. These were not envisaged as mutually exclusive categories. That is, subject knowledge may exist autonomously in any established disciplinary *context*, but it was acknowledged that within the intervention the student teachers also brought their own personally nuanced view and understanding of any relevant subject knowledge to the experience. Similarly whilst the mediating factor represented by the variable *children's needs* would depend a great deal on the student teachers' perceptions it was also seen to originate as a variable within the *context* of the intervention. My own understanding of this continuum was something that was challenged and changed during the initial analysis of the data, which prompted a second iteration of the analytical instrument, as I will discuss in Chapter 8. Notwithstanding this progression to a second iteration of the analytical instrument, the continuum between the contextual and autobiographical conceptualisation of mediating influences echoed the emphasis throughout this research on recognising the central and problematic role of individual student teachers as they exerted active agency over their professional contexts. This duality between subjects (student teachers) and their professional context is central to activity theory (Engeström, op.cit.).



Similarly this duality between the contextual and autobiographical was also indicative of the guiding ecological approach in the theoretical model. The analytical instrument acted as a theoretical starting point for categorising a range of symbiotic variables potentially affecting the development of the student teachers' online professional practice. This approach to the variables had its roots in Gibsons's ecological theories of perception discussed previously at 3.3, in which artefacts are both 'physical and psychical, yet, neither,' (1979, p.129). It also echoed other ecological conceptions, which view the human-technological interface organically with technological tools becoming an extension of the senses (McLuhan, 1964: Postman, 1992: Bruce and Hogan, 1998: Fuller, 2005). That is, any of the variable factors identified could be argued to have their foundations in any of the philosophical domains; cultural, personal, social, psychological, technological. The variables were not seen as fixed, but as dynamic entities with the potential for a rich and complex interplay within the student teachers' ecological narrative. That is, each variable had the potential to become a significant tool within the ecological approach taken to the professional context (Loi & Dillon, 2006). In this respect, the array of variables could be equated to Luckin's 'ecology of resources' (2008). However, in contrast to Luckin's focus on context, whether variables were to become effective tools within the professional context depended on the way the individual student teachers perceived, combined and utilised the different variables within the professional context. Such a process is also akin to orchestration as has been noted by others (Kennewell et al, 2008). Thus with the focus on the student teacher operating within an array of mediating influences, a narrative approach to the analysis and exploring the autobiographical factors at play in the student teachers' professional learning seemed most appropriate. Of central importance within my conceptual approach was, the student teachers' perceptions, how these variables manifest themselves and played out within their own personal and professional narratives, and how this then manifest itself within their appropriation of different tools. Again, this echoed McLuhan's (1964) approach to media ecologies as an extension of our senses but from a teacher-centred, micro perspective as opposed to a structural, macro perspective; the emphasis being upon how teachers actively appropriate tools to express their pedagogy. This was more akin to Bruce and Hogan's approach, which seeks to explore how technologies are 'designed, interpreted, employed, constructed, and reconstructed through value-laden daily practices' by individuals (1998, np).

#### 6.4.2 Resonance and dissonance

The symbiotic relationship between the mediating variables, discussed in 3.1, whereby any of the variables could mediate or be mediated by each other was similarly derived from ecological conceptualisations of the process of mediation. As Zhoa & Frank note, with the ‘attention to both parts and wholes, both the actors in an environment and their interactions with each other as well as the environment,’ ecological approaches offer a useful framework (2005, p.8). This notion of a dynamic framework of variables in which the dynamic relationships between parts and parts to the whole, also lay at the centre of the decision to configure the variables in an architectural arch form (Figure 6.3). The arch form is a useful ecological metaphor in that its static appearance belies a complex and dynamic interplay of internal forces necessary for it to support greater external structures and forces above. Variables representing mediating factors were conceived of as being mutually dependent and dynamic categories capable of resonant or dissonant relations with each other, and the broader framework of variables.

This symbiotic conceptualisation of the variables also grew out of my critical engagement with the literature, which reflected the complex and dynamic nature of learning and teaching as a technologically and socio-culturally mediated activity characterised by both contradiction and harmony (Vygotsky, 1978: Engeström 1991: Somekh 2007). As Engeström states, within mediated activity systems, ‘systemic contradictions, manifested in disturbances and mundane innovations, offer possibilities for expansive developmental transformations,’ (2000, p.960). Thus from this perspective, ‘subject knowledge’ cannot exist in isolation from the other variables, for student teachers have attitudes and values about subject knowledge, and equally some technological tools may lend themselves more towards certain types of subject knowledge than others. This symbiosis was evident when trying to analyse the data. For example, I initially thought that analysing the screenshot of each student teacher’s home page with various resources for the children would be straightforward. As expected, each home page contained various activities and resources for the children and each activity or resource was treated as a unit of analysis. I had expected when coding these units that *subject knowledge*, as a variable would be prominent. However, it was also possible to detect other variables within the structure of the home page. For example whilst clearly many of the resources were focused on the development of *subject knowledge*, variables such as student

teachers' *attitudes and values* were also prominent in the types of activities and resources they had made available to the children and at what stage in the intervention. Thus some student teachers' home pages featured games-based activities early on in the intervention whereas others started with more formal activities to find out what the children knew before rewarding them with games-based activities. In this way the initial analysis was important in detecting the presence of the different themes or variables in the data. However, more significant was the underlying narrative that connected the variables.

In applying the analytical and theoretical instrument to each student teacher's narrative case I attempted to evaluate the overall effect of the student teacher's relation to each variable. For example, was the effect of the student teacher's *prior experience of e-learning tools* complementary or in conflict with other variables? The notions of *resonance* and *dissonance* were employed within the analytical model (Figure 6.2), to represent the perturbations within the overall framework of variables. That is to say, was there 'a state of internal equilibrium' between variables or were they sites of contention (Pachler, 2009, p.3)? For example, was there evidence that a student teacher's own *subject knowledge* facilitated positive outcomes for the children or could it also hinder the progress of the intervention? Fuller also employs a similar approach in analysing different media ecologies maintaining that such ecologies are 'brought into being by disequilibrium, the fact that things get moving, by asymmetrical relations of being in media' (Fuller, 2005, p.16). To give another example of such disequilibrium, a student-teacher's *prior experience of e-learning tools* could be both an asset or an impediment depending on timing and when this experience is drawn upon during a pedagogical intervention. Thus, I also considered the notion that variables might be both in conflict (dissonance) with some variables whilst complementing others (resonance). The overall effect was indicated by colour coding the variables as seen in Figure 6.3, or leaving the variable blank to indicate that the effect of a particular variable appeared to be neutral; a notion that was revised in the second iteration of the analytical framework that is explained further in section 8.1.

Consequently, the data set for each student teacher identified in table 6.1 was analysed thematically according to the variables represented in Figure 6.3; an example from an annotated data set can be seen in Appendix I. I then interpreted the effect of each variable as

it appeared to be manifest within the whole narrative case for each particular student teacher; was its effect complementary (resonant), conflicting (dissonant) or both? This process took a great deal of time and in order to increase reliability, annotated transcripts were set aside for periods of time and revisited in order to review my initial judgements. To some extent this provided more trustworthy levels of intra-rater reliability in the process of analysis and interpretation (Cohen, Manion & Morrison, 2003) and enabled me to construct a narrative that represented the different constituent aspects of each student teacher's case .

This initial analysis of the variables and identification of their overall effect within the student teacher's narrative represented the initial stage of analysis. However, missing from this essentially descriptive analysis of the variables was any indication of 'intentionality' underlying the student teachers' activity (Lave, 1988; Nardi, 1995). From Goodson's perspective, whilst the identification of the variable mediating factors and their overall effect within the narrative told part of the story, it did not sufficiently unearth the 'organising principle[s]' at play (2010, p.18) as I will explore now.

#### *6.4.3 Intentionality; teacher as 'keystone species'*

As explored in Chapter 3, activity theory or CHAT provided me with the basis for delineating an array of potential mediating influences upon the development of student teachers' online pedagogical practice from the micro level of the intervention to the wider macro sphere. These mediating influences provided the framework of variables broadly representing the technological and socio-cultural tools that student teachers draw on as they develop their online pedagogical practice. As Ellis discusses, CHAT provides an approach to human development that 'relies on the appropriation of pre-existing cultural tools,' and that through a dynamic process of social interaction 'people grow into the frameworks for thinking afforded by the cultural practices and tools made available to them in the social settings of their development' (2010, p.4). Together with an array of potential mediating factors the influence of CHAT can be seen clearly in the theoretical and analytical instrument I developed (Figure 6.3), through its identification of the subject (student teacher) and object (development of online pedagogical practice). However, as noted hitherto, I felt this did not enable me to go beyond describing the complex interplay between the different mediating influences as they played out in a particular student teacher's experience. Furthermore, CHAT did not appear to be helpful in understanding the *different* ways in which 'people

grow into the frameworks' (Ellis, *ibid*). This was an issue, for merely describing this complex interplay between different mediating factors in situ, did not offer the opportunity to connect with the student teacher's deeper and broader narrative; their intentions. Taking a narrative stance I needed to find a way of tracing the student teacher's voice and intent within the situation. Nardi, (1995) illustrates this issue of focusing too intently on the context at the expense of the subject's intentions. She describes the situation of a meteorologist and a bird watcher walking in the woods. The actions of both are similar, as they both appear intent on observing the skyline. However both have very different motives for examining the skyline.

In order to address this issue of subjective intentionality, I drew on the notion of the teacher as a 'keystone species' (Nardi and O'Day, 1999), exerting a 'controlling influence over the system' (Zhao and Frank, 2005, p.9). That is they were not merely 'growing into' (Ellis, 2010) a set of pre-existing tools, but they were both being shaped by and shaping the mediating tools towards their own pedagogical intentions, as they perceived them. The medium, represented by the different variables and potential tools, were important but they were not in themselves, the message (McLuhan, 1964). This also grew out of emphasis in Chapters 2 and 3 upon the importance of conceptualising teacher agency as more than mere ownership but as also encapsulating a teacher's capacity to act upon and challenge the socio-cultural contexts in which they operate (Pachler et al, 2010). Thus, the notion of a ***pedagogical keystone*** was central to my theoretical and analytical model (Figure 6.2). Within the analytical model the ***pedagogical keystone*** is the means by which teachers actively orchestrate a range of technological and socio-cultural mediating tools to potentially exert a disproportionately positive impact upon the learning environment and their learners. Whilst Zhao and Frank, (2005) and Nardi and O'Day (1999) extend the biological ecosystem metaphor, I felt the architectural keystone metaphor modelled the complexity of the system more explicitly. That is, a keystone within an architectural arch channels the force of all of the stones within the arch to support the structure above. Similarly in developing a ***pedagogical keystone*** a teacher draws strength from a range of mediating factors from technological tools and teachers' subject knowledge, to their prior learning and experiences with technology; the goal being to augment the teaching and learning experience for the learners. Thus within the ***pedagogical keystone*** it is possible to trace the individual student teacher's mark or intent; the 'organising principles' as Goodson refers to them (2010, p.13),

or their ‘controlling influence’ according to Zhao and Frank (2005, p.9). Thus from a teacher-centred perspective, the student teachers were conceptualised as being both shaped by the media ecology (McLuhan, 1964) whilst also actively shaping it.

#### 6.4.4 *Presence: Priority as an indicator of intent*

In terms of my narrative analysis of the rich intertextual data I had collected for each student teacher the question remained; how to uncover and lay bare these ‘organising principles’ beyond merely identifying and describing a range of mediating factors in the data? That is, how to trace each student teacher’s narrative intent or mark? The pilot study had highlighted the issue of analysing pedagogical language and form in isolation from wider socio-cultural or autobiographical contexts. Lexical or taxonomical approaches to the analysis of language or pedagogical form were ultimately lacking in important contextual information to give them meaning. However, the student teachers’ utterances and actions both towards the children and in the wider context of the intervention remained key to revealing their narrative intent if analysed holistically. That is ‘attention’ needed to be given ‘to both parts and wholes’ (Zhao and Frank, 2005, p.8). Parts were identified initially in the form of isolated themes or variables in the data. However, to facilitate the identification of the student teachers’ underlying narrative intent these isolated parts were then viewed as being more or less constituent within each student teacher’s whole narrative case. That is I attempted to interpret the level of *presence* each variable had in the whole case. I turned again to activity theory and in particular to the structuring of human activity in terms of a historical dialogue between macro, meso and micro spheres of experience. In order to reveal this I approached the data and the variables in a way that attempted to give a greater purchase on the *priority* and importance with which each individual appeared to place upon the different mediating influences as expressed through their use of language and their actions.

The *prioritising* of one variable over another was seen as indicative of an underlying level of narrative intent within each student teacher’s case. For example when analysing the screenshots of the student teachers’ home pages it was clear that student teachers’ *attitudes and values* took more or less priority in determining the kinds of activities they made available for their groups of children; for example for some, the children’s enjoyment through games-based activities was prioritised over the importance of *subject knowledge*. The prioritising of one variable over another could also be detected in other data too. For

example, when coding the interview scripts some student teachers spoke more of their *prior experience with e-learning tools* than others. When viewed holistically in the context of all of the data within the student's case their emphasis on their *prior experience with e-learning tools* appeared significant to the pedagogical actions and decisions they took. Thus isolated variables within the data were viewed as more or less constituent parts of the whole narrative case. This prioritising of the different constituent variables of each narrative case was represented within the diagram (Figure 6.3) through the use of a colour key to indicate whether the *presence* of each particular variable appeared to be *primary, secondary* or *latent* within each case. After the initial stage of coding the data according to the identified variables and establishing their overall constituent effect in relation to the other variable mediating influences, I used the analytical instrument to determine for each student teacher what appeared to be the *primary, secondary* and *latent* mediating factors within their narrative. That is, what *priority* did each student teacher appear to assign to the different variables? The rationale for this was based upon the notion already noted in Chapter 4; that language and action were *the* primary mediating tools within any pedagogical intervention.

Thus, language and action were always placed at the centre of the *pedagogical keystone* in all of the narrative cases, at the core of the micro resource ecology (Figure 6.3). However, unlike the pilot study, each student teacher's utterances and actions were viewed holistically. That is, the kinds of dialogue they engaged in with the children and their online actions were considered both in their own right and in the wider context of variable influences evident in the data. As I began analysing and interpreting the data, the *presence* of the other variables and mediating factors within each student teacher's narrative varied according to the *priorities* they appeared to be given by the student teachers and the pedagogical contingencies they attempted to realise. For example, some student teachers appeared to place greater *priority* on responding to the *learners' needs* than others. In these cases the *presence* of this variable was never very far from or hard to detect within the micro resource ecology of the intervention. On the other hand another student teacher appeared to place greater priority on the primacy of *subject knowledge* as a principle concern governing their actions. Similarly, other student teachers appeared to be more reflective both during activities and afterwards whereas, another student teacher seemed to view much of the activity through the lens of social networking, indicating a greater primacy in terms of his *prior experience of*



*e-learning tools* (Figure 6.3). Thus, the notion of *priority* as expressed through the student teachers' use of language and actions was key to revealing the important aspect of narrative intentionality; that is, the underlying 'organising principles' at play.

The focus in Chapter 6 until now has been on making explicit the narrative ecology conceptual model and its teacher-centred approach and positioning it in terms of other ecological conceptions. I have illustrated how the narrative ecology model was conceptualised and used as a tool for storying an array of variable factors affecting the development of the student teachers' professional practice with online communication tools within a specific intervention; the purpose being to create a more teacher-centred ecological model.

This interpretive analytical process took time. Again, I tried to heighten the reliability of my judgements by setting aside my analysis for periods of time and returning to it in order to achieve an increased level of intra-rater reliability. The analysis process was also handled in two stages. Firstly, the model was used to produce a narrative summary (Appendix C) and, as discussed earlier in 5.6.2, I turned to the student teachers at this stage to validate the plausibility of my interpretation of their narrative case rather than use further abstraction to 'fill in the interpretive gaps' (Schostak, 2006). Having coded the data, determined the overall effect of the variables (resonant, dissonant or both) and established the primacy of the role played by each of the variables in the student teacher's narrative case, the narrative summary (Appendix C) was shared with the student teacher for their comment and to determine the reliability of my interpretation as this accompanying e-mail illustrates:



> Dear [REDACTED],  
>  
> hope you are well and things are going well. You may remember back in  
time  
> I interviewed you about the e-learning and citizenship module we did for  
my PhD research. I'm in the process of analysing and writing up. The  
approach I am taking is to put together a narrative summary of students  
(ie you) perceptions of the module, what we did and how it went.  
Obviously, on one level this is quite presumptuous. I only know what you  
told me. I've put together a narrative portrait of your experience of  
the  
> module and experience. Please could you read it and give me any  
immediate  
> thoughts. Does it accurately describe your perceptions of the module  
etc?  
> Have I missed the point? Is there anything you disagree with or you  
think  
> I've misinterpreted. I know it was a while ago now but if you could have  
a  
> read I'd be really grateful. I've called you Karen to anonymise you (see  
attached).  
>  
> Many thanks and hope you're well.  
>  
> Keith

Extract from e-mail sent with narrative summary September 2009

The second stage of the analysis, after receiving feedback from the student teachers, involved returning to the data and developing the narrative summary into a full narrative case. As is evident in Chapters 7 and 9 this involved using the raw data to support and develop the narrative cases further and as such I needed to be clear that the variables identified from the literature review could be adequately verified in the data, as I will explore further now.

## 6.5 Verifying the variables in the data

In the following sections I will clarify further how the different variable influences were delineated from the literature and identified in the data through the construction of key questions that were applied to each student teacher's data set in order to create the complete narrative case for each of the student teachers. The key questions were used to explore and indicate the presence of the different variables across each student teacher's data set and are set out in Table 6.2 below. In 6.6 and 6.7 I will discuss how these key questions were related both to the literature and the data, beginning with the macro- and meso-level variables through to the micro-level variables.

	<b>Variable mediating factors</b>	<b>Key questions/indicators</b>
<b>MACRO &amp; MESO LEVEL</b>	Attitudes, values and beliefs – about learners, pedagogy and ICT	How were student teachers' experiences mediated by their a priori attitudes, values and beliefs about learners and the role that online communication technologies could play in learning?  What evidence was there that the design of the intervention promoted further development or questioning of their attitudes, values and beliefs?
	Prior experience of e-learning tools	In what ways did student teachers' previous experiences with e-learning tools affect their use of the tools with the children?  To what extent did the design of the intervention enable the student teachers to utilise and develop their prior knowledge and understanding of the e-learning tools?
	Policy, Wider Socio-Cultural Discourse	How were student teachers' activities influenced by wider socio-cultural discourses and, how did their experience throughout the intervention resonate with or challenge these wider discourses?
<b>MICRO LEVEL</b>	Learners' needs Affordance of e-learning tools Subject knowledge	In what ways did the student teachers perceive the children's needs differently?  How did different student teachers perceive the affordances of the e-learning tools?  In what ways was subject knowledge represented in student teachers' online activities and what part did it play in student teachers' perceptions of the e-learning tools' affordances and their perceptions of children's needs?
	Theory – extrinsic/intrinsic Reflection on/in action	How far did the design of the professional intervention facilitate reflection in/on action by the student teachers?  To what extent did student teachers' reflections lead to the intrinsic generation of new theories for the student teachers?  What evidence was there that student teachers' actions were mediated by the application of extrinsic theory?

Table 6.2: Variables and indicators

## 6.6 Macro and meso variables

### 6.6.1 Attitudes, values and beliefs

In the literature review teacher agency was established as a central tenet of this research. This had also been confirmed in my pilot study, which highlighted again the need to take a holistic approach to the ways in which student teachers expressed their pedagogical presence through language online. Based upon Bruner's notion that 'beliefs and assumptions about teaching.....are a direct reflection of the beliefs and assumptions the teacher holds about the learner,' the effect of student teachers' *attitudes, values* and *beliefs* within the intervention were important to determine (1999, p.6). Others have also highlighted the need to see the multifaceted ways in which teachers' *attitudes, values* and *beliefs* can play out within their professional practice with technologies. That is, as Loveless acknowledges, teachers' perceptions and beliefs concerning the role of ICT in learning are important factors in their professional practice (2003). Similarly as Daly et al (2009) emphasise 'teachers need to be at the centre of their own learning if they are to change their deep-seated beliefs and habits regarding the use of technology' (p .6). From this perspective two key questions were identified relating to the variable *attitudes, values* and *beliefs* that might be manifest within the student teachers' responses and actions within the intervention, namely:

- How were student teachers' experiences mediated by their a priori attitudes, values and beliefs about learners and the role that online communication technologies could play in learning?
- What evidence was there that the design of the intervention promoted further development or questioning of their attitudes, values and beliefs?

This further delineation of research questions pointed again to the symbiotic and dynamic relationship between the different facets of the knowledge bases as indicated in Figure 6.2. That is, student teachers' *attitudes, values* and *beliefs* were important in terms of how they mediated their experience of the intervention whilst conversely the design of the intervention itself was significant in terms of its mediating influence upon the student teachers' *attitudes, values* and *beliefs*.

This variable was identified across the range of the data in various ways. For example, the student teachers' *attitudes, values* and *beliefs* could be traced through the kinds of activities they created for the children through the VLE. Using the screenshots of their home pages it was possible to determine the extent to which the student teachers had chosen to begin the online session with more or less child-centred activities. Some began with games-based activities whilst others took a more formal approach. Similarly, this variable was traced through the student teacher interviews and online reflections posted by the student teachers. These often contained references to the children's level of 'enjoyment' of the activities but also tension that this enjoyment was detracting from the educational purpose of the activity. Similarly this variable could also be traced in the online discussions or chats that the student teachers had with the children. For example, some student teachers were more relaxed about engaging in humour or 'off task' discussion with the children than others.

#### 6.6.2 *Prior experience of e-learning tools*

Another key variable delineated from the literature surrounding the broad knowledge bases and closely related to student teachers' variable *attitudes, values* and *beliefs*, was the student teachers' *prior experience of e-learning tools*. My engagement with the literature surrounding CHAT and ecological perspectives of mediating tools in Chapter 3 established the importance of a holistic conceptualisation of such tools. That is, as Davydov (1999, p.47) suggests, any form of communicative process is manifest in 'different kinds of activity realisation by people.' Such a broader socio-cultural view is taken by others (Pachler et al, 2009), and applied to online communication tools, suggested the need again to take a multifaceted and ecological view of the student teachers' use of online communication tools both within the formal context of the intervention with the school children, and their own social and leisure use of such tools. As Daly et al noted, teachers' professional development needs with relation to ICT 'are highly varied, and are determined by their histories of using technologies at work and in their home life' (2009, p.7). From the perspective of my research into the mediating factors affecting student teachers' professional development with online communication tools and how we can research this, two key questions regarding their *prior experience of e-learning tools* emerged:

- In what ways did student teachers' previous experiences with e-learning tools affect their use of the tools with the children?

- To what extent did the design of the intervention enable the student teachers to utilise and develop their prior knowledge and understanding of the e-learning tools?

Thus, as with the treatment of the previous two variables, the potential variable effect of their *prior experience of e-learning tools* emerged from a synthesis of two knowledge bases; mediating ecologies and designs for professional learning (Figure 6.2). Thus, their *prior experience of e-learning tools* was analysed both for any potential mediating effect upon the ecology of the professional intervention, and the degree to which the design of the professional learning opportunity enabled them to apply or develop their *prior experience of e-learning tools*. The relationship between these two knowledge bases was conceptualised again as a dynamic and symbiotic one.

Much of the evidence for their *prior experience of e-learning tools* emerged initially from the baseline survey that each student teacher completed and the narrative interview. References to the extent and ways in which they used social media such as Facebook, MSN, and their mobile phones were highlighted in the interview transcript and baseline survey. I also used the screenshots of their VLE home page to compare the kinds of tools and activities they had used within the VLE, with the ways in which they said they used social media in their leisure lives. For example, I was interested to see if those student teachers who claimed to make regular use of social media such as FaceBook and chat rooms, actually explored the less formal chat room facility in the VLE with the children.

### 6.6.3 Wider socio-cultural discourses

Similarly, an important variable that emerged from the discussion of CHAT and mediated activity across different socio-cultural ecologies in Chapter 3, was the notion that tools and actors can embody *wider socio-cultural discourses* on a number of levels from the micro-level of the classroom –virtual or face-to-face - to the macro-level of policy discourse. This raised the issue of the extent to which wider policy discourse around online communications tools and e-learning was manifest in or mediated the student teachers' use of the technologies throughout the intervention with the children. It was acknowledged that the technological tools, like the student teachers themselves, were not neutral in terms of their prior experiences, beliefs or their exposure to the wider policy discourses around e-learning. Thus,

*wider socio-cultural discourses* became an important variable to try to detect within the data, as it was important to consider:

- How student teachers' activities were influenced by wider socio-cultural discourses and, whether their experience throughout the intervention resonated with or challenged these wider discourses.

Thus again, the variable effect of *wider socio-cultural discourses* was conceptualised within a dynamic and symbiotic framework in that it had the potential to both mediate and be mediated by the student teachers' perceptions and experience of the professional intervention.

This variable was difficult to detect in the data and much of the evidence here was drawn from the narrative interviews with the student teachers. References to issues around e-safety were highlighted in the interview transcripts. These tended to be expressed in the data as concern about the age-appropriateness of interacting online with primary-age children. Similarly, wider discourses surrounding issues such as inclusion could also be traced in the interviews with the student teachers.

## **6.7 Micro-level variables**

Grappling with issues surrounding the source of different types of mediation in order to identify detectable thematic variables within the data, clarified further the need to build a narrative ecology centred on each student teacher. It appeared that such a narrative ecology offered the greatest opportunity to develop my understanding of the complex interplay between different variable mediating influences brought to bear by different student teachers in different contexts with different tools; indicative of the inherent problem of how to research student teachers' professional development with new technologies. Through engaging with CHAT and theory based upon more holistic approaches to researching technology (Nardi and O'Day, 1999; Leach and Moon, 2000; Zhao and Frank, 2005), I had gained an appreciation of how various meso and macro-level mediating factors such as prior experience, wider socio-cultural discourses and various attitudes and beliefs can influence activity within micro-level professional contexts. However, the literature within this broad knowledge base of mediating ecologies had also prompted me to examine other sources of

mediation. Much more immediate to the professional micro-ecology it seemed were the mediating tools or resources arguably more explicitly evident within the professional context. For example, Luckin's notion of an 'ecology of resources' available to both teacher and child, which gradually becomes tailored by the teacher or child to meet their learning needs was particularly useful in identifying potential variables at the micro level of the intervention (2005, 2006 & 2008). However, inherent within this micro 'ecology of resources' was the notion of narrative in that *how* the micro-resource ecology was tailored to the children's learning needs was as important to establish. The micro-level ecology of resources (Luckin, 2005) was 'conceptualised broadly' according to Loi and Dillon (2006). These variables were classified by:

- *Learners' needs*
- *Affordance of e-learning tools*
- *Subject knowledge – teachers' and learners'*

Relating these variables to the data was also problematic due to the range of the data and the interconnected nature of the variables. However they could be detected across the range of data. For example *Learners' needs* could be traced through the student teachers' online reflections in references to what they were going to do differently next time they engaged with the children. That is, they were responding to what they perceived to be their learners' needs. Adaptations to the approach taken with the children were also referred to in the narrative interviews with the student teachers and thus provided further evidence of perceived *Learners' needs*. Furthermore the adaptations in approach could also be traced through analysis of online artefacts such as the activities provided for the children or the content of a discussion forum. Similarly, student teachers also referred to the *Affordance of e-learning tools* albeit often indirectly, when they reflected on or discussed with me how and why they adapted their approach. Thus, in the data I looked for justifications as to why they had taken a particular approach in the intervention or decided to use a particular tool differently. For example this could be identified through justifications like 'I decided to switch the games activities off because....' *Subject knowledge* as a variable was also applied across the data set. Screen shots of the student teachers' home page were used to analyse the extent to which *Subject knowledge* was given priority within an online activity. For example, for some students early on in the intervention there was more of a priority on getting to know the



children or creating an interactive and enjoyable online experience. However, this variable also emerged in the interviews with some student teachers expressing concerns about their own level of subject knowledge or the tendency of some web-based activities such as games to detract from the focus on the subject content.

### 6.7.1 *Micro-level questions*

Despite this categorisation, as with the other variables identified, none of these variables were conceptualised as independent entities but rather as mutually dependent entities within a living professional ecology over which the student teachers had agency. This conceptualisation of the variables again, stemmed from the literature that identified the complex and symbiotic nature of different mediating influences upon professional practice. For example, Shulman and Shulman's PCK (1987) and latterly Mishra and Koehler's TCPK (2006) shed light on the complex interplay between factors. Similarly, Gibson's notion of affordance as connecting the latent potential of tools and users' perception of this potentiality prompted me to question further the symbiotic relationships between variables particularly within a narrative ecology framework in which teacher agency was seen to be the most significant variable. Although Luckin (2008) had identified how teachers engaged in a process of progressive focusing of the resource ecology available, as they responded to learners' needs, key questions remained for me regarding the interdependency of these variables thus:

- In which ways do the student teachers perceive the children's needs?
- How do different student teachers perceive the affordances of the e-learning tools?
- In which ways is subject knowledge represented in student teachers' online activities and what part does it play in student teachers' perceptions of the e-learning tools' affordances and their perceptions of children's needs?

Accordingly the cluster of variables associated with these questions – *learners' needs*, *affordance of e-learning tools* and *subject knowledge* – were again conceived as interdependent entities within an ecological framework, in need of storying in order to gain a deeper insight into the personally nuanced ways in which they were manifest within each student teacher's case. Within such a framework the variables had the potential to both mediate, and be mediated by the student teachers' experiences and perceptions of the professional intervention. The design of the professional intervention was integral to the



ecological framework of mediating factors, from the attitudes values and beliefs of the student teachers to the affordance of the various e-learning tools. This also led to further questions relating to the design of the professional intervention and how we research student teachers' professional development with online communications technologies. That is, what variable factors could I detect in the data that would give me a purchase on the extent to which the design of the professional intervention had facilitated the student teachers' professional learning?

### 6.7.2 *Theorising and reflecting as variables*

My engagement with the various theoretical perspectives on professional learning in the literature review had led me to an appreciation of the complex and capricious nature of professional learning, mediated as it is through various spheres of influence; technological, socio-cultural and autobiographical. The insights from engaging with this knowledge base played a key role in my realisation that, *how* to research student teachers' professional learning with online communications technologies was a more fundamental question than what factors affected this professional development. The development of professional knowledge and thus, the researching of professional knowledge, required a 'holistic and iterative' approach (Laurillard, 2002, p.71) that attempted to capture the complex and multifaceted ways in which student teachers made sense of their professional experiences within different contexts (Shulman, 1986: Schön, 1987: Eraut, 1994: Leach & Moon, 2000: Laurillard, 2002 & 2008). The literature surrounding professional learning and knowledge gave pointers to the potential variables that I could detect within the student teachers' various narrative accounts and data from the intervention. For example, Eraut (1994), as discussed in the literature review identifies the capacity of professionals to theorise as an indicator of their capacity for ongoing professional development. This also resonates with Shulman's notion of 'strategic understanding' (1986) demonstrated by professionals who are able to articulate a complex rationale for their 'professional decisions and actions' (p.13). Similarly, for Schön the generation of theory whilst in a professional context or after a professional experience through reflection is indicative of how professionals develop their professional knowledge and understanding (1987). From these perspectives I identified two further important variables within the overall ecology of mediating factors; *reflection* and *theory*.

Whilst both of these variables appeared important within the framework of mediating factors it was also important to delineate these further and define how I was using them in my approach to the data. Key questions relating to *reflection* and *theory* were:

- How far did the design of the professional intervention facilitate reflection in/on action by the student teachers?
- To what extent did student teachers' reflections lead to the intrinsic generation of new theories for the student teachers?
- What evidence was there that student teachers' actions were mediated by the application of extrinsic theory?

As evident from these questions, these variables were conceptualised within a mutually dependent relationship to the overall design for professional learning. The interplay between *reflection* and *theory* has been well established within education research and practice. However, within the ecological approach taken here, *reflection* and *theory* (the capacity to apply, modify or generate theory), became integral factors within the mediating framework, having both the potential to mediate or become mediated by any of the other factors within the ecology. For example a student teacher's capacity to reflect, theorise and develop an appropriate response to a particular professional issue can be limited or aided by their depth of subject knowledge. Equally a student teacher's attitudes, values and beliefs might impact favourably or less favourably on their ability to reflect and theorise about their professional experiences. The converse of these might also apply; their capacity to reflect and theorise impacting upon the development of their subject knowledge or challenging and prompting a reconfiguring of their attitudes, values and beliefs.

These variables - *reflection* and *theory* - were particularly challenging to apply to the data. As with other micro-level variables they were often implicit within the data and interwoven with other variables. For example, when student teachers articulated a rationale for adapting their approach to the intervention, in their online reflections or during their interviews, it was possible to detect these shifts in approach through analysis of the online artefacts. Evidence of the intrinsic generation of theory through reflection could be detected through the various rationales used to explain their actions. The application of extrinsic theory to the intervention

was applied to the data through the identification of any references in the interviews or online reflections to theories such as ‘learning styles,’ ‘personalised learning,’ ‘social constructivism’ or any other of the contested and debated theories in the canon of Initial Teacher Education.

## 6.8 Summary

In many respects this chapter concludes where my methodological and conceptual journey began. My own ‘organising principle’ was to reveal some of the ‘notes’ that weren’t played but nevertheless play a vital role in shaping actors’ performances in their own and others narratives as they incorporate online communication tools into their pedagogical practice. The journey has taken me through a deeper consideration of my own philosophical stance towards research methodology and professional learning and practice with communications technologies.

In this chapter I have shown how within an interpretive paradigm, I have developed the narrative ecology model to offer an open, honest and reliable route to a deeper understanding of the factors at play as student teachers develop their own online pedagogical knowledge and understanding. Engaging with the complexities of research methodology and my own conceptual approach has also enabled me to gain a better understanding of the role and importance of research in my own professional practice. The inductively generated first iteration of the narrative ecology model (Figure 6.3) was also shared and discussed with colleagues and supervisors in order to try to clarify my own understanding of the theory underpinning my conceptual approach. Feedback from colleagues and conference presentations indicated that the approach could be developed further and made more explicit which I pick up in Chapter 8. However, having established the rationale, and made explicit my methodological and conceptual approach to the narrative analysis, I will now set out the first three narrative cases through which the first iteration of the narrative ecology model was developed.

# 7 Three narrative cases

## 7.1 Narrative Analysis - Maria

### 7.1.1 Overview

Maria’s perceptions of the online and face-to-face intervention was characterised by resonance with some dissonant elements and tensions between some of the factors affecting the overall experience (Figure 7.1). In my analysis of the data relating to Maria and her partner’s intervention, the desire to respond to the children’s needs, combined with Maria’s own positioning with regards to the subject knowledge content, often appeared explicitly in the data. Maria reflected upon these two key factors a great deal both throughout and after the intervention. She also acted upon her reflections, as I will show. Consequently these factors – reflection on or in action, subject knowledge and learner needs - were often present within the data to the extent that I came to view them as primary mediating factors within Maria’s narrative (Figure 7.1). I will turn to these now.

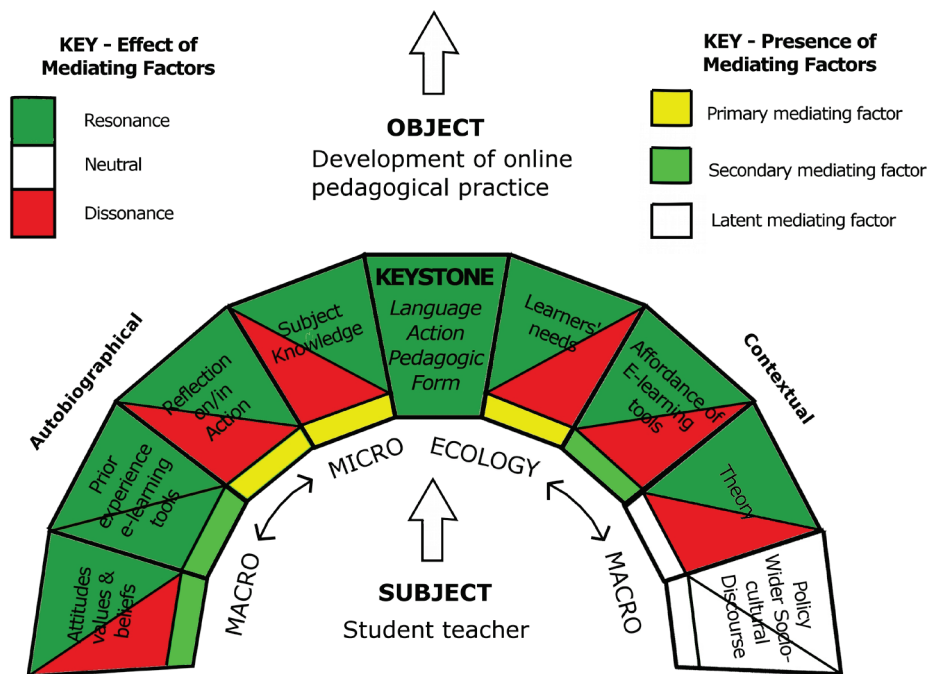


Figure 7.1: Visual representation – presence and effect of mediating influences in Maria’s narrative

### 7.1.2 Primary mediating factors

Throughout the intervention, working face to face and online with the primary school children, Maria and her partner employed various pedagogical strategies to engage their group in the online activities and resources they had designed to develop the children's understanding of environmental issues. A guiding pedagogical principle of starting with what the children already know and providing what were believed to be enjoyable activities or games for the children was adopted. That is, from the start Maria and her partner had in mind the children's needs as she related when interviewed:

“We chose an issue. Our issue was recycling, because we assumed they'd know about it either at home or in school and obviously it's an issue that's becoming more important. So we set up various activities and games as we knew we also needed them to enjoy themselves.” (Interview 12<sup>th</sup> December, 2007)

Enjoyment and accessibility were perceived to be important when designing online activities for the children as she also commented that ‘we knew we needed them to enjoy themselves,’ (ibid). Interestingly however, Maria's perception of the success of this approach, in terms of it facilitating the children's learning was ambiguous and a point of tension with respect to her perceptions about subject knowledge. To Maria it appeared that the children were more engaged in the online games and activities and less interested in engaging in the online discussion about what they had found out about recycling. In the light of this observation Maria responded by adapting the layout of her online resources and identifying key questions that related to the resources and which she and her partner believed would focus the children more in terms of subject knowledge. For example she posted two online reflections after the first intervention in school remarking on these issues (Figure 7.2):

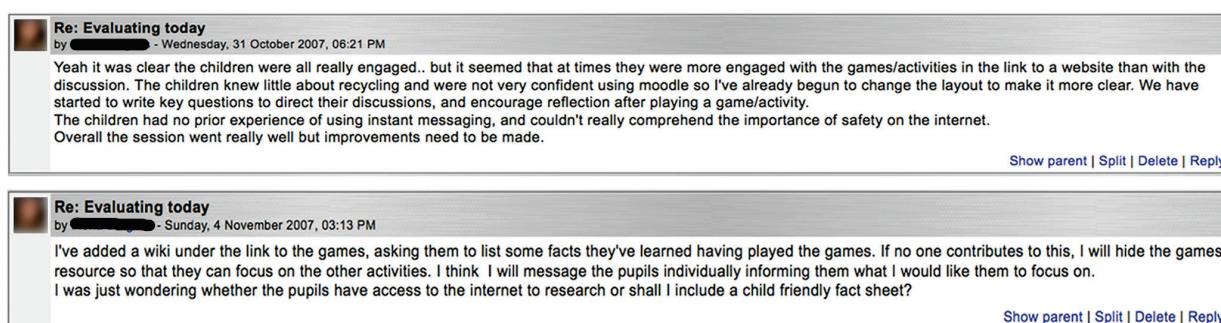


Figure 7.2: Maria's online reflections

From these reflections it is possible to see that Maria was pleased overall with the level of engagement and that the children seemed to be enjoying the intervention. However this was also in tension with her position with regards to the importance of the subject knowledge. On the one hand she focuses on the needs of the learners altering the content ‘to make it more clear’ for them and considering creating a ‘child-friendly fact sheet.’ Furthermore she also picks up that the children ‘are not very confident using Moodle.’ On the other hand she remarks a great deal about the need to focus the children and the fact that they do not seem to know very much about recycling. Maria clearly did not feel the engagement of the children was focused enough on the subject knowledge aspect of the intervention.

In order to focus the children more towards learning, Maria and her partner adopted the strategy of making connections between the various resources available. ‘Key questions’ as she noted in her reflection (Figure 7.2) were designed to pick up on the activities in the online games and during interview she remarked that ‘we’d designed the quiz based upon what they were doing,’ (Interview, 12<sup>th</sup> December 2007). Analysis of the online dialogue with the children illustrated this making connections between the interactive resources they had made available online and using key questions much in the same way a teacher in a face-to-face setting might make use of a wall display to support children’s thinking thus as can be seen in Figure 7.3:

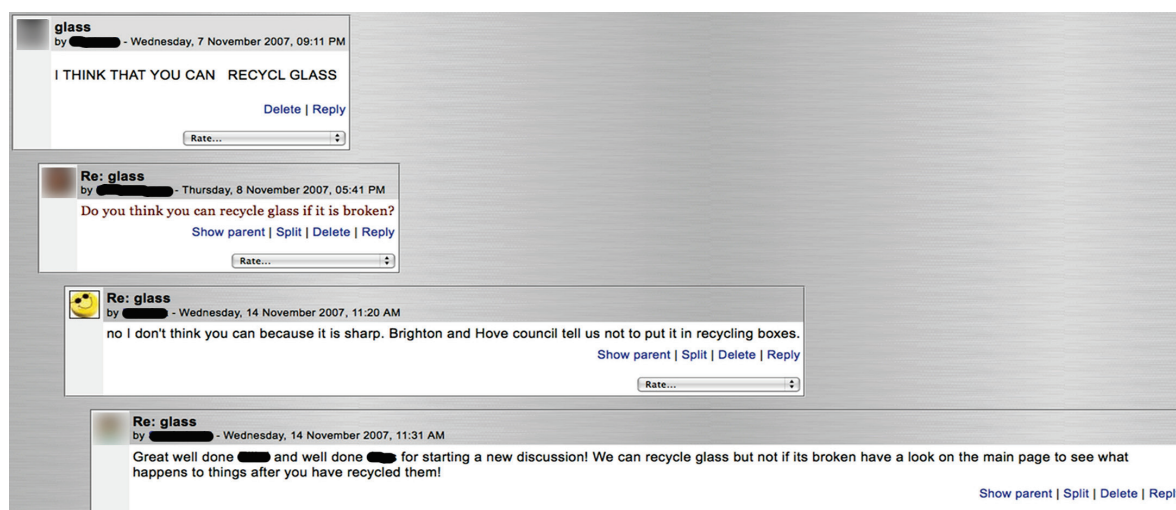


Figure 7.3: Extract from discussion thread



In the interview Maria also described on two occasions how she felt she had ‘to push them a lot,’ referring to the children and their response online. Indeed this ‘pushing’ can be interpreted as indicative of the teacher trying to take control and steer the learning as can be seen in the dialogue above. For Maria the issue of control was a significant one and again one that she felt ambivalence towards within the context of the online environment. This revealed another important facet regarding her positioning towards subject knowledge. When asked about the extent to which she valued the opportunity to engage in dialogue online with the children she commented:

“It was good but as a teacher from my point of view I’m someone that...I’m always a bit scared of discussion because obviously you know what you want to get out of it and its...sometimes they’ll say something off topic which...it’s not wrong but because you’re not expecting it you might disregard it because you don’t know whether to go down that road or not...so em I like to plan things in advance and it’s quite hard to plan something because you’ve got no idea where it’s going to go so in some ways I’m quite scared of using it.”

(Interview, 12<sup>th</sup> December 2007)

Her reticence about using online discussion with children stemmed from her concerns about children going off topic but also an underlying insecurity about her own subject knowledge. It is significant that she uses terms such as ‘scared’ here. However, she did not reject outright the use of online discussion and was able to put it in wider contexts making comparisons to classroom face-to-face dialogue and seeing certain advantages too as the following exchange from her interview illustrates:

**Interviewer:** *Right....but what is it that intimidates you about it again?*

**Maria:** *It’s the discussion .....because I like to know exactly what I’m doing.*

**Interviewer:** *OK so you feel it can go out of control?*

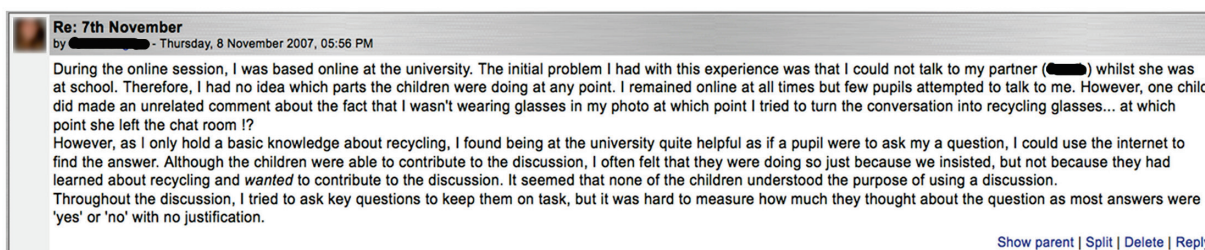
**Maria:** *Well that can happen it’s not just like within e-learning it can happen within any situation.*

**Interviewer:** *Do you think that’s more likely to happen within an online environment than than in a classroom teaching and learning environment?*

**Maria:** *Well having said that I think it’s easier if it’s online because you can read it and think about it for a few seconds. And like if you don’t understand them they’re not going to see your facial expression...or you’re flicking through an encyclopedia or something.*

(Interview, 12<sup>th</sup> December 2007)

Maria was clearly in the process of forming her position with regards to the educational use of online discussion weighing up its affordances and reconciling these with her experience of face to face discussion and her own concerns about her subject knowledge. Maria's last remark about being able to flick 'through an encyclopedia or something,' whilst at the same time being in online discussion with the children referred to what she perceived to be an advantage of the medium in terms of her own insecurities about her subject knowledge. That is, due to the non-linear nature of the intervention compared to a face-to-face situation, she was able to develop her subject knowledge 'on demand.' In her reflection after the intervention she remarked that 'as I only hold a basic knowledge about recycling, I found being online at the university quite helpful as if a pupil were to ask me a question I could use the internet,' (Figure 7.4).



**Figure 7.4: Maria's final reflection online**

Similarly, by using websites targeted at the children's age group she felt that she could take advantage of the pre-mediation that had been done in representing particular subject knowledge for the children as this passage from the interview illustrates:

**Maria:** *Yes I had websites around me at the same time [as communicating with the children online].*

**Interviewer:** *So how did you use those then?*

**Maria:** *Well I made sure that I used websites that they'd use themselves...the language. And some times when it was going fast it was a case of copying text.....*

**Interviewer:** *So what were you using the websites for again?*



**Maria:** *If like during a discussion I was asking them something to do with recycling and they were like they really didn't know I couldn't just leave it there I'd have to explain to them what it was so I'd like almost for research.*

(Interview, 12<sup>th</sup> December 2007)

That is, in her interview Maria confirmed further that a key advantage for her was being able to supplement her own subject knowledge on demand, due to the lack of face-to-face contact with the children online.

Consequently in terms of the mediating influences that appeared most explicitly within the data, it was clear that Maria reflected significantly on how to respond to the children's needs and issues around subject knowledge. Her responses to the children's needs through the online intervention were often filtered by her own particularly nuanced position with regards to subject knowledge and thus acted as primary mediating influences within her perceptions of the intervention. The repercussions of this were also evident at the level of secondary mediating influences as presented in Maria's case, as I will explore now.

### **7.1.3 Secondary mediating factors**

Some of the secondary mediating influences in Maria's case have already been touched upon in that they were significantly interrelated with the primary mediating factors albeit subordinately. For example, as noted above in terms of Maria's attitudes, values and beliefs it was Maria's intention that the experience for the children should be enjoyable and fun. Similarly, Maria was able to exploit the affordance of the tools, repurposing appropriate resources from other sites on the Internet to supplement her own subject knowledge and respond to the children's needs. However, her exploitation of the e-learning tools within the intervention was always primarily concerned with the subject knowledge content as a screenshot of her home page illustrates, Figure 7.5.

The screenshot shows a web-based learning environment interface. On the left is a sidebar with sections: 'People' (Participants), 'Activities' (Chats, Forums, Quizzes, Resources, Wikis), 'Search Forums', 'Administration', and 'Course categories'. The main content area is titled 'Topic outline' and contains a 'News forum' section with a recycling symbol and a 'Welcome!' message. The message states: 'This course is about **recycling** and how we can help in schools and at home. You can discuss your concerns and share your ideas with your classmates, and much more!' It lists the 3 Rs: 1. REUSE, 2. RECYCLE, 3. REDUCE, and asks users to chat with Sarah or Fiona. Below this are four numbered sections: 1. Discussion (with sub-sections like 'Introduction...', 'Recycling', and 'What to recycle?'); 2. Facts & Quiz (with text about recycling statistics and a list of resources like 'Information Sheet about Recycling at School'); 3. Activities (featuring a 'RECYCLE ZONE' graphic and links to 'A great recycling website!', 'Play the game!!', and 'Some great activities for you to do that REUSE things!!'); 4. Suggestions? (asking 'What more things would you like to do?'). On the right-hand side, there is a panel with 'Latest News', 'Recent Activity', 'Online Users', and 'Messages'.

Figure 7.5: Screenshot - home page of Maria's VLE

As can be seen (Figure 7.5) Maria and her partner exploited the range of tools and resources in the design of their area of the VLE from quizzes they had created themselves to links to interactive websites about recycling. However, despite noting in her online reflections that the children were not very confident in using the VLE (Figure 7.2) the focus of activities remained explicitly upon the subject focus of recycling in subsequent activities. Similarly, although Maria clearly stated her intentions for the activities the children engaged in to be fun, this too was mediated mainly through the subject focus of the intervention. This was seen when during one of the online discussions the children went 'off task' and began to explore the tools they were using as seen in Figure 7.6.

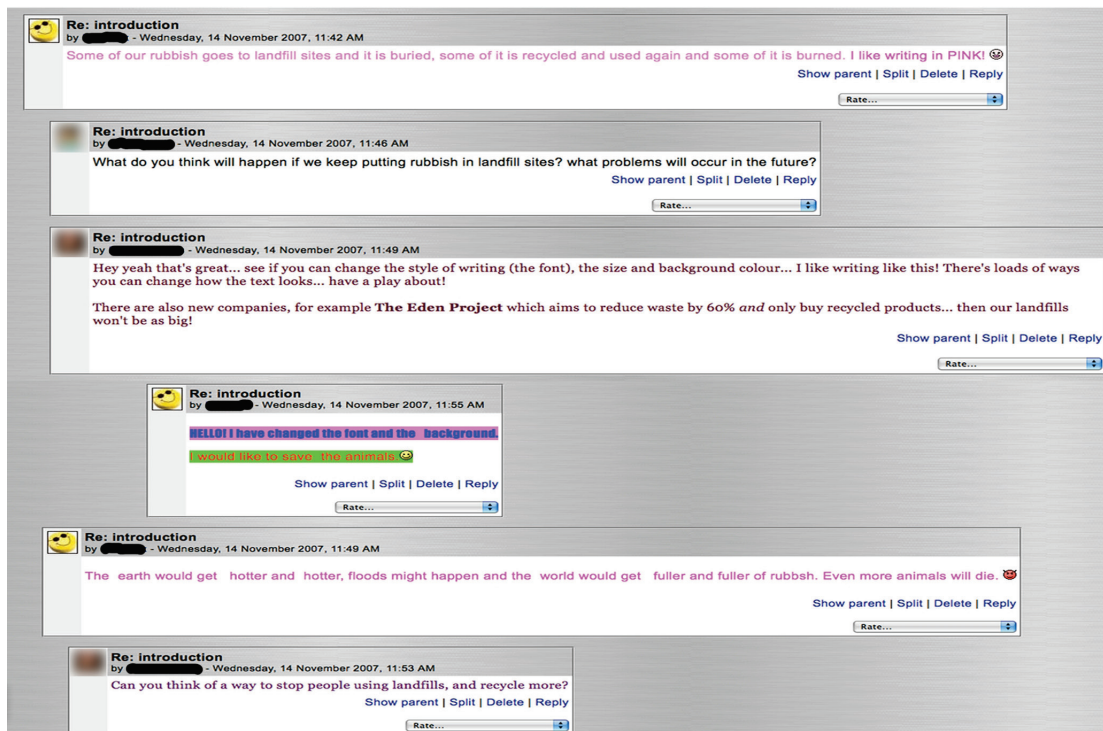


Figure 7.6: Maria's response to exploring the discussion tools

As can be seen in Figure 10, one of the children discovers how to change the colour of her writing in the discussion forum commenting at the end of her post (11.42am) 'I like writing in PINK.' At 11.49am Maria responds to the child's post encouragingly with reference to the change of font colour and tells her 'there are loads of ways you can change how the text looks.....have a play about!' At 11.55am the child returns with a message illustrating that she has found out how to change the background colours to fonts. The online discussion continues in this manner with a mix of subject-related content and content focused on how to edit the text. Maria's partner responds to the children sharing in their satisfaction at changing aspects of the fonts with the message 'Woohoo! well done! you have all really got the hang of this i'm really impressed!!' (Message posted 11.58am by Maria's partner). In contrast to Maria, her partner did not feel the need to combine her encouragement of the children's explorations with further subject-related content to focus them. Thus illustrating again Maria's exploitation of the affordances of the e-learning tools filtered through her intentions to retain the focus upon the subject matter.

Maria's prior-experience of e-learning was also interpreted as a secondary mediating factor within the school-based intervention (Figure 7.1). Despite this, her prior experience was significant in that Maria expressed no doubts or concerns regarding her knowledge and understanding of the e-learning tools. She created and adapted her online environment confidently. Mobile and networked communication technologies were entrenched in her leisure life. Much of this was evident from her responses to the questionnaire. Her mobile phone was the source of a range of social activities from keeping in touch with friends predominantly by text messaging, to taking advantage of cheap cinema tickets. She also took advantage of cheap entry to local clubs who send out promotions via text messages to those on their 'guest lists.' Financial considerations also partly motivated Maria's use of Internet communication networks; she described her use of MSN and social networking sites as useful 'to stay in touch with friends from home/at other universities when I have no credit and cannot use my mobile' (Figure 7.7).

b. If you do publish online please indicate the purpose of this activity to you on the scale below:

This is a professional activity          This is a social activity

c. If you **do** publish online briefly describe **why** this is important to you.

To stay in touch with friends from home/at other universities & when I have no credit & cannot use mobile.

Figure 7.7: Maria's prior experience – Questionnaire October 2007

Maria did use her mobile to inform tutors of absence or lateness via friends and to 'find out small amounts of info about lessons i.e. any non contact tasks.' In relation to discussion forums she scored these low in terms of usefulness both socially and professionally, reporting that she occasionally read postings but did not post. Essentially Maria's use of mobile and networked communication technologies was heavily biased towards the social and leisure aspects of her life with some cross over into her academic and professional life. From this perspective, the integration of social networking tools into her leisure life seemed to resonate

in terms of the confidence with which she adopted and adapted the tools within the professional frame of the intervention (Figure 7.1).

#### *7.1.4 Latent mediating factors*

There were few explicit indications in the data generated by Maria of wider policy contexts or discourses. Unlike Karen, Maria made no mention of issues around children and e-safety, or references to other discourses around personalisation. The normalisation of using social networking tools within her social and leisure life appeared to contribute to her ease of using the tools with the children. Maria and her partner did establish clear guidelines and rules with the children regarding appropriate online conduct but this was part of the approach that all of the student teachers took to working with the children after discussion of e-safety within the university-based sessions. Issues of e-safety or concerns about children working online from the wider socio-cultural discourse were essentially neutral factors within Maria's perception of the intervention.

In terms of the ways in which Maria's perceptions of theoretical perspectives influenced her understanding of the intervention, as in Joe's case, such perspectives were often concealed within the data. As discussed above, Maria clearly theorised about her own experiences and understanding (Eraut, 1994; Schön, 1987) at the level of the intervention; she adapted her approach according to the children's responses as evidenced by her personal reflections (figure 7.2). In this sense she was generating her own theories at the level of and intrinsic to the intervention, as Joe did. However, in terms of more extrinsic theory, for example, from the readings she had been given to support the module this did not emerge until Maria reflected in her assignment task. Furthermore, her approach to this was ambiguous and often a point of tension indicating that she was still in the process of synthesising theoretical perspectives with her experiences from the intervention. In her written assignment for example she tried to make sense of different modes of communication, formal and informal, spoken and written as the passage in Figure 7.8 illustrates.



The online discussion could reduce fear of speaking aloud in front of peers. However, some children fear online discussion more than face to face discussion as this is written. Written work is usually more formal and pupils take time to choose words carefully (Wegerif and Dawes 2004). On the other hand, if pupils were informal, pupils were more likely to express themselves colloquially, but were more likely to go off topic. During discussions, the pupils did not communicate directly to one another but it appeared on the screen as separate conversations in one forum. As a result of which, I found it extremely difficult to respond to pupils through a discussion as my response could only apply to one pupil. I found it hard to differentiate my response to pupils as they were in

**Figure 7.8: Passage from Maria's written assignment**

As can be seen from this passage (Figure 7.8) she was still making sense of her position with regards the educational use of online discussion and the theory surrounding this. Although there are suggestions that 'online discussion could reduce fear of speaking aloud in front of peers' Maria felt that the formality of the written text could also have the opposite effect. Equally, from Maria's perspective there were issues with the informality of some of the online discussion or the fact that often the children did not appear to be responding to each other's postings. In this way theoretical perspectives were problematic and sites of ongoing deliberation and reflection for Maria. This was evident again in extracts from her assignment (Figure 7.9).

I believe that e-learning in education has great potential to enhance both teaching and learning. For social software to work effectively in the schools the teachers' presence needs to be transferred online as teaching and teacher presence are essential parts of e-learning and thus e-learning is more than delivery alone (Andrews and Haythornwaite 2007). E-Learning is highly beneficial as it allows pupils to collaborate and communicate,

**Figure 7.9: Extract from Maria's assignment**

As this extract illustrates Maria identified the importance of teacher presence online. She recognises 'e-learning in education has great potential' but there are certain caveats that she enters and which her tone indicate she has yet to make sense of. For example despite the fact that e-learning 'allows pupils to collaborate and communicate,' she goes on to state 'it is paramount that pupils are taught that ICT can be used more than just a tool, giving it a

purpose and making connections,' (Written assignment). Again, although she sees potential in e-learning tools the caveats she inserts illustrate her ongoing tension with realising in practice the potential often expressed within extrinsic theories about e-learning. Thus, theory remained a site of both ongoing resonance and dissonance for Maria (Figure 7.1).

#### *7.1.5 Summary*

Maria's experience and perceptions of the intervention were characterised by both resonance and dissonance. However, as emphasised elsewhere this is not to pass judgement. Various factors appeared to be at play with regards Maria's perceptions of the e-learning intervention. The only factors that did not appear to be sites of contention or tension were her prior learning with e-learning tools and wider policy or socio-cultural discourses. Her prior experience of e-learning tools appeared to equip Maria well to adapt her pedagogical approach with the tools to the children's needs, albeit often filtered through her particular view of subject knowledge. With regards policy discourses these were extremely difficult to pick up in the data. Maria's case like the other cases also raised issues regarding the role and importance of intrinsically generated theory within professional learning, which I return to in Chapter 10.

## 7.2 Narrative analysis: Laura

### 7.2.1 Overview

In contrast to the other cases discussed thus far, Laura’s perceptions of the intervention with the online communication technologies were characterised much more by resonance than dissonance between different mediating influences. A number of the identified factors appeared to resonate symbiotically, influencing her pedagogical intentions as expressed through her use of language and her actions both online and face-to-face. Such resonance manifest itself in a strong sense of intentionality within Laura’s case (Nardi, 2009). This was typified by a clear intention to exploit the affordances of the e-learning tools to meet the children’s needs in relation to the subject content, often realised by Laura’s commitment to reflecting critically upon her and her partner’s actions. I came to view these factors – affordance of the e-learning tools, learner’s needs, subject knowledge and reflection in or on action – as the primary mediating factors in Laura’s case as I will examine now (Figure 7.10).

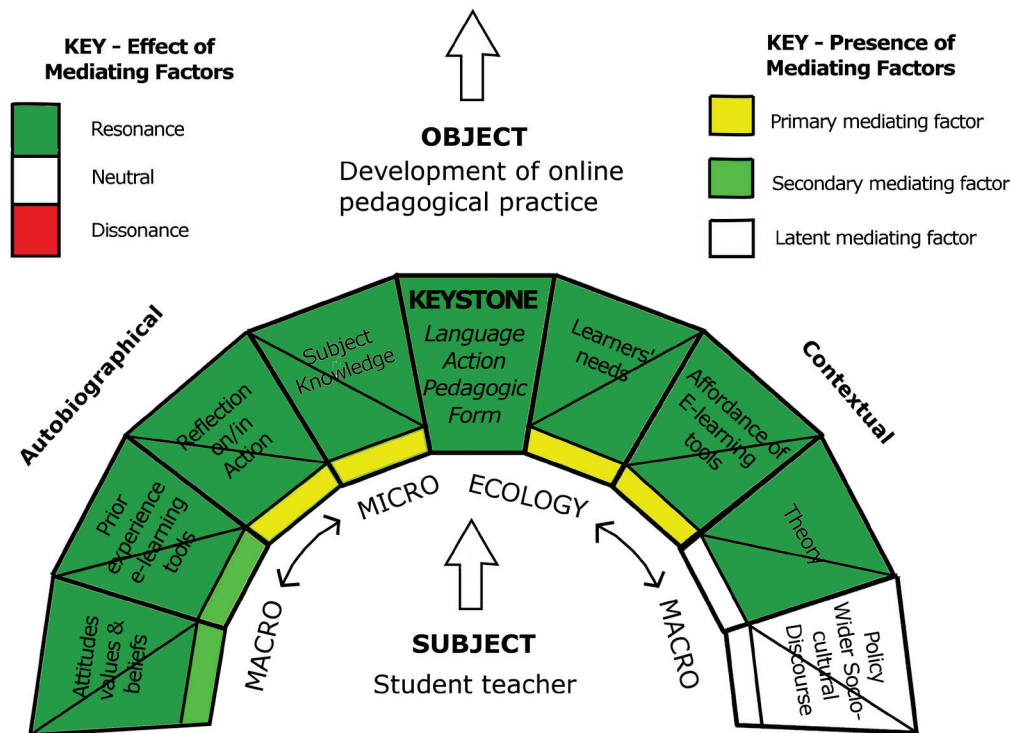


Figure 7.10: Visual representation of mediating factors at play



### 7.2.2 Primary mediating factors

With regards to the intervention carried out with the children, Laura's orchestration of the online resources she had made available to the children was clearly evident (Kennewell, 2008). This was seen through the way Laura and her partner tried to facilitate connections between the online activities through the discussions with the children. That is, like Maria and her partner, Laura and her partner discussed strategies for getting the children to make connections between the subject related online games and activities they were engaged with. They encouraged the children to bring their observations to the discussion forums. For example Laura remarked in her interview:

“It was hard I think having all the resources there and trying to get **them** to make the link between doing that and then having a conversation about it or you know leaving a post about it and even talking it through with Sam talking about how to phrase a question so that it drew on what they'd been doing in the lesson or during the week or something...it was quite hard.” (Interview, 21<sup>st</sup> February 2008)

That is, Laura felt it was important to exploit the affordance of the e-learning tools to make connections through the discussion to the online activities and significantly she saw this as being achievable through her own and her partner's use of questioning online. The use of language to control the pedagogical direction of the online dialogue with the children was something that she referred to again during interview drawing on the terminology of 'pushing' as Maria had done, to control the dialogue as Laura noted:

“So it wasn't sort of starting off and then letting them go wherever it went. We kept coming back in to help things or push it in the right direction which actually worked I think quite well in the second go because we hadn't planned for that in the first one because obviously we weren't sure how it would go but the second one I think was probably more successful.” (Interview, 21<sup>st</sup> February 2008)

Laura and her partner had identified key questions relating to the subject knowledge being covered and the resources made available to the children in order to steer the online conversations with the children towards the knowledge and understanding they wanted the children to engage with. This was evident in the analysis of the online dialogue as can be seen from this exchange, which I have transcribed from the discussion forum:

**Laura:** Having had some time to look around the site and explore the games and activities, what do you think it means to be green?

**Sam (partner student teacher):** I think it means we should question everything we do and think about its effect on the environment. If the effect is to damage the environment, then we should change our habits to cause less damage. What do you guys think?

**Child 1:** doing lots of recicing

**Laura:** I think you are right \*\*\*\*\*. What sort of things do you recycle?

**Child 2:** glass, plastic, cardboard, paper and metle. What do you recicle?

**Laura:** I recycle paper, plastic bottles and cardboard. Apart from recycling, what else do you think it means to be green?

**Child 1:** you could have green bins what collect worter

**Laura:** That's an excellent idea \*\*\*\*\*! Water is something a lot of people take for granted so making an effort to save it in anyway we can is a great start! Do you know anyone that has a green bin?

**Child 1:** my gandad has a recing bin

**Laura:** Recycling definitely means you are green. Do you recycle any of your rubbish at home \*\*\*\*\*?

(Discussion forum -Tuesday, 6 November 2007)

As can be seen here Laura and her partner adopted the strategy of finishing their posts with a question that either focused the discussion with the children further or opened up another line of enquiry as she commented in her interview 'either I or [Sam] would come up with another point and it would either keep them focused on task or they might think actually I hadn't thought about that' (Interview, 21<sup>st</sup> February 2008).

The strategies that Laura developed to facilitate the children's online activities appeared to be influenced significantly by her ability to reflect critically and openly on their activities with the children. This critical reflection was seen in her online reflections posted after each of the sessions with the children. In her first reflection, 31<sup>st</sup> October, 2007 (Figure 7.11), Laura was open about being 'nervous' regarding what to expect from the children. She was both responsive to the children and pro-active. For example from her reflection in Figure 7.11 it is clear that Laura was gauging the children's capabilities, as she was 'impressed' by how quickly the children took to the new environment. On the other hand she also intervned to model 'how they could go back and reply to other postings at a later date if they wanted.'

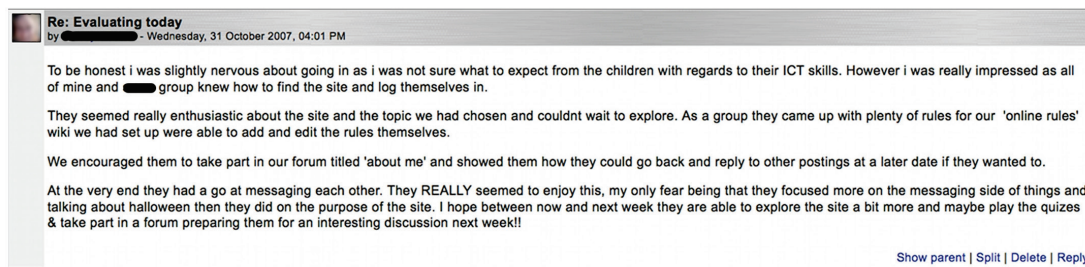


Figure 7.11: Reflection posted to discussion forum 31<sup>st</sup> October

Laura's second reflection 8<sup>th</sup> November 2007 (Figure 7.12), posted after she had spent a session working online with the children demonstrated deeper critical analysis and reflection on the experience.

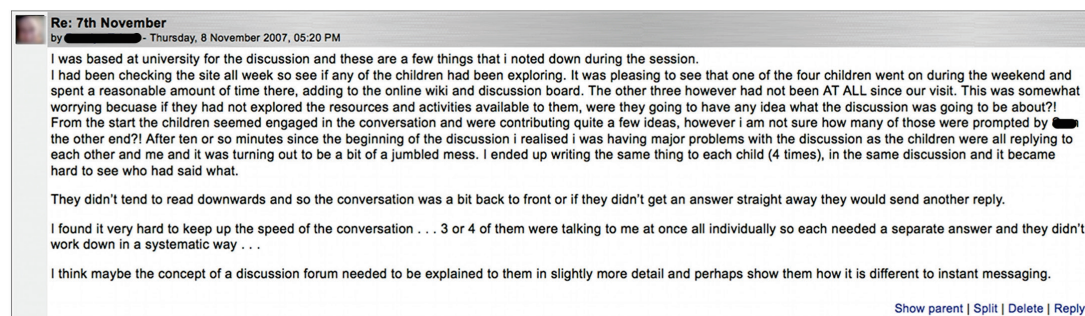


Figure 7.12: Reflection posted to discussion forum 8<sup>th</sup> November

What is clear from this reflection (Figure 7.12) is that Laura had reflected on her experiences regularly; she had been 'checking the site all week' using the tracking facilities in the VLE to see if the children had engaged further with the activities, and drawing conclusions from this as to the implications for the next session. In the later part of this reflection (Figure 7.12) she reflects on the experience of using the discussion forum itself with the children and analyses what she perceived to be the issues. That is she did not feel that the children were utilising the forum as effectively as they could due to their inexperience of using online discussion. This lead her to the conclusion that 'I think maybe the concept of a discussion forum needed to be explained to them in slightly more detail and perhaps show them how it is different to instant messaging,' (Figure 7.12). The key here appears to be that Laura's tendency to analyse and reflect on her actions lead to the development of further pedagogical strategies utilising the affordance of the e-learning tools to meet the children's needs. For example having reflected upon the issue concerning the children's lack of experience in using the discussion forum as a

tool, Laura and her partner took steps to address this during the second intervention. Asked to describe why she thought the second intervention was more successful she remarked:

“Em.... just I think the fact that the kids had done it before so it wasn't something that was just so new and we'd had time to explain to them ....we used the previous week as an example looking at the previous post for example and then answering that you know showing them that if you could answer things further up. If you hadn't been answered straight away you didn't need to panic and keep posting because it will get answered. It just seemed a lot more organised and even the kids could see where the conversation was going.” (Interview, 21<sup>st</sup> February 2008)

That is, the children's and student teachers' own previously generated content became an educational resource itself. Laura and her partner exploited the more permanent nature of online discussion in contrast to ephemeral classroom discussion to develop the children's understanding of the medium and the process of online discussion temporarily putting to one side the subject knowledge aspect of the intervention. In this way Laura and her partner went further than merely developing strategies for responding to the children within the discussion forum. They orchestrated opportunities within the intervention to enable the children themselves to critically reflect on their use of the discussion forum, drawing on their previous postings.

Consequently, it would appear that the affordances of the e-learning tools, the needs of the learners, engagement with the subject related content and Laura's ability to reflect on her actions and strategies were all closely linked within the intervention. These mediating factors appeared most explicitly within her case as I have outlined. Furthermore as I have shown they seemed to resonate with each other leading to the development and adaptation of Laura's online pedagogical strategies. Whilst at one stage her strategies were focused on enabling the children to make links between the subject knowledge through the different activities, at another stage the focus moved to examining how to use the e-learning tools more effectively, triggered by her critical reflection on the intervention. However, also significant in Laura's case were the secondary and latent layers of mediating influences which although less evident in the data also appeared to contribute towards this resonance. I will examine these now.

### 7.2.3 Secondary and latent mediating factors

Laura's attitudes, values and beliefs about e-learning tools combined with her prior experiences appeared to be particularly significant within her perceptions of the intervention with the children. Although these were interpreted as secondary mediating factors within the overall intervention, these mediating influences also resonated sympathetically with the other mediating factors discussed hitherto within Laura's case (Figure 7.10). Laura appeared to value e-learning tools and social networking technologies equally in terms of their usefulness and potential both in her social and professional life as reflected through her questionnaire responses. This was reflected in her attitudes to her mobile phone (Figure 7.13).

**1. Mobile Phone Use**

1a. Do you own a mobile phone?

Yes    
 No  If no go onto Question 2

b. How would you **rate** your mobile phone's importance to you in your social/leisure life?

Could **easily** cope without it             Could **not** cope without it

c. How would you **rate** the importance of your mobile phone to your professional life?

Could **easily** cope without it             Could **not** cope without it

d. How you use your mobile phone to support you in your social and leisure life.

To arrange meetings with friends by phone call + text, to send photographs to family.

e. How do you use your mobile phone to support you in your professional role?

Meetings with companions at University keeping in contact with teacher on placements.

*More equal for in social/prof life.*

**Figure 7.13: Attitudes and values associated with mobile phone**

As can be seen, her mobile phone was just as important for keeping in touch socially with friends and family as it was for keeping in touch with mentors and teachers when on school placement or university friends relating to work issues. A similar perception was reflected in relation to her use of discussion forums as can be seen in Figure 7.14:

Baseline Survey

**2. Online Communications**

2a. To what extent do you participate in online discussion forums?

Not at all   
 Occasionally read postings but do not post   
 Often read postings but do not post   
 Occasionally read and post   
 Often read and post

b. How would you rate the **usefulness** of discussion forums in your social and leisure life?

Of **no** use to me 

					✓				
--	--	--	--	--	---	--	--	--	--

**Very** useful to me

c. How would you rate the usefulness of discussion forums in your professional role as a teacher?

**Very** useful to me 

					✓				
--	--	--	--	--	---	--	--	--	--

 Of **no** use to me

d. If you have indicated that you **do** find discussion forums useful in your professional role as a teacher, briefly describe how below:

Its nice to read thoughts & opinions that perhaps weren't shared class... Sometimes more involved/focused discussion.

e. Briefly describe any other forms of online communication you partake in (e.g. chat rooms, video conferencing) and identify whether your use of these is social, professional or a combination of both of these.

Member of Myspace + Facebook... often chat through msn to uni friends regarding work issues... Webcam to mum and family 3 or 4 times a week.

*Handwritten notes:*  
 Again equal weight - leisure - social life - professional life. Although neither is particularly prominent!  
 Professionally see role as extend face-to-face setting.  
 balance again

Figure 7.14: Attitudes and values associated with discussion forums

As can be seen by her responses she ‘occasionally read and posted’ to forums. Professionally, she believed that discussion forums could act as an extension to face-to-face learning, commenting in response to question 2d (Figure 7.14) that it enabled her ‘to read thoughts and opinions that perhaps weren’t shared in class’ and that sometimes she felt online discussions led to ‘more involved/focused discussion.’ From the outset it appeared that Laura’s perception of e-learning tools was that they offered significant educational opportunities as well as being useful tools within her social world, based upon her prior experiences and her attitudes and beliefs.



However, Laura also offered further data regarding the potential source of her positive attitudes and beliefs regarding e-learning tools. When asked about how she valued the potential of online communication tools after the school-based intervention, Laura offered another significant piece of information about how her mother had taken part in an online course in the recent past. This had obviously been a positive learning experience for her mother which seemed to also influence and frame Laura's approach to the use of the technologies within her own practice as she said:

“from personal experience .....but my mom did....I can't remember what it was but basically she did some course and it was all online and you know she met up with these people. And she learnt so much from doing it you know and when I said I'm doing this she's probably the one who's convinced me most that it would be worth giving it a shot and that's from not taking part so actually taking part gives you a different view Emm yes I think it's definitely something worth exploring.” (Interview, 21<sup>st</sup> February 2008)

That is, Laura's perceptions of her mother's experience of e-learning appeared to be significant in framing her perception of the value of the intervention she had engaged with through the project and module. Laura's experience of the intervention and using the online communication tools with the children differed to Maria's and Karen's in the lack of any ambivalence towards the use of the tools. Whilst Laura acknowledged that it was difficult at times to focus the discussions with the children and to get them to make connections between the games and activities they were engaging with overall she perceived it to be ‘incredibly valuable because I'd read quite a lot about it and heard a lot but I'd never actually taken part in something like that and especially with the children.’ The authenticity of the experience appealed to Laura. Furthermore, Laura made connections between the use of the tools and the wider pedagogical context commenting that:

“just either me being one end and [Sam] the other and talking to them as they're taking part in a conversation and what they're saying is so much more than what they're able to type and that sort of thing. You know just the chatter amongst them when they do the games and the activities that you wouldn't get from just sort of hearing about it.” (Interview, 21<sup>st</sup> February 2008)

That is, Laura's perception was one that valued the online activities and discussions with the children as representative of a richer experience not always evident or represented in the online textual responses from the children. The lack of detailed or focused responses from the children in the online discussions were not seen by Laura to invalidate the use of these tools

for learning and did not appear to lead to any feelings of ambivalence towards their educational use in the way that it had done for Maria and Karen. In this way Laura's positive prior experiences of e-learning tools, combined with her attitudes and values regarding their educational potential resonated sympathetically with the primary mediating factors discussed previously.

A sympathetic resonance between mediating factors also appeared to be evident in Laura's application of theory to practice. Indeed Laura's case seemed to contrast to the others again in that unlike some of the other cases Laura did seem able to make connections between policy and theory regarding e-learning and her professional practice. This was apparent in the data as I will show. For example, in her assignment, Laura discussed what she perceived to be the importance of the children having agency over their online activities as seen in the following extract from her assignment:

going to have with citizenship. In order for children to participate and exchange ideas, it was imperative that there was a good online community in which they could participate. From the outset a list of online rules were created by the children in a wiki, thereby developing a sense of ownership and valued contribution by the individual to the group activity (see appendix 1). I was aware in my own mind that even if all the resources were outstanding, if this vital piece of the puzzle was missing, the potential benefits could in fact be lost.

*ownership/value agency*

As can be seen in this extract, from the outset Laura theorised that they needed to establish a 'good online community' which she characterised as being one where individuals' contributions were valued by the group and a community over which the children had agency. This theoretical perspective was latent within the overall design and intention of the online resource area created by Laura and her partner. Subject focused discussion forums were not introduced until the end of the sequence of activities as can be seen from the annotated screen capture of their home page in Figure 7.15.



The screenshot shows a Moodle course page with a sidebar on the left containing navigation menus like 'People', 'Activities', 'Search Forums', 'Administration', and 'Course categories'. The main content area is titled 'Topic outline' and contains a sequence of seven numbered activities:

- Activity 1: Welcome!!** - Includes a video introduction and a 'Go Green!' link.
- Activity 2: RECYCLING!!** - Features an illustration of a robot and a boy, with a link to a 'Rapping Robot' video and a 'Recycling Quiz'.
- Activity 3: SAVING ENERGY!!** - Includes a lightbulb icon and a link to a 'Saving Energy' resource.
- Activity 4: Discussion** - Prompts users to share ideas on 'What do you think it means to be green?' and 'What do you do?'.
- Activity 5: Transport pollution** - Includes a link to a 'Transport and Pollution Discussion' forum.

Annotations on the right side of the page, indicated by blue arrows, provide context for the design and sequencing of these activities:

- An arrow points to the 'Welcome!!' activity with the text: 'Use of image and poetic conventions in language to draw children in through child-centred introduction'.
- An arrow points to the 'RECYCLING!!' activity with the text: 'Children contribute to a wiki to negotiate online code of conduct and then contribute to discussion forum about themselves. Child-centred interactive activities focused on subject content.'
- An arrow points to the discussion activity with the text: 'Subject focused discussion to share and exchange ideas'.

Figure 7.15: Screen capture showing design, layout and sequence of activities

Commenting in her assignment Laura noted that ‘it was vital that the resources included in the Go Green area on Moodle were interesting and exciting and attracted the children’s attention from the very beginning.’ This intention combined with the notion that agency also needed to be established, was clearly latent within Laura and her partner’s choice, design and sequencing of the activities as illustrated in Figure 7.15. A key element at play here appeared to be the way in which Laura and her partner sequenced the various online activities. It appeared that they were progressively focussing the resources and activities but more importantly they were doing this sympathetically in relation to the children’s needs in order

to ensure the children retained agency and interest in the activities and resources (Luckin, 2005). That is, Laura's theoretical perspective and perception of the intervention appeared again to resonate sympathetically with other mediating factors such as responding to the children's needs and exploiting the affordances of the e-learning tools.

#### 7.2.4 Summary

Overall, although there were a range of mediating factors at play during the intervention, these rarely caused significant tension. On the contrary, they appeared to resonate sympathetically with each other. Autobiographical mediating factors such as Laura's prior experiences of e-learning tools including those of her mother seemed to contribute to Laura's perception that the experience could also prove empowering for the children she was working with. Whilst there was significant activity focused upon the subject-related content covering ways of being environmentally friendly, this was not to the exclusion of the children's needs as they manifest themselves differently throughout the intervention. For example, Laura and her partner were able to refocus the activities from time to time either to develop the children's agency over their work or to simply model and discuss how to use the tools such as the discussion forums more effectively. Equally they were able to develop strategies within the discussion forum for eliciting more thoughtful engagement by the children with the subject matter, through specific questioning strategies. What appeared to be key in Laura's ability to adapt her own online pedagogical practice was her ability to reflect critically upon her actions seen again in her assignment when she reflected after the intervention:

The teacher needs to step into role of e-facilitator (Salmon, 2002, p172). During my school based online discussion, I purposefully posed questions to focus the discussion, stimulate them and constantly get them rethinking. In essence, providing the right context for scaffolded social constructivist realities to develop. (see appendix 2&3). Reflecting on the experience, I believe that had I played the part of 'devils advocates' it may have encouraged a larger flow of ideas. Nevertheless I found the forum was giving the children a real reason for using language, with development being made in both their communicative language skills and their co-operative writing skills. Attempts were made in

Laura synthesises various theoretical perspectives regarding her role as an e-facilitator in this extract, identifying how she 'purposefully' developed strategies as a facilitator to engage the children. What is significant however is the way in which she indicates this is an ongoing

process for her, as she conjectures ‘I believe that had I played the part of devil’s advocate it may have encouraged a larger flow of ideas.’ That is there is a sense even after the intervention that Laura will continue to reflect and theorise from this experience in order to adapt her online pedagogy yet further.

## 7.3 Narrative Analysis: Joe

### 7.3.1 Primary mediating factors

The overall view from Joe's data was one of resonance. His prior experiences of using the tools enabled him to both exploit the tools effectively within the intervention and respond to the children's needs. These three mediating influences – prior experience of the tools, affordances of the tools and his perception of the children's needs - formed the primary mediating factors within the intervention with much of the data emphasising these (Figure 7.16).

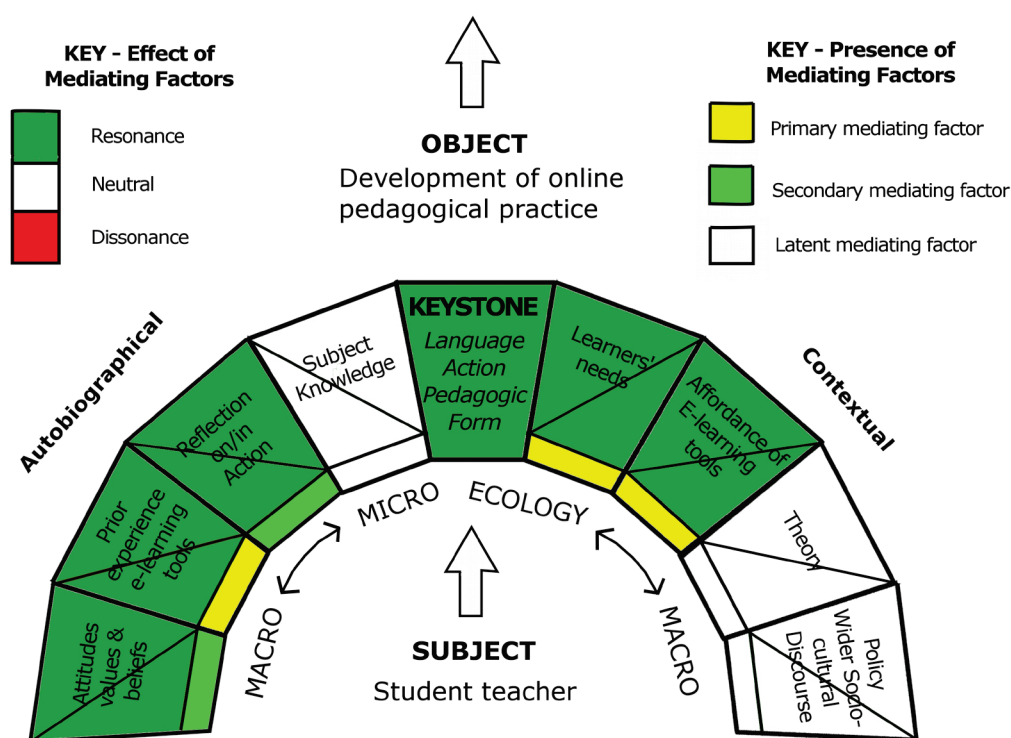


Figure 7.16: Visual representation of mediating influences

Joe's prior experience of e-learning tools was firmly rooted in his social life. He was a regular user of social networking sites such as MSN and Facebook as he revealed in his interview and his responses to his survey. A significant prior experience of using social networking that had impacted upon him was his setting up of a group in Facebook as a member of the organising committee for a ski trip in the University Snowboarding and Ski Club. He referred to this on his survey (Figure 7.17):

b. If you do publish online please indicate the purpose of this activity to you on the scale below:

This is a professional activity             This is a social activity

c. If you **do** publish online briefly describe **why** this is important to you.

I am in the committee for University of Brighton ski or snowboard club (UBSC), let members know what is going on

Figure 7.17: Extract from Joe's survey

However, it was in the interview conducted that Joe revealed the real impact of organising a social event using social networking had had on him. Although it had been a time-consuming activity he had engaged in, it had also been rewarding in terms of providing an opportunity for members of the snowboarding and ski club to share in the excitement about their future trip, get to know people beforehand and then share their experiences afterwards as this extract from the interview conducted with Joe illustrates:

*Joe: FaceBook takes up my life (laughing...) erm I think it's good way to while away time (ironically) ...it just seems to fly away time when I'm using FaceBook. I mean all of my friends are on it now. I share images erm...of my ski trip. Within the University we set up a group so that beforehand we could meet each other....and then afterwards we'd share and reminisce.....post images of the holiday and videos. Ye erm I mean I use it quite heavily and I set up doing things and playing games. But also StudentCentral...that's really handy rather than the tutor e-mailing everyone. You just go up on there and check it (possibly referring to the announcement page).*

*KT: Hmm it's interesting you say you set up a group on FaceBook for the trip what's the kind of incentive? What do you get out of that?*

*Joe: Well as web administrator on the committee it's just to make people feel included and if they're part of a group it's like oh yeh and they start to get excited before we go and so like it's the anticipation of what's to come and people are like...people who've been on trips*

*before can say oh yeh it's really good this has happened. And then afterwards just sharing because there was about 140 people and like almost 2000 photos (laughing)*

*KT: Yes*

*Joe: Which is impossible to get through them all...*

*KT: And are they all online?*

*Joe: Yeh they're all online and right if you put your photos up and your friend is in them you can tag the photos so you know you're there...so you don't have to trawl through 2000 photos you can just see the ones you're in or specific ones*

*KT: So do people do that. I mean do they take the time to tag them?*

*Joe: Yeh a lot of people I mean personally I tag my own and you get request like they've tagged you and you have a look see if it's incorrect untag it so yeh it's really good.*

(Interview 8<sup>th</sup> January 2008)

Joe's prior experiences of using social networking tools appeared to resonate throughout his experience of the intervention, using the tools in the school-based context. It was clear that his prior experiences in this respect were a primary mediating influence (Figure 7.16).

This was seen in his approach to the intervention from the start. Joe and his partner dedicated the first session to familiarising the children with the VLE and its tools, focusing only on social exchanges and responding to whatever the children brought up in way of discussion about themselves. This focus on the social aspects of using the tools from the start was seen in the sequence of activities on their front page Figure 7.18:



The screenshot shows a Moodle course page for 'Traffic (2009-2010)'. The page is titled 'Traffic (2009-2010)' and shows the user is logged in as Keith Turvey. The page layout includes a left sidebar with navigation menus for People, Activities, Search Forums, Administration, and Course categories. The main content area is titled 'Topic outline' and contains a 'Welcome to Everyone!!' message. The message states: 'In the first session we will come and visit you in school and introduce ourselves and the subject that we will be discussing over the next couple of weeks. We need to make sure you all know how to use Moodle!! In the social forum below you can chat about things with other pupils, reply to our question to see if you can use Moodle!! Speak to you soon'. Below the message is a 'Social Forum' section with five items:

- 1 We have set up a Wiki (just below) where you can add to our Golden Rules, so please add what you think should be in our Golden Rules!!  
Golden Rules  
You?
- 2 In the 2nd session we would like you to look at the topics below:  
If you can click on "how do you get to school" and if you can reply to this forum  
Then take our Traffic Safety Quiz  
And if you have time reply to our "You?" forum above  
How do you get to school?  
Traffic Safety Quiz
- 3 Stop, Look, Listen, Live  
Useful Website for Road Safety
- 4 What Can You tell me about Road Safety?
- 5

A blue arrow points to the 'Golden Rules' forum post. A text box on the right side of the page contains the following text: 'Front page shows focus in first session on getting to know the children and helping them to use the tools and VLE through social forum. Focus on the subject knowledge in brought into the second and third sessions.'

Figure 7.18: Screen capture showing sequence of activities on front page

Furthermore, the opening child-centred discussions with the children took on an informal character that almost ‘teased’ the children into contributing and responding to them at times in the way that an online exchange between familiar friends might evolve in a social network as illustrated in Figure 7.19:



VIPs » T(J&O) » Forums » You? » favourite tv programme

Search forums

Display replies in nested form Move this discussion to ...

**favourite tv programme**  
by [redacted] - Wednesday, 7 November 2007, 11:39 AM  
My best tv programme is horied henry.  
[Delete](#) | [Reply](#)

**Re: favourite tv programme**  
by [redacted] - Wednesday, 7 November 2007, 11:42 AM  
MY FAVOURITE POGRAM IS CHAMPONS LEUGE LIVERPOOL-8-BLBLBLBLB-0-  
[Show parent](#) | [Split](#) | [Delete](#) | [Reply](#)

**Re: favourite tv programme**  
by [redacted] - Wednesday, 7 November 2007, 11:44 AM  
[redacted], im sorry to say this but it was a lucky result. remember man u 7 roma 1, thats a result to jump up and down about. But well done liverpool for doing something right. hehehe  
[Show parent](#) | [Split](#) | [Delete](#) | [Reply](#)

**Re: favourite tv programme**  
by [redacted] - Wednesday, 7 November 2007, 11:59 AM  
MAN U SCORED 7-1 BUT LIVEPOOL SCORED 8 0  
[Show parent](#) | [Split](#) | [Delete](#) | [Reply](#)

**Re: favourite tv programme**  
by [redacted] - Wednesday, 7 November 2007, 11:43 AM  
well done [redacted] for starting a new one. Can you tell me more about horrid henry??  
[Show parent](#) | [Split](#) | [Delete](#) | [Reply](#)

Figure 7.19: Informal discussion getting to know the children

In this sense, Joe and his partner's approach to the use of the tools with the children was responsive to the children's needs in that it enabled them to become familiar with the tools they were going to be using in later sessions and helped to orientate them to the online environment. This was clearly Joe and his partner's intent in the early stages of the intervention as they remarked in the text posted on their front page in Figure 7.18 above 'we need to make sure you all know how to use Moodle.' However, Joe and his partner's own ease at using social networking tools appeared to resonate further with their intentions here in that the response from the children was positive. The children took to the tools easily and also developed the confidence to explore other tools such as the instant messaging facility within the VLE. Joe referred to this phenomenon in his interview and again what was evident was the ease with which Joe responded to the children exploring the messaging function. Rather

than the children's use of instant messaging being a point of tension for Joe, he saw it as a way of contacting them individually and more directly in order to focus their responses to the subject-focused sessions later in the intervention as illustrated here in his responses during the interview when reflecting on the discussions and the children's use of instant messaging:

*Joe: Er the majority of them were off topic. The messaging especially they just found it interesting to message me. The conversations were like I said at first limited and then trying to open up the conversation and bring others in asking what did others think? Sometimes erm spelling it was a bit difficult seeing what they had written and trying to decipher it.*

*KT: Right*

*Joe: Erm I think the group I had in almost every discussion about the topic we had everyone responded at least twice with some more than others because they were more confident or they were less distracted and more on task. Erm and they understood what I was asking them and were able to come back with proper answers....ones that I could use and understand.*

*KT: So this tension between what you say on task and off task. How would you describe what is on task for you?*

*Joe: Well for what I wanted them to do then was complete the work I'd set ...the quizzes....like that. I suppose they were learning even without doing the work I'd set like the topics....they were still learning how to use Moodle and interacting with each other...because I mean \*\*\*\*\* was online up here (at university) and I was there face-to-face....so getting them to sit down and stay in their seat. Then when I was up here (at university) \*\*\*\*\* was away so it was a bit harder. I had to try and keep them on task by erm making it more interactive and more engaging...making it more interesting to them and messaging them more because that's what I realised they enjoyed doing. So I did it through that way...they'd speak to me and respond that way.*

(Interview 8<sup>th</sup> January 2008)

The end of this extract is particularly interesting. In response to Joe being based at the University and his partner who was meant to be in school being absent, Joe adopted the use of the instant messaging tool himself to exercise greater teacher presence within the online session. He was able to contact the children individually, as a teacher might use targeted questioning in the face-to-face classroom environment. That is, realising they were motivated by the use of this tool he adopted it and used it to focus the children on the tasks as well as manage any issues he perceived there might be in the classroom setting. This was evidenced in the trail of messages between Joe and the children. For example this extract from the instant messaging history shows that Joe used the tool throughout the intervention with the children (Figure 7.20):



Wednesday, 31 October 2007

[03:53 PM]: Hello!

It was very nice to meet you all!

In the 2nd session we would like you to look at the topics below:

If you can click on "how do you get to school" and if you can reply to this forum

Then take our Traffic Safety Quiz

Thursday, 1 November 2007

[07:11 PM]: hello  
from

Wednesday, 14 November 2007

[10:39 AM]: Hello  
Today I want you to look at the Useful Website for safety then tell me what you thought about it in the forum below

Wednesday, 14 November 2007

[11:24 AM]: said hello

Oliver Hanson [11:25 AM]: hello and , is there not enough computers for you to have one each?

[11:26 AM]: no but i can go down stairs

**Figure 7.20: Use of Instant messaging for direct contact with children**

As can be seen in this extract showing the history of messages between Joe and some of the children, after the first session on 31<sup>st</sup> October 2007 he used the Instant Message facility to send a message directly to each child in his group informing them of the task for the following week. The last message here sent on the 14<sup>th</sup> November 2007 at 11.24am responded to the fact that the child was sending a message on behalf of herself and her partner. Concerned that without his fellow student teacher present in the school to ensure that the two children had an equal opportunity to contribute to the session he used this more direct form of messaging to enquire if they could find a computer each. In this way Joe was carefully selecting his use of the e-learning tools to meet the needs of the children in his group as they changed.

Joe's prior experience of using e-learning tools within social networks and his ability to respond to the needs of the learners through adopting different online tools for different purposes appeared also to influence the subject-focused discussion he and his partner engaged the children in. Due to the children's confidence established through the initial social engagement in the VLE there seemed to be equivalent positive responses to the subject focused discussion held in the discussion forums. What was particularly noticeable when analysing the online discussion forums from Joe and his partner's group was the way in which the children responded to each other and the student teachers directly with their postings. The children responded well to questions online and were not afraid to challenge each other or the student teachers regarding how environmentally friendly or indeed practical different modes of transport to school were as this short extract from one of the discussions illustrates (Figure 7.21):



Figure 7.21: Extract from online discussion

As illustrated here the children's posts in the forum responded to each other in a conversational manner with the theme of how to be environmentally responsible threading through them. In encouraging the children to use the instant messaging facility to communicate with each other and their student teachers it appears the children felt at ease contributing their ideas to the forum and picking up on each other's contributions. That is from the perspective of contingency it would appear that Joe and his partner's ease of using social networking skills enabled them and their pupils to exploit the affordances of the e-

learning tools to share and to certain extent challenge each other's ideas about how to protect the environment.

### 7.3.2 *Secondary and latent mediating factors*

On the secondary level of mediating influences, Joe's own attitudes, beliefs and values about learning and what engages children in this process appeared to play a secondary but nevertheless significant role in his perceptions and intentions throughout the activity.

Similarly, as I will explore here, there was evidence that Joe's reflections on his actions and the children's responses was a significant albeit secondary mediating influence within the intervention (Figure 7.16). When Joe was questioned about how he might make use of e-learning tools again at a later date in his professional practice after his experiences within the intervention he offered a glimpse of how he drew and reflected on his own experiences as a learner at school to empathise with his own pupils. For example he hypothesised about how he might use e-learning to support children's knowledge and understanding in Geography in future (Interview, 8<sup>th</sup> January 2008) :

“I'd try and make it cross curricular...even make it a learning journey. So there'd be a bit of geography in there and maybe using the ICT as well. I suppose I could definitely see that children will benefit if they see it's more interesting. Yeh so in my final placement if I'm doing Geography rather than.....(pauses).....all I remember of Geography is that colouring in and maps and things....so I mean make it more engaging...”

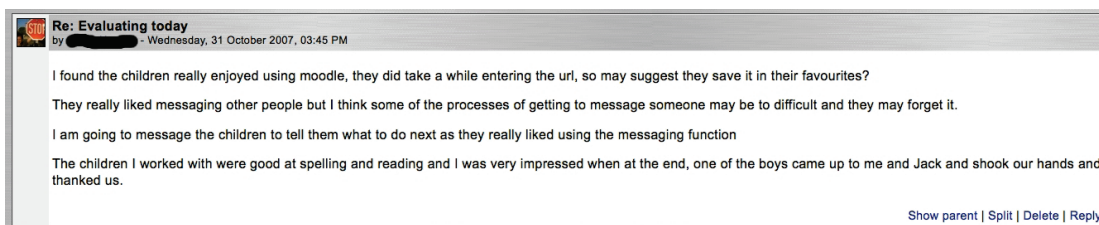
(Interview 8<sup>th</sup> January 2008)

Clearly, he remembered his own experiences of Geography at school as not being very engaging or challenging and perceived e-learning tools as being implicated within the process of making such learning much more engaging for his own pupils. Similarly, at times Joe's remarks about the use of such technologies revealed quite a determinist view about the potential of new technologies to engage learners as shown here when asked about how he believed the use of e-learning tools could make the learning 'engaging':

“Er just using the technology alone. I mean a lot of children well it's school but it feels a bit different so they're more excited...rather than having to sit down and write things. So they could go and research on the Internet themselves and come back with information say if we were doing about the Egyptians...erm and then they could discuss it over the discussion forum and post their own images or videos they find....trying to make it different to drawing and colouring in.”  
(Interview, 8<sup>th</sup> January 2008)



Joe's comment that 'well it's school but it feels a bit different,' is also telling in that again he seems to refer implicitly to his own engagement with social networking tools outside of formal education, drawing on this as being indicative of the ways in which technologies such as online communication tools that bridge both formal education and social networking can bring new opportunities and excitement to learning. That is, Joe's prior experiences of e-learning tools appeared compatible with his attitudes, values and beliefs about the learning process and the role that technologies can play within this. Further evidence of Joe's beliefs about the importance of making learning fun was evident in his own personal reflections posted to the student teacher's forum (Figure 7.22). For example:



**Figure 7.22: Personal reflection**

It is evident from this personal reflection Joe posted to the student teacher forum after working with the children, that he found significant satisfaction in the fact that the children had enjoyed the activities he and his partner had planned for them, and showed this in their parting gesture of shaking hands. It is also further evidence of the way in which Joe capitalised on the children's enjoyment of the instant messaging facility, using it with pedagogical intent as he remarked 'I am going to message the children to tell them what to do next as they really liked using the messaging function,' (Personal Reflection 31<sup>st</sup> October 2007). That is Joe reflected on his actions and the children's response in order to identify how he might take advantage of their enjoyment of instant messaging for pedagogical gain. In these ways, Joe's own beliefs about the importance of enjoyment in the learning process and his reflections on the role that he perceived new technologies could have in this was significant and resonated with other mediating factors discussed hitherto in relation to the intervention.

In my narrative analysis of Joe's case it was possible to detect the presence of such mediating influences relating to policy, theory and subject knowledge to varying extents. However, the




presence of these was often secreted within the data. Furthermore it often appeared that any affect these mediating influences appeared to have was at most minimal and predominantly neutral in terms of the other mediating factors (Figure 7.16). From the perspective of subject knowledge, Joe's level of understanding of the subject area in focus was sufficient to enable him to create a range of online activities and resources appropriate for the children including a quiz (Figure 7.23)

**Preview Traffic Safety Quiz**

[Start again](#)

**1** (8)  
Marks: -/1

What **MUST** you always do before crossing a road?




Answer:  a. Stop, Look & Listen  
 b. Listen, Look & Cross  
 c. Cross anywhere you like

[Submit](#)

**2** (9)  
Marks: -/1

What's the most dangerous time of year for road accidents?



Autumn

Answer:  a. Autumn  
 b. Winter

**Figure 7.23: Online quiz**

However, his attitudes and beliefs about the importance of the subject knowledge being addressed was subordinate to the needs of the children to such an extent that as discussed previously the first contact session with the children was dedicated predominantly to enabling the children to become familiar with the online environment of the VLE through socialisation; subject specific content was put to one side. The focus on subject related content was brought in by Joe and his partner only when they felt the children were ready and able to use the online tools appropriately for this purpose.

Similarly, although evident in some of the data, the mediating influence of different policy or theory contexts appeared to remain as a background factor to the intervention for Joe. For

example in the interview conducted with Joe, he sometimes made passing reference to policy or theoretical contexts:

“Well I’d never used Moodle before for my teaching...but I’d used StudentCentral (BlackBoard – University based VLE) for my own use and found that really helpful. But erm for teaching I can access more students in the class. For example (referring to Moodle) maybe a pupil is more of a visual learner so I can put up video and images rather than just text and it’s more engaging and interactive...and it’s easier to keep the whole class engaged with it so there’s less behavioural issues I suppose (questioning tone).”

(Interview 8<sup>th</sup> January 2008)

That is, to a certain extent Joe theorised about the potential of the online tools to increase access to learning through reference to theories surrounding learning styles and the kinds of imprecise discourses found in policy documents concerning the potential of new communications tools to ‘personalise’ the process of learning (DfES, 2005). However, such references from Joe were firmly in the background. During most of the opportunities for reflection, Joe focused predominantly on describing the intervention; how the children responded and what he and his partner did to respond to the children’s needs. It is also telling the way in which Joe’s voice changed to a questioning tone when reflecting on policy and theoretical background. These were areas of uncertainty and were not yet meaningfully synthesised within his online practice. This was particularly evident in the assignment Joe wrote in response to the intervention and the module. Of the fourteen paragraphs in his essay twelve of these discussed theories relating to e-learning and e-learning policy in general. Two paragraphs were dedicated to discussing the online intervention he had carried out with the children and this was mainly descriptive with some reference to issues of agency and how he felt the children responded. His reference to the intervention within his written essay illustrated again how the learners’ needs and responses were much more of a mediating influence. For example:

I felt the social software Moodle was not too difficult for my group of pupils, it was challenging them just enough to keep them engaged, a limitation I found was some of the pupils spelling, as this would make their responses hard to read and understand. See the last post on Appendix A, the pupil has written "At nit you must wher brit cloz" I managed to translate that as "At night you must wear bright clothes". The pupils learnt more than just about the topics I set, they learnt the skills how to use Moodle also. We also took away the authority by using our first names, as we seemed like a friend and not like a teacher, so the pupils were more inclined to do the "fun" more engaging work for us and this also lead to less behavioural issues. Some of the pupils were more confident with a certain topic or with the technology so they could answer our questions and complete the work and also help others, by showing them how to insert smiley faces or upload images.

As this extract from his assignment appears to show Joe's theorising stemmed from his perceptions of the different ways in which the children responded. That is, it was more of a bottom-up process as for example he hypothesises in the extract that the less formal approach adopted through the use of first name terms was a significant aspect in engaging the children. In contrast to Karen, extrinsic discourses around children's vulnerability in online contexts, stemming from wider socio-cultural and policy agendas, was absent. There would appear to be an issue here between intrinsically generated theory grounded in Joe's experiences of the intervention and extrinsic theory or policy that appeared to impact upon Karen's perceptions of the intervention. Such contrasts as these lend themselves to further discussion from the perspective of constructions of professional learning as an iterative process as examined earlier (Eraut, 1994; Laurillard, 2002), and I will return to this theme in Chapter 10.

### 7.3.3 Summary

To conclude the narrative analysis of Joe, his prior experiences using e-learning tools within social networks combined with the affordances of these tools and his responsiveness to the children's needs acted as the primary mediating factors affecting his perceptions of the intervention. The secondary mediating factors regarding his attitudes and beliefs about the need for learning to be engaging and fun, and his ability to reflect upon his actions appeared to resonate with the primary mediating factors, enabling Joe and his partner to use the e-learning tools effectively to respond primarily to the needs of their learners. Extrinsic factors such as wider policy discourses or theory around e-learning were far more latent influences within Joe's perceptions of the intervention.

## 8 Conceptual Interlude

*Working just lately with my colleague and friend Mike Hayler. We have been sharing ideas and our understanding of narrative as a methodology. Mike sent me the following quotation, which immediately fell into place for me. This place here:*

*“Bees plunder the flowers here and there, but afterward they make of them honey, which is all theirs; it is no longer thyme or marjoram. Even so with the pieces borrowed from others; one will transform and blend them to make a work that is all one's own, that is, one's judgement. Education, work, and study aim only at forming this”*

*(Montaigne, 1580)*

In Chapter 7 it is clear that Maria, Laura and Joe had borrowed pieces and ideas from both others and their own past experiences ‘to make a work that is all one’s own,’ albeit a work in continual progress (ibid). They were forming their own judgements about the technological tools they used and the ways in which these could be used to facilitate their children’s learning. In section 6.4, I explained the first iteration of the narrative ecology conceptual model I used in my analysis of these three student teachers’ narrative cases. As I used the first iteration of the narrative ecology model to analyse Maria, Laura and Joe’s perceptions of the intervention they had engaged with, I became more aware of the potential of the model and how I was using it. I also became aware of how it could be adapted further. I was using the narrative ecology model to story each student teacher’s experience of using technology in a professional context in order to understand the ‘configuring plot’ within the student teacher’s narrative (Bruner, 1990, p.43). As Goodson has noted, ‘narrative cognition, starts from the recognition that human action is the outcome of interaction between a person’s previous learning and experiences, their present-situated pressures, and their proposed goals and purposes’ (2010, p.8). This was seen in the different ways in which Maria, Laura and Joe’s past experiences were woven into their perceptions of the intervention. From Joe’s use of social networks to organise a ski trip with fellow students, to Laura’s experience of observing her mother’s growing confidence whilst engaging in an online distance-learning course, a range of past and present factors merged with and affected the ongoing plot that is their professional development and their perceptions of the intervention. From this

perspective the use of the narrative ecology model to story the student teachers' experiences offered 'intimately broader theoretical understandings' of teachers' professional development within wider political landscapes (Goodson, 2008, p.3). This heightened level of 'intimacy' with each of the narrative cases led to adaptations of the narrative ecology model. Also as mentioned at the end of Chapter 6, the narrative ecology model was shared with colleagues and peers through various discussions, presentations and papers (Turvey, 2012) which also led to further elaboration and adaptation as I will explain further now.

## 8.1 Narrative ecology; second iteration

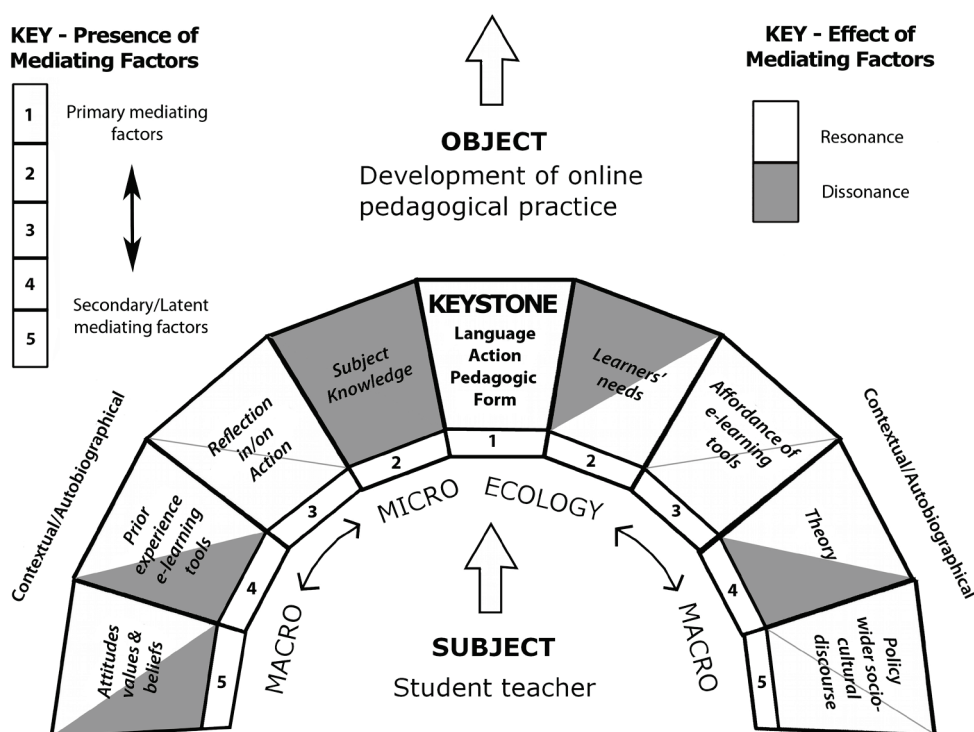


Figure 8.1: Second iteration of the Narrative Ecology model

The first adaptation of the narrative ecology model concerned a shift in the way in which I had previously conceived of the notion of mediation. In the first iteration of the model in section 6.4, I distinguished between autobiographical and contextual mediating tools located on opposite sides of the arch model. This implied a passive conceptualisation of some mediating tools, existing merely as frameworks for thinking and activity that 'people grow into,' (Ellis, 2010, p.4). On the contrary, my experience of Maria, Laura and Joe's narrative

analysis had shown mediation to be a dynamic and constantly evolving narrative process as they responded in their own unique and intimately different ways to a range of mediating factors. As Somekh notes, whilst human action is culturally and historically mediated by tools and social contexts, this process is also ‘adaptive’ (2007, p.12). Wertsch similarly warns against a ‘static’ or ‘mechanistic’ view of cultural tools writing that ‘agents, cultural tools and the irreducible tension between them always have a particular past and are always in the process of undergoing further change,’ (1998, p.34). An important factor in Maria’s ‘particular past’ (ibid) was her lack of confidence regarding her own subject knowledge, which affected her perception of the asynchronous nature of working online with children. The asynchronous affordance of online interactions was exploited by Maria to look things up and boost her subject knowledge out of sight of the children, giving her more confidence. Thus subject knowledge and the affordance of the medium were given a nuanced perspective unique to Maria’s point of view and ongoing personal narrative. Consequently, in the second iteration of the narrative ecology model (Figure 8.1) the array of mediating factors forming the arch surrounding the subject (student teacher) are conceived of as inherently and simultaneously contextual and autobiographical; thus indicating their symbiotic existence both within the socio-cultural context and the autobiographical context of the individual teacher. I will also return to this discussion in Chapter 10 for a fuller discussion of the findings in relation to the nature of mediation and appropriation.

### *8.1.1 Narrative clarity*

The second and third adaptations made to the first iteration of the narrative ecology model were concerned with attempting to clarify the narrative processes represented by the model. In applying the first iteration of the model to the narrative cases of Maria, Laura, and Joe, I had seen how these student teachers prioritised aspects of the experience differently according to their own guiding principles. Maria and Joe gave greater priority than Laura to the children’s need for enjoyment of the activities they planned for them. However, Laura appeared more attuned to the children’s needs in terms of identifying how to exploit their previous work online to develop their understanding of the online medium. This particularly nuanced representation of mediating influences made it difficult to apply classifications such as ‘primary’, ‘secondary’ and ‘latent’ to the detected presence of mediating influences within each student teacher’s story as I had attempted through colour-coding in the first iteration of the conceptual model (Figure 6.2). I realised that colour coding the variable mediating factors

in this way implied fixed categories. On the contrary, it was important to acknowledge that the process of identifying ‘primary’, ‘secondary’ and ‘latent’ variables within the data was intended as an aid to storying a particular version of each student teacher’s experience.

Consequently, in the second iteration (Figure 8.1) the overall presence and therefore priority given by a student teacher to the various mediating factors was represented on a continuum from ‘primary’ to ‘secondary/latent’, and also by the proximity of the mediating factor – each block in the arch - in relation to the pedagogical keystone at the centre of the model.

Analogous to the way different characters within a story play a more or less prominent role at different times in advancing the plot, different teachers prioritise and utilise mediating tools differently, to augment the teaching and learning experience for their learners. As in the first iteration of the conceptual model, it is the teacher who exerts active agency over the design of the pedagogical keystone and the mediating factors they draw upon or prioritise through their actions and language. It is the teacher in response to the child who steers the children or child towards what they judge to be the relevant subject knowledge and the most appropriate tools at any given point in time, to facilitate the learning process and provide contingencies for their students’ learning. Thus analysing the priorities teachers appear to give to certain factors over others, allows the conceptual model to be used to detect a trace of the teacher’s underlying past experiences and motivations; their narrative intent or the ‘configuring plot’ (Bruner, 1990, p.43). However, the second iteration of the model moved away from the implication that the boundaries between ‘primary’ ‘secondary’ and ‘latent’ mediating influences were absolute categories. For different student teachers such boundaries were more or less obscured. Essentially such judgements were my own narrative construction based upon my interpretation of the data. The student teachers were given the opportunity to respond to the construction of their narrative through commenting on the narrative summaries they were given, but the stories remained my own construction. Like different people reading the same novel the importance of different characters in relation to the overall plot may be contested or perceived differently. So too with the level of priority apparently given to different mediating factors within student teachers’ narrative ecologies the process was highly interpretive. Nonetheless this did not detract from the value of storying the student teachers’ experiences in this way and sharing this with them.



The third and final adaptation to the conceptual model involved disregarding the notion of mediating factors having a neutral effect on the student teacher's mediating ecology. This notion seemed to obscure the clarity of the conceptual model. How could I ever be sure in my interpretation of a narrative case that a variable effect was neutral? No evidence of a variable's effect is not in itself evidence of a phenomenon. The first iteration of the narrative conceptual model acknowledged the interdependency of all of the different mediating factors within the ecology through its conception as an architectural arch. In the architectural arch all of the stones or blocks provide contingencies to support the force of structures above channelled through the keystone. In the educational context, the pedagogical keystone supports children's learning and thus teachers' professional development; these two being inextricably linked. Similarly, the concept of 'a state of internal equilibrium' throughout the ecology (Pachler, 2009, p.3), a notion also expressed within CHAT (Engeström, 2000) and developed from Vygotsky (1978) was important in highlighting and detecting the interdependency between variable mediating factors in the data. However, in applying the model to Maria, Laura and Joe's narrative cases the complexity of the interdependence between different factors became more apparent to me.

For example, Maria's doubts about her own level of subject knowledge led to both resonance and dissonance throughout her narrative ecology. On the one hand she was nervous about not being able to take effective control of the direction that the children's online discussions might take. On the other hand her insecurity regarding her subject knowledge enabled her to exploit the asynchronous nature of online interaction with her children to boost her subject knowledge on demand, whilst also taking advantage of pre-mediated websites appropriate to the children's level of understanding. Given this complexity, identifying a mediating influence within the ecology as a neutral entity was problematic. Consequently within the arch, the effect of mediating factors upon a teachers' pedagogical and professional practice (the keystone) and other mediating influences is complex and eclectic. There may be equilibrium or disequilibrium between various mediating influences within the teachers' narratives. This was still indicated in the second iteration of the conceptual model (Figure 8.1) by the shading of the mediating factors in the narrative ecology model. Like the presence

or priority given to various mediating factors by the student teachers, this interdependency can be viewed as analogous to the multifaceted roles that characters take on in a narrative form such as the novel. Characters can be both in harmony with some characters and conflict with others or indeed have complex relationships with other characters involving both harmony and conflict simultaneously. I retained the terms resonance and dissonance to reflect this equilibrium or disequilibrium. For example, in the same way that a musical instrument being played actively, can passively set off sympathetic harmonic resonance in another instrument or artefact, so various mediating influences can affect other mediating factors within the teacher's narrative ecology. Thus a mediating factor might be both a force for resonance or dissonance within the teacher's narrative ecology. For example, some teachers may express both positive and negative dispositions towards the adoption of certain technologies in their professional practice. A teacher's attitudes and values or their prior experiences of using technologies outside of their professional role could have both an enabling and constraining impact on their ability to incorporate new technologies into their professional practice. The mediating effect of the 'wider socio-cultural discourse' may be a force for both resonance and dissonance. An explicit example here might be a teacher who expresses their intention and desire to utilise certain new technologies with their children because of their own experiences of the technologies, but has concerns about e-safety due to wider discourses around e-safety in the media.

## **8.2 Summary**

It was inevitable in applying the conceptual model to the first three narrative cases that some adjustment of the model would be necessary as I responded reflexively to this process. In this chapter, I have tried to account for these adjustments between the two iterations of the conceptual model. This is not to imply that the conceptual model has now been developed as far as possible. Indeed in this chapter are the seeds of a fuller evaluation of the narrative ecology conceptual model, which I will return to in Chapter 10. As is often the way, it was through the application of the theory to practice that I began to gain a deeper and more nuanced understanding of how I was transforming and blending 'the pieces borrowed from others.....to make a work that is all one's own,' (Montaigne, 1580); my own story.

In Chapter 9 which follows, I apply the second iteration of the narrative ecology model in two more narrative cases before going on to provide a fuller evaluation of the narrative ecology model and revisiting the knowledge bases that provided the foundations for my research.

## 9 Two Narrative Cases

### 9.1 Narrative Analysis: Karen

#### 9.1.1 Overview

Figure 9.1 visually represents the overall narrative analysis of the various interdependent mediating factors that appeared to be at play throughout Karen's experience of the intervention. The visual representation of the interplay between the different factors reflects an overall picture of tension and dissonance as opposed to resonance towards the objective of developing the student teacher's online pedagogical practice within Karen's case. However it is also important to enter the caveat that dissonance is not meant here in terms of a value judgement; dissonance may well be a necessary step within the process of developing an appropriate pedagogical approach. The notion of dissonance, or resonance within the ecology of mediating influences and human subjects is a recurring theme within ecological approaches to learning in situated contexts as noted earlier with reference to Zhao and Frank (2005). The concept of 'a state of internal equilibrium' (Pachler, 2009, p.3) between various mediating influences and the student teacher was a key aspect of my analysis of each student teacher's narrative. Together with analysing the interplay between various mediating factors within the individual student-teacher cases I also analysed the extent to which the various mediating influences' presence was expressed within the data for each case. Some of the mediating factors were clearly evident in the data as the student teachers prioritised them differently from their own perspectives. Other mediating factors had a more latent presence within the data and the student teachers' narratives. However it was not a simple case of the more explicit the mediating factor the greater the level of dissonance or resonance with other factors. These themes of stability and effect within ecological contexts represented by my cases are something I will return to in Chapter 10, looking across the individual cases to re-examine the implications and limitations of my theoretical and analytical model. I will now continue to present and discuss in more detail my analysis of Karen's narrative from the perspective of the perceived primary, secondary and latent mediating influences and the ways in which these became manifest as resonant or dissonant mediating factors in her case (Figure 9.1).

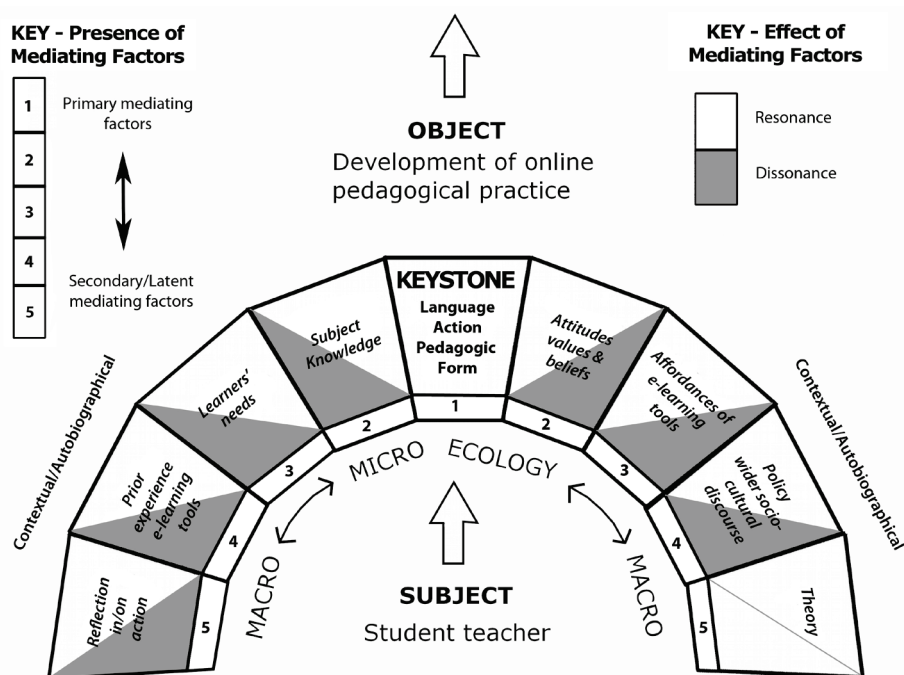


Figure 9.1: Visual representation of Karen's narrative analysis

### 9.1.2 Primary and secondary mediating factors

Much of Karen and her partner's activity seemed to be mediated primarily through their attitudes, values and beliefs in two key areas; the importance of the subject knowledge in relation to the intervention and perceptions concerning the appropriateness of online pedagogical approaches with young children. These domains are represented as primary mediating factors in Figure 1 and I will now explore how this was reflected in the data together with the interplay between these primary mediating factors and other mediating factors within the ecological context.

Karen and her partner employed a range of online tools within the VLE to raise and address the issues surrounding children walking to school as can be seen in Figure 9.2 which is a screenshot of the online area they created for the children.

The screenshot shows a web-based social forum interface. On the left, there is a sidebar with navigation options: 'People' (with a 'Participants' link), 'Activities', 'Search Forums', 'Administration', and 'Course categories'. The main content area is titled 'Social Forum' and contains four numbered items:

- Item 1:** A greeting 'Hi There!!' followed by a message: 'It was good to see you last Wednesday. You can still add things to our discussion. It doesn't matter if no one is online. Leave a message and we can answer you when we see it. Remember you can also visit **SOCIAL FORUM** for chat about other subjects.' Below this is a list of activities: 'This week we would like you to : have a go at the quiz (if you haven't already) play one of the FOOT ZONE games in 'hedgehog' So, till we see you again, stay safe!'.
- Item 2:** A discussion titled 'Discussion - How do you get to school?' with a sub-heading 'How do you get to school?' and 'Rules!'. It features a video clip of a red walking bus and the text: 'Look at this video clip. Could a walking bus work for your school?'. Below the video are links for 'Car Chaos' and 'Walking bus'.
- Item 3:** A 'Quiz!' section with a 'quiz' link.
- Item 4:** A section titled 'Road Safety when Walking' with a link to a 'Hedgehog safety site' and a link to 'Un Foot' games.

On the right side of the forum, there are two additional sections: 'Latest News' with a text block about walking to school and a video clip, and 'Recent Activity'.

Annotations include:

- A blue arrow pointing from the 'Social Forum' title to the main content area.
- A blue arrow pointing from the 'Walking bus' link in item 2 to the video clip.
- A blue arrow pointing from the 'Quiz!' title in item 3 to the 'quiz' link.

Text annotations on the page:

- On the left: *The social forum is referred to here but not directly accessible through main page.*
- On the right: *Video clips embedded conveying subject knowledge.*
- On the right: *More interactive activities lower in the page/activity hierarchy.*

Figure 9.2: Screenshot of online activities and resources

They repurposed video news reports featuring school children from the BBC website about the issue of getting to school using environmentally friendly means. These were embedded into the VLE. They also provided a discussion forum focused on the subject matter 'Walking to School' with various prompts to elicit responses from the children. They provided a social forum for the children to access in their own time to introduce themselves. However, little time was given to social interaction within the dedicated time of the intervention. Karen and her partner expected the children to access the social forum in their own time. Figure 9.2 illustrates how the majority of the content and tools used were focused on their chosen subject matter of walking to school with the related safety and environmental issues. The more interactive activities such as the quiz and the link to the games website about road safety were also placed lower in the activity hierarchy than the other resources. As well as being apparent in the visual appearance of Karen and her partner's area of the VLE (Figure

9.2) this main focus from the start on the subject matter emerged in the interview conducted with Karen. When asked why she had chosen to use video she commented:

“Em...I searched for just a short clip really that might focus the subject matter. ...which I thought...we were talking about walking to school and the safety aspects about walking to school think that could be a wide range in terms of personal safety...when could they go? Could they walk? Traffic safety...road traffic... Roads around schools, parking issues... the two clips they varied slightly but both [the two video news clips uploaded] had school, parking...getting to school issues and how two schools dealt with it differently.” (Interview 12<sup>th</sup> December 2007)

That is, the video clips were chosen primarily because of the need to ‘focus the subject matter.’ Similarly, although they had also made links to websites containing interactive games based around the subject matter, these games were perceived by Karen to detract from the issues. For example, commenting on the games Karen remarked in the interview:

“Em I think they enjoyed them but certainly [laughs to self] when they got onto the road safety website...the games that were in there although we didn’t let our little group go on them straight away...when they saw others playing games they were like can we do that?” (Interview 12<sup>th</sup> December 2007)

That is they restricted the children’s access to these games in the first instance feeling that they did not serve the function of their lesson objectives as well as the other content and activities they had provided for the children through the VLE. The prioritising of subject knowledge in her approach to the use of the online environment, also appeared resonate with Karen’s pedagogical views and beliefs which emerged later in the interview after the intervention. For example her pedagogical beliefs appeared to centre around the notion of the teacher as deliverer of content as she noted that:

“In the right environment I can see that being able to get information to students that you want to and for them to share you know if there’s queries and things over what they’re meant to be doing I can see how that can work.” (Interview 12<sup>th</sup> December 2007)

From the perspective of Luckin and Luckin et al’s conceptualisation of the ecology of resources it would appear that Karen and her partner were indeed attempting to ‘narrow’ the resource ecology (2005, 2006, and 2008). However within this progressive focusing from the wider available resource ecology, professional judgements about any ‘adjustments’ to the resources made available were made primarily on the basis of how well the resources were



perceived to serve the subject knowledge. That is, learner's needs (Figure 9.1) such as accessibility through the visual medium, enjoyment, or the desire for interactivity through games were subordinate to the importance of the subject knowledge. Similarly this also raises questions from the perspective of Mishra and Koehler's conceptualisation of TPACK and the extent to which teacher's attitudes and values about subject knowledge are or are not at play within teachers' development of TPACK (2005). That is, the potential for interactivity of the e-learning tools to be exploited was not realised but subordinated as a secondary mediating influence below the primary mediating influence of Karen's attitudes and beliefs concerning the importance of subject knowledge and appropriate pedagogical approaches (Figure 9.1). These are themes to which I will return in Chapter 10. However there was further evidence of primary mediating influences causing tension and dissonance in relation to the other mediating influences within Karen's case.

Whilst Karen perceived there to be potential within what the e-learning tools such as discussion forums might yield, she was disappointed by the response of the children within the discussion forum. She commented in the interview that 'it was quite limited the actual conversation that was actually had.' Again this perception seemed to be influenced by the primacy she gave to the importance of subject knowledge within the intervention. She identified a gap between the thought processes she witnessed at first hand when the children were discussing their responses, and the actual content of the written responses the children made in the online discussion forum. As she remarked in her interview:

“When it came to typing it in it was one.....maybe two-word answers or very limited so didn't really reflect what the thought processes had been.” (Interview 12<sup>th</sup> December 2007)

Concerned with the pace of some of the children's typing and the shortness of their replies Karen resorted to typing for some of the children when she was working face-to-face with the children. This way she felt that the written text would indicate more the quality of the thought process she had experienced in face-to-face discussion with the children. This was evidenced in the longer responses given by the children when Karen was writing for them (Figure 9.3).

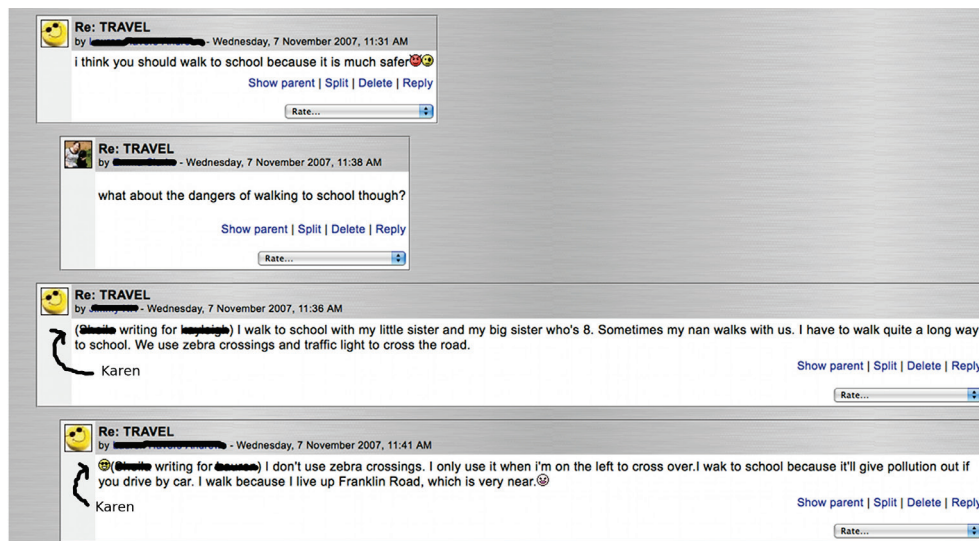


Figure 9.3: Extract from discussion forum

For Karen then the use of the discussion forum by the children did not function adequately to convey the children's understanding of the subject matter. Although it had provided a catalyst for face-to-face discussion of the subject matter the fact that it did not always reflect the depth of the children's thinking was problematic as she reflected in the interview:

*KT: OK Right....do you think it matters that the level of reflection was deeper than the text indicated?*

*Karen: Em.....[long pause]*

*KT: Does it matter to you as a teacher?*

*Karen: Yes I felt it did....but also not really knowing the children and what thought processes they might .....if I didn't know that they'd had that conversation that might have been...it could be interpreted as just a flippant answer.*

(Interview 12<sup>th</sup> December 2007)

In this respect, for Karen, despite affording the opportunity and giving purpose for a thoughtful face-to-face discussion related to the subject matter this remained a point of

dissonance or unresolved tension due to the lack of detail in the children's online responses. This tension and dissonance between mediating factors was also evident within some of the more latent mediating factors, as I will examine now.

### 9.1.3 Latent mediating factors

Karen reflected more on the phenomenon of the children's discussion forum postings failing to convey the depth of their thinking in her assignment and revealed some of the more latent mediating influences involved in the interplay between factors. Reflecting on how the children in her group's discussion postings were often under-developed and failed to reflect their thought processes she commented that 'I have reservations about whether it is suitable for some of the youngest Key Stage 2 children as they may be unable to articulate sufficiently to engage fully without additional support.' Similarly in a personal reflection posted to the student teacher forum she reflected:

I wonder if this age range is ready for virtual conversations. Maybe some are mature enough, and have sufficient ICT capability, but this wasn't immediately obvious, and even on a 1:4 basis it was hard to keep them on target. Before next weeks session I think we need to have them do an activity that we can then ask questions of after.

[Show parent](#) | [Split](#) | [Delete](#) | [Reply](#)

Karen had significant reservations about the age appropriateness of engaging in online discussions with KS2 children. However concern also appeared to be linked with her wider views and concerns about the use of social networks by young people in general. Since engaging in this module she confided that she had signed up to Facebook to find out more about social networks. However, her experiences since signing up to Facebook had compounded her reservations about the appropriateness of such forms of communication for young people. A daughter of a friend had approached her online, which had concerned her for the following reasons she gave in her interview:

“a twelve year old has invited me to be her friend and I thought there was an age restriction...when I challenged her, she's lied about her age....I have not accepted her because I've seen material that I don't think is acceptable for kids to access and er....I did ask her does her mum know who is also on Facebook so does understand...er whether she knows about it...she does but whether she realises the implications of er....” (Interview 12<sup>th</sup> December 2007)

Similarly she went on to remark:

“And what’s interesting that the way some of these 12 year old girls you know they’ve only got to stand a little way back from the camera and their age is not that er obvious so that’s a worry.”  
(Interview 12<sup>th</sup> December 2007)

It is clear from these responses that Karen’s concerns about the age appropriateness of using online discussion with primary-age children within educational settings stemmed not only from her concerns about its efficacy in terms of subject knowledge but also from more latent concerns regarding the wider socio-cultural discourse around e-safety and safeguarding children. Although a latent mediating influence, this policy and wider socio-cultural discourse was nevertheless a source of dissonance and tension within the overall experience. Her experiments with social networking outside of her university course had confirmed some of her apprehensions about children’s vulnerability online. The extent to which this affected her approach to the intervention as a whole is difficult to quantify but the interplay between her professional use of online communication tools was rooted in a range of factors including her pedagogical beliefs and values regarding the age appropriateness of working online with primary school children influenced by the latent socio-cultural discourses around e-safety.

Other latent mediating factors also appeared to be significant in Karen’s case resonating with some of the other mediating influences already discussed. For example Karen’s prior-experience of e-learning tools (Figure 9.1) both within her leisure and professional lives were revealed to a certain extent through her base-line survey. Certain tools such as discussion forums were rated as ‘of no use’ in her social life, whereas in her professional role they were rated at the other end of the spectrum of usefulness. Interestingly, however, the qualitative responses on her baseline survey indicated how the separation of the social and the professional is difficult, for Karen indicated that she found discussion forums particularly useful for reading ‘other student perceptions of observations’ and ‘feedback from school visits.’ Although this is obviously embedded within her professional concerns there is also a sense of the discussion forums performing for Karen a social function in enabling her to remain in touch with fellow student teachers to find out how they were getting on whilst on teaching practice. This convergence of the social and professional was also evident in the interview with Karen. When she was asked about her use of social networks they seemed to perform a similar function of updating or being updated by her student-teacher colleagues on progress with assignments as evident in the following extract:

*Karen: Yes I use it a little bit but I can't pretend to understand a lot of these things that are going on [presumably referring to some of the social networking tools within Facebook].*

*KT: OK*

*Karen: whilst these assignments have been going on I've been updating people by saying 'only 200 words to go!' or 'only a conclusion away.'*

*KT: OK so you make reference to your professional life in those social networks?*

*Karen: Yes*

(Interview 12<sup>th</sup> December 2007)

Karen's initial indication on her baseline survey that discussion forums were 'of no use' to her socially was indicative of scepticism towards social networking. Linked to this, and evidenced in her other responses, was the notion that her use of social networking tools was essentially functional. For example, this was seen in some of the qualitative data she offered on her baseline survey in that her use of msn messaging was mainly to take advantage of 'file transfers.' Similarly, as well as contacting friends with her mobile phone, this device also performed a number of practical functions for Karen as shown in Figure 9.4 below.

d. How you use your mobile phone to support you in your social and leisure life.

Contacting friends - bookings - clock - alarm  
 Use camera + music/recording facilities  
 Stopwatch/timer  
 'Bluetoothing' music/photos.

e. How do you use your mobile phone to support you in your professional role?

Contacts - Notes.  
~~Bookings~~ Alarm/timer  
 Images - video.

**Figure 9.4: Qualitative response on baseline survey to use of mobile phone**

That is, despite the potential for social interaction offered by new communications tools, for Karen it appeared that their usefulness was more related to the ease with which such technologies facilitated the day-to-day pragmatic functions such as transferring files, photographs and music between devices. She did use social networks such as msn ‘to keep in contact to an extent with some friends I see rarely’ but this was not their primary function. This pragmatic approach to technologies revealed in her prior experience of social networking tools was echoed in her pragmatic approach to the tools within the school-based intervention to convey the identified subject knowledge as discussed previously and in this sense seemed to resonate with a functional approach to such technologies both in her leisure and professional life.

Overall, Karen’s encounter of the design of the intervention had caused her to reflect on her experiences. I have rated this mediating influence – ‘reflection’ - together with ‘theory’ as latent (Figure 9.1). When talking with Karen and listening to her reflect, even after the intervention she was still trying to make sense of the experience and her perception. She noted how carrying out the online work with the children had been a catalyst to her finding out more about social networking tools, commenting that ‘some of these are now instinctive modes for me.’ Taking stock of her own use of social networking tools she had surprised herself, remarking that ‘I considered myself a minimal user of social software until I scrutinized how I make use of the internet.’ Whilst after the intervention she remained sceptical about the use of online communication tools within formal education she remained open to their potential and was able to reflect critically on the ways in which she might approach their use differently in future. Within the online intervention she had carried out she identified several barriers. Foremost was ‘unfamiliarity with the children’ and ‘introducing ourselves, the subject matter and Moodle tools into one teaching session.’ That is she had begun to acknowledge that within the pedagogical process online as much as in a face-to-face session, addressing the subject matter at times needs to be subjugated in order for the specific needs being presented by the children to be addressed and an effective learning environment to be established. That is, in this respect her reflections had already begun to shift the balance between the different mediating factors in her approach. Karen’s reflections also revealed how her beliefs appeared to have been challenged by her experience of the intervention using the online tools with the children. This was expressed again in the interview where she

attempted to make sense of and reconcile different aspects of the experience relating to the children's level of engagement and motivation in tension sometimes with her own attitudes and beliefs about the effectiveness of working online with the children. For example:

“They certainly seemed motivated by it but I think it would take more practice probably and more input for them to use the tools as you would want them to. You know the novelty of it and them being able to you know the emotions...the emoticons to personalise it is quite nice but if you were trying to make it less fun and more educational...no that's not right those should be linked anyway....[Pause].” (Interview 12<sup>th</sup> December 2007)

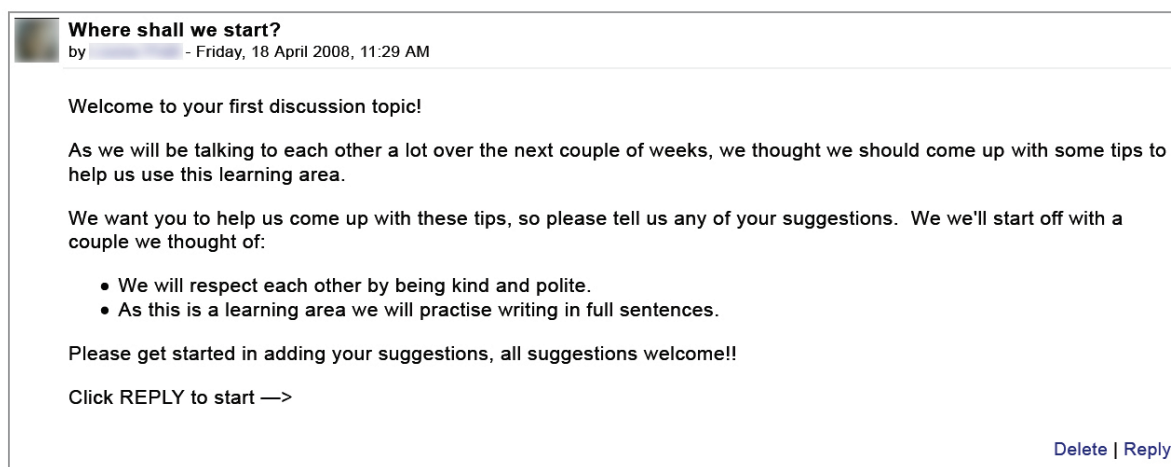
That is the intervention had prompted her to re-examine and question her own pedagogical attitudes, beliefs and values as evident in this quotation. In this sense her own experiences and perceptions of the intervention itself had become a new resource or tool through which any future activity involving online pedagogical practices will be mediated (Laurillard, 2002). From this perspective the intervention had been successful in prompting Karen to theorise (Eraut, 1994) about her experiences and perceptions, with the process of reflection built into the design of the intervention being an important, albeit latent, mediating influence in this respect.



## 9.2 Narrative Analysis: Heather

### 9.2.1 Overview

Heather's approach to the use of the VLE was characterised by pragmatism. Her overarching concern appeared to be to maximise the 'quality' and 'quantity' of the children's contributions to the online discussions. This pragmatic approach focusing from the onset on the formal, educational aspect of the intervention was evident in her opening prompt of the first online discussion with the children (Figure 9.5) thus:



**Figure 9.5: Opening prompt to Heather's online discussion group**

This clearly illustrates Heather's intent to establish the VLE as a formal medium for learning as seen in the second bullet point of her message where she states 'as this is a learning area we will practise writing in full sentences.' As I will illustrate through discussion and analysis of the narrative ecology of mediating influences evident within Heather's case, this intent was sustained throughout the intervention with the children. Furthermore, this intent infused other primary mediating influences in Heather's narrative case. As with previous cases, I will discuss the relationship between the different mediating influences that appeared to be at play within Heather's narrative case, focussing initially on the primary mediating factors and then discussing the role of the secondary and latent factors at play in her case.

### 9.2.2 Primary mediating factors

The cluster of variables that appeared most evident when analysing the dataset generated by Heather's engagement in the intervention were *Subject Knowledge*, *Affordance of e-learning tools*, *Learner's needs* and *Reflection in/on action*. These variables are located closest to the central pedagogical keystone within the diagrammatical representation of Heather's narrative case as they were most explicit within the data and the micro-resource ecology of the intervention (Figure 9.6). The interplay between these primary mediating factors appeared to characterise Heather's overall pedagogical approach. As I will illustrate with reference to the data, Heather's reflections during the intervention and after revealed her underlying guiding principles which in turn gave meaning to the pedagogical actions she took. As noted hitherto, Heather had a pragmatic approach to the intervention, which was focused strongly on the subject-related educational purposes of the intervention as indicated by her clear educational focus in her formal but encouraging opening message on the discussion forum. Within the cluster of primary mediating influences *Subject Knowledge* was always clearly prioritised with the *Affordances of the e-learning tools* and *Learner's needs* being utilised mostly in a subordinate role as she often reflected on how to deepen the children's engagement with the subject matter.

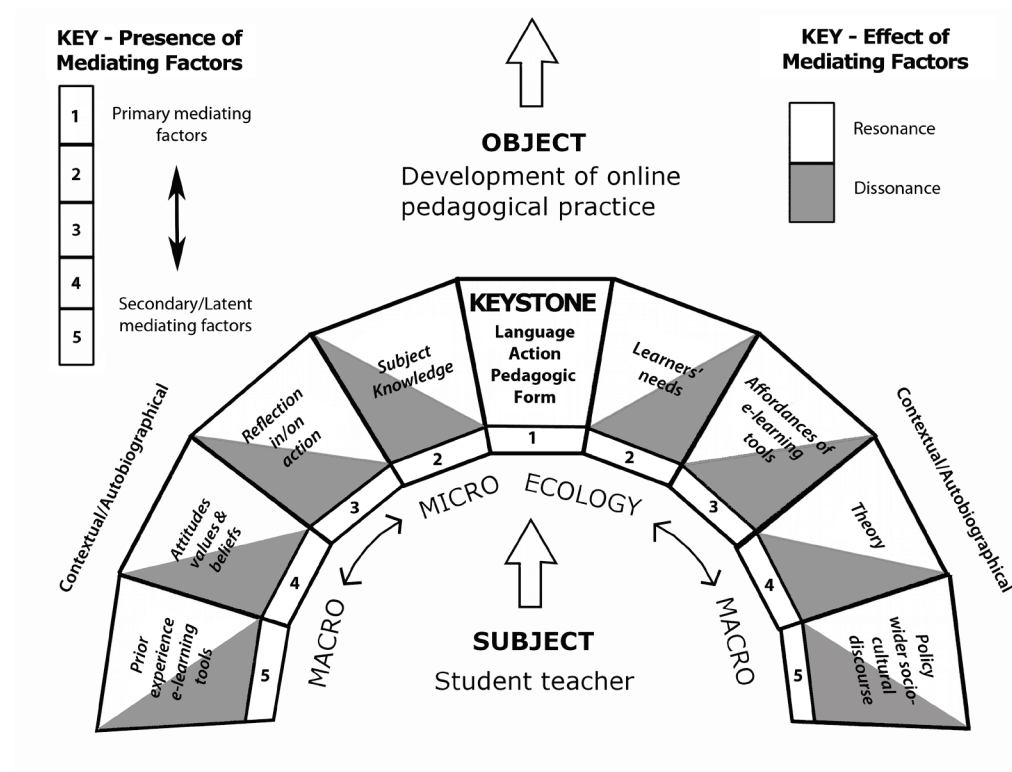
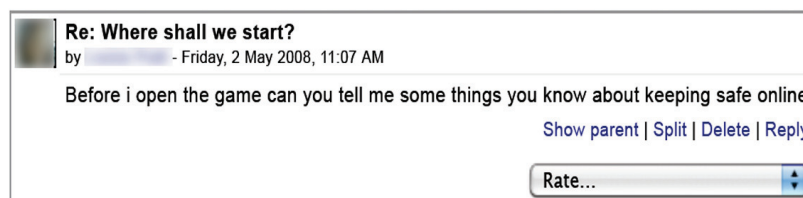


Figure 9.6: Diagrammatic representation of mediating influences in Heather's narrative case

This was seen a number of times when analysing Heather's narrative case. For example, during the interview, Heather noted that there was some tension between her own approach and that of her partner when her partner was working face-to-face with the children and she was responding online at a distance thus:

“Well yes it's kind of like I didn't know what was going on because it's like I'm waiting for any questions. Being out of control because you've got a rough lesson plan in the sense that we'll do this then this then this and I expect this and this to happen between these events. Thinking that my partner was aware...had the same expectations that I had but then the text said 'put the games on' seemed to me a bit more it wasn't my expectation of what would happen and the encouragement of talk. (Interview, 16<sup>th</sup> May 2008)

Heather is referring to their first session with the children. Her partner in school used her mobile phone to text Heather, and tell her to make the games they had prepared available for the children. Heather had clearly expected the children to contribute more to the discussion forum so they could find out more about what the children already knew about e-safety before making all of the games activities available to the children. Heather responded by making some but not all of the games available to the children. She used the facility to control what is made available to users online as a lever to encourage the children to contribute more to the discussion forum as this message illustrates:



In this way, Heather exploited the affordance of the e-learning tools to control what was made available to the children, together with the learner's needs for enjoyable games' based activities, in order to elicit more responses from the children through the discussion. Furthermore, the children responded positively to this strategy, contributing more ideas through the discussion forum.

From this perspective these different, primary mediating influences resonated positively and lead to a desirable outcome in terms of Heather's main focus. However, these mediating influences were also a source of tension and dissonance for Heather in that the children's enjoyment of the online games activities had the potential to distract from the main aim of the activity which Heather construed as engaging the children in exchanging and discussing their ideas about being safe online through the discussion forum. This was her priority, which she

had believed her partner shared. This tension between Heather's desire to maintain a clear focus on the educational, subject-knowledge related content and the potential distraction from this course represented by the learner's needs or the affordance of the e-learning tools was also reflected in other respects. For example, in an online reflection amongst her student teacher peers she reflected:

“Oops sorry for late post!! After reading others i would agree that is was a good experience and great to try this "new" idea in a school based practical way. I feel a little disappointed at the lack of chat but i think that it was down to time, a new medium etc. Agreeing with \*\*\*\* having the mobiles was helpful as it meant there was some communication between the two teachers however i think it did interrupt the flow between activities as there were different pressures and information for the two people in the pair that the other wasn't aware of (does that make sense?) Hopefully next week will be better and having a stronger focus on discussion rather than activities and discussion the children will get a chance to answer and respond more in-depth and challenging.”

Reflection Posted 2<sup>nd</sup> may 2008

In terms of the affordances of the e-learning tools, it is clear from this reflection that although Heather and her partner had utilised a range of tools including their mobile phones to coordinate their combined efforts, these remained a point of tension. For Heather even the use of the mobile phone, whilst facilitating communication ‘interrupt[ed] the flow’ (ibid). Similarly, although the VLE offered the opportunity to engage the children in a number of enjoyable online activities, Heather's preference was for ‘a stronger focus on discussion rather than activities and discussion’ (ibid).

Another key incident within Heather's narrative case illustrated how primarily, the intervention was mediated through the prioritising of subject knowledge, the affordance of the e-learning tools and the learners' needs. However, what was significant in this incident was the level of critical reflection the incident prompted. Towards the end of the school-based intervention Heather was working in school with her group of children whilst her partner was online. The theme of the week was ‘Caring for the Environment.’ As in previous sessions, Heather and her partner had made a range of online interactive materials available to the children and were engaging the children in online discussion about recycling. During this session Heather observed that some of the children were copying information from a website on recycling and pasting it into their replies to the teacher online, without any attempt to interpret the information or explain it into their own words. Heather's perceptions of this incident and her responses were complex, involving interplay between the primary

mediating influences identified in her case. This is evident in the way she spoke of the incident during her interview thus:

**Interviewer:** OK that's interesting. Let's move on. You talked earlier about the types of conversation. Can you describe the types of conversation you had with them or your partner had with the children and how you felt they responded?

**Heather:** The recycling one 'what can we do?' that was when my partner was at Uni and I was in school. Erm on that one she asked a specific question which did enable them to go and research but then their reply back was a copy and pasted excerpt from the website and so obviously that wasn't really engaging in conversation because it was just copy and pasting, passing on information but they haven't read it...

**Interviewer:** So did they actually .....which bit (Interviewer finds the online discussion for student to indicate the copy and pasted part)

**Heather:** Further down ...I think it's that bit there and if you read it like 'waste paper merchants or resource management companies' (reading the children's posting). Actually I read through some of the bits when I was in school and it's not really that accessible for them...they don't know what that means. I had to explain quite a lot of it, which was a fault of ours because we hadn't gone through the site enough to check that it was appropriate for their level but like it's very obvious that they'd copied it. I did let her know that they'd copied it (using mobile to text).

**Interviewer:** Right

**Heather:** So as you can see she's written 'can you tell me in your own words?' As you can see they've written "OK" and a big smiley face. Their comments were 'Oh she knew, she knew....' (imitating the children's surprise).

(Interview, 16<sup>th</sup> May 2008)

What is interesting here is that the affordance of the e-learning tools and the subject knowledge content are key mediating influences. The ease with which the children can copy and paste information is seen as a potential negative or dissonant aspect by Heather in that it can lead to a superficial engagement with the information she wanted the children to interact with. On the contrary, the instinctive use of her mobile phone to inform her partner online that the children have copied and pasted information appears to be an effective strategy for alerting her partner and trying to facilitate a potentially deeper level of discussion in the forum. However, yet more significant here is also the way in which the incident prompted Heather to reflect critically on the appropriateness of the information she and her partner had directed the children to. For example, as she states, 'I had to explain quite a lot of it, which was a fault of ours because we hadn't gone through the site enough to check that it was appropriate for their level.' That is, this incident was also mediated significantly, through Heather's concern for the learners' needs. Her overall perception of the incident involved the

reconciliation of a number of resonant and dissonant factors at play; Affordance of the e-learning tools, learners' needs, subject knowledge and, Heather's own capacity to reflect on the significance of each of these. With regards to this latter, it was also clear that after the event, this incident had continued to prompt her to reflect on the issues of using online communication tools with children. She felt that the incident had a positive effect prompting her to re-evaluate the use of such tools and commenting about the incident: 'I'd have never thought about it until they did it. It's quite interesting. I'm quite pleased that they did that really because you can see' (Interview, 16<sup>th</sup> May 2008). Thus, together with triggering Heather's reflections whilst working with the children, she continued to make sense of the incident after the intervention.

### 9.2.3 Secondary mediating factors

When analysing Heather's narrative case, beyond the primary mediating factors discussed above I determined that *Attitudes, values and beliefs* together with *theory*, played an important secondary role in her narrative case. I have already discussed some of the ways in which Heather reflected on different primary mediating factors both within and beyond the intervention. However, such reflections also appeared to be dependent upon Heather's *attitudes, values and beliefs* about teaching and learning together with her approach to *theory* and developing *theory*. When prompted to reflect on her values and the kind of teacher she felt she was, Heather responded by establishing herself as someone who was interested in looking beyond the surface situations of educational contexts. For example, she remarked:

"I think I'm quite aware....of different issues in the class ....I find it quite interesting about why isn't that child behaving and I'm very much on the influences rather than the child." (ibid)

That is, she wanted to portray herself as a thinking teacher or someone who is interested in looking beyond issues to understand them. Furthermore, this approach seemed to resonate throughout the data. As already discussed, her response to some of the children's superficial engagement in the discussion forum, copying and pasting responses was complex; she reflected on the affordances of the tools, the learners' needs for appropriately pitched information and her and her partner's own short-comings in failing to effectively evaluate the information made available to the children. This kind of multifaceted reflection also characterised Heather's approach and reflections on other aspects of the intervention. For example, reflecting on the way the children had collaborated in pairs whilst working online

she made several comments that demonstrated a complex understanding of her observations. The children Heather worked with in school seemed to collaborate well as she remarked:

“...there were three girls working with one computer and we discussed what they should send and it had obviously been quite pushed that they would ‘if I have a say it’s your turn to type and if it’s your turn to type...’ So that way it was quite good because they were all having a go.”  
(Interview 16<sup>th</sup> May 2008)

However, this was also a point of tension for Heather with regards assessing individual and collaborative achievements and understanding as she went on to note:

“So if you talk in terms of learning so they can have a pair and they can discuss it before they open it out to everybody you know in terms of social development and intellectual...on that side of it. Is it better to let them talk before they offer the kind of seen discussion point or should you in terms of being able to see their ability in these view points, not allow them that discussion and to come straight from them?” (Interview 16<sup>th</sup> May 2008)

That is, here Heather is theorising over the tension between children talking and collaborating to learn, and teachers ‘being able to see their ability in these viewpoints’ (ibid) which places more emphasis on individual assessment. It is also interesting to note the way in which Heather raises this issue; rather than assert a particular stance, she highlights the issue and poses the questions ‘is it better to.... or....?’ This again resonates with her construction of herself as a ‘thinking’ teacher aspiring to look beyond surface issues that arise. Further evidence of her attitudes, values and beliefs about pedagogy reflected Heather’s tendency to synthesise theory and look beyond initial impressions. When asked to reflect on how valuable an experience she had found the intervention she remarked:

“Errrrm.....I think there is value to it. I think the two sessions we’ve had in school is a snippet. I don’t think it represent the full value of it. Because it is a bit kind of two random topics....I think I wouldn’t use it all the time and I think that rather than it being a tool to suddenly enable discussion and collaborative working and non-confrontational - all of the things we’ve talked about – I think it has to be your ethos of the classroom anyway and that erm you do allow for discussion and yes it’s ok to make mistakes that’s not what we’re looking for, it’s about getting ideas down...I think if you were a teacher who always looked for spelling they couldn’t switch that off...to apply it on a computer. They’d still be worried about spelling and looking for it on the computer. That would have to be the ethos; you first initial ideas. It about the ideas you’re developing .... That’s a good process to go through.”

(Interview 16<sup>th</sup> May 2008)

What is interesting in this response is the way in which Heather recognises the limitations of the intervention but nevertheless hypothesises about the contingencies required to make effective educational use of online communication tools. She looks beyond the limitations of





The ease with which Heather adopted and adapted the use of her mobile phone to communicate with her partner at a distance during the intervention with the children reflects and resonates with her past experience of technological tools. Her questionnaire responses indicate openness to such tools both within her leisure life and her professional role. Similarly qualitative comments on her questionnaire regarding the usefulness of discussion forums indicated that she had previously used and valued these modes of communication, as she remarked that discussion forums enabled her to ‘get ideas from a diverse selection of people,’ (Questionnaire, 18<sup>th</sup> April, 2008). She also commented that discussion forums ‘can be interesting to read and gives an opportunity to participate,’ (ibid). Despite this predisposition and openness to using online communication tools in her professional role, Heather did not draw on her previous experiences of e-learning tools in any of her reflections to either frame or explain her actions. To this extent, her previous experience remained a latent mediating factor.

Similarly, *Policy and wider socio-cultural discourses*, remained in the background of Heather’s narrative case. It was possible to detect these on a latent level within the data but Heather did not make explicit reference in her reflections. For example it is possible to trace remnants of the policy discourse around personalised learning in her reflections regarding the tensions between the use of the discussion forum to promote talk and learning, and its use to assess and track individual attainment and understanding. At one point in her interview she talked about using the discussion forum to track individual progress saying ‘you could kind of map where they were’ (Interview, 16<sup>th</sup> May 2008). Policy and wider socio-cultural discourses were also evident in the background of Heather’s narrative when she reflected on how she felt children learn and the kind of teacher she aspired to. For example she commented:

“I think it’s a shame that society pushes the more have to be able to read, write and do it in like a comprehensive way but on the flip side of that they are very important skills so you can’t just go ‘oh well you don’t know how to write a letter it doesn’t matter’ but I think it’s not all about writing the received copies from the book (?) There’s different ways of and I think if you provide a context and a purpose it really does help things like that. I agree that talk helps and they can bounce ideas off and I think they’re important skills for life....you need to be able to when you don’t know say right I need to be able to go how am I going to do this?”

(Interview 16<sup>th</sup> May 2008)

Clearly wider socio-cultural discourses around the kinds of learning and knowledge valued by society was a background factor in Heather's ongoing professional development. These discourses were a source of both resonance and dissonance for her. In terms of dissonance she felt it was 'a shame that society pushes' some forms of knowledge and learning over others. On the other hand it also resonated with her belief that 'they are very important skills' (ibid). In this way, aspects of Heather's professional development were in 'a state of internal [dis]equilibrium' (Pachler, 2009, p.3). That is, the narrative of her professional development was ongoing, a theme I will return to in Chapter 10.

### 9.2.5 Summary

The primary mediating factors discussed hitherto in Heather's narrative case were most explicitly represented throughout the data. These factors did not exist in isolation to each other, or in isolation to the secondary and latent mediating influences. Rather there was a significant interplay between most mediating influences as represented in Figure 9.6. Heather's exploitation of the affordances of the VLE, controlling what was available to the children, was contingent upon the importance within which she held the subject knowledge focus of the intervention, together with her understanding of the children's needs and her openness to reflect on these. However, at a secondary level, her openness to explore new technologies in the classroom was also an important factor in enabling her to explore the use of her mobile phone to communicate with her partner in response to the children's needs. Thus the relationship between different mediating factors was symbiotic leading to both resonance and dissonance; her mobile was useful but it also 'interrupted the flow' (op cit). Overall, together with her pragmatic yet reflective approach that clearly resonated with the kind of teacher she aspired to be, Heather's case illustrated an ongoing journey of professional development of which the university and school-based intervention has become a significant interlude. As Heather commented, the intervention had prompted her to re-evaluate her position:

"I think I wouldn't have probably thought of doing a forum. But on my own I probably wouldn't have used it in that way and erm for me I can really see what about all those children that haven't got a computer or haven't got the internet or there's four children in the family and two are doing GCSE and they're always on the computer. .... but having a go with it and seeing how you could use it and seeing that children do actually seem to like using it I think surprised me more."

(Interview 16<sup>th</sup> May 2008)

Furthermore, Heather's case reinforced further the central importance of teachers' ongoing personal narratives within their unfolding professional development as I will discuss in the subsequent cross-case analysis and discussion.

# 10

## Synthesis: So What?

### 10.1 Introduction

In this concluding chapter I have two aims. The first is to synthesise the findings from the narrative case studies in order to revisit and illustrate how I have progressed my understanding of the knowledge bases discussed in chapters 2, 3 and 4 of this thesis. This links directly to the initial research questions that prompted this study, namely:

- What are some of the factors that affect the development of student teachers' online pedagogical practice?
- How do different factors inter-relate to affect the development of student teachers' online pedagogical practice?

However, as indicated in section 4.3 and 5.1 these two research questions became limited in that they belied a more fundamental question:

- How can we design a pedagogical and methodological approach that captures the tension and complexity between the technological, socio-cultural environment and individual agents?

This brings me to the second aim of this chapter, to evaluate the narrative ecology framework as a conceptual model for both understanding and facilitating the development of student teachers' professional practice with technologies. I will begin by revisiting the knowledge base of mediating ecologies to argue that my data suggests a narrative approach to questions of mediation and appropriation of technological tools is more productive in understanding the complex process of professional learning. I also argue from the evidence of the five narrative cases that the process of mediation and appropriation is agent-centred, suggesting that the development of student teachers' online pedagogical practice and professional development per se is an inherently narrative process. Finally, whilst acknowledging that the narrative ecology model leaves much to be inferred, I argue that it offers insights for both insider-researcher and research participant into the complex intrapsychological and

interpsychological domain of professional learning. Thus, I will address all three research questions posed establishing that important factors affecting the development of student teachers' online pedagogical practice emerge from a complex ecology of autobiographical, socio-cultural and technological domains.

## 10.2 Research questions revisited

### 10.2.1 *Mediation, appropriation and affordance*

In Chapter 2 and Chapter 3, sections 3.2 to 3.4, I explored the issues of mediation, affordance and appropriation in order to address the first two research questions of what factors affect the development of student teachers' pedagogical practice with online communications tools and how these factors inter-relate. As discussed, the growing body of research and theory stemming from Vygotsky's work, identifies mediation and appropriation as important processes affecting professional development and practice (Vygotsky, 1978: Leont'ev, 1978: Engeström, 2000 & 2001: Somekh 2007, Pachler et al, 2010). That is, professional learning and development is conceptualised as being filtered through various socio-cultural tools and frames. Such tools might be macro-level interventions; for example government policies and curricula in education. On the other hand mediating tools might also be micro, classroom-level objects such as textbooks or technological tools like interactive whiteboards or computers. Mediating tools have been conceived of as partial, being designed for specific purposes and embodying those purposes and values through their internal design structure. The development of the interactive whiteboard from the world of commerce and business with its powerful presentational features has yielded increases in whole-class pedagogical approaches in education (Higgins et al, 2007). In this way, mediating tools themselves are seen to have influence over the educational contexts in which they are applied. As discussed in 3.4 and 3.5 some have endeavoured to exploit this process of mediation to examine how contingencies for learning might be built into the design of technological tools or learning environments containing various technological tools (Luckin, 2005 & 2008: Laurillard et al, 2000: Laurillard, 2008). The process of mediation through the appropriation of cultural tools has been described as one of growing into 'frameworks for thinking' (Ellis, 2010, p.4). Furthermore within such frameworks some have argued that human activity can be seen to follow more or less predictable scripts (Engeström, 2000 & 2001). However, what is problematic is the issue of conceiving the role of the agent as too passive.

My findings from the five narrative cases suggest that mediation and appropriation is much more nuanced and affected by the individual agents' intentions than is often acknowledged. That is, as implied in Pachler et al's (2010) active definition of agency as going beyond mere ownership, the five student teachers all brought their own experiences and intent to bear within the pedagogical context of the intervention. That is, their own narrative intent impacted upon and influenced the outcomes of the intervention significantly as has been explored in the narrative cases. Inherent within the concepts of mediation and appropriation is a dynamic and constantly evolving narrative perspective. As noted by Somekh, despite human activity being culturally and historically mediated, it remains an 'adaptive' process (2007, p.12). Underlying any *adaptive* process involving human activity lies narrative intent. Or as Wertsch similarly warns a 'static' or 'mechanistic' view of cultural tools negates the significance of a narrative trajectory which links the past experiences of agents with their current and ongoing responses to different and changing cultural contexts (1998, p.34). Thus in response to research question two regarding *how* different factors inter-relate to affect professional practice and development, my five narrative cases suggest that this narrative trajectory in the process of mediation and appropriation is a more significant factor than other contingent factors. Whilst other key factors may be built into the design of tools or socio-cultural contexts for learning, certain autobiographical factors would appear to suggest the process of appropriation is two-way as I will explore now.

### *10.2.2 Narrative intent across the case studies*

Assigning too much agency in the process of professional development to cultural tools and artefacts such as new technologies risks neglecting the significance of teachers' past experiences and aspirations; the 'configuring plot' of their developmental narrative (Bruner, 1990, p.43). Säljö highlights this when discussing the seemingly capricious character of pedagogical activity as the teacher exerts agency over activities that 'unfold in relation to a range of situated concerns and ambitions' (2009, p.316). That is Säljö (ibid) places greater emphasis on the 'concerns and ambitions' of the teacher as they engage with the mediating environment to develop their pedagogical practice. It is the underlying narrative of 'concerns and ambitions' that is argued here to be critical in understanding the teachers' synchronic interactions with the mediating ecology of tools and artefacts as the findings from the five narrative cases suggest.



For example, both Karen and Heather appeared to place a greater explicit emphasis than Maria and Joe on the importance of the subject knowledge within the intervention with the children. Karen and Heather's actions and reflections on the intervention were often focused on the issue of subject knowledge and the efficacy of the tools or approaches in addressing the development of the children's subject knowledge. Karen was concerned that the children's postings in the discussion forum did not convey the depth of their thinking, so she decided to type for the children at one point. Similarly, Heather was concerned when she discovered the children were merely copying and pasting information from the Internet into their forum postings. However, despite the focus of both of these student teachers on the importance of subject knowledge in the intervention with the children, their perspectives were still very different and nuanced by different concerns and ambitions. In Heather's case she realised her own issues in failing to match the level of the subject knowledge to that of the children suggesting a shift in how she would approach this differently in the future. Likewise, the 'now' in Karen's acknowledgement that 'some of these are now instinctive modes for me,' indicated that there had been a shift in her thinking towards social networks and the use of such tools in education. She had been prompted by the intervention to find out more about social networks, signing up to Facebook and using her leisure time to explore its potential. These shifts had come about through their engagement and reflection on the school-based intervention. Thus again in response to research question two, these findings suggests that the process of mediation and appropriation is two-way, with emphasis being on agents actively shaping the ways in which they appropriate tools for specific purposes.

From this perspective, the narrative ecology model facilitated the construction of a narrative case, which in turn became a further site for learning supporting Goodson's argument that 'learning can take place at the site of 'narration' itself, through the ongoing internal conversation and external accounts that are undertaken as a genuinely lifelong process' (2010, p.131). Reflecting on the complexity of their narrative ecology around the educational use of digital media and new technologies had begun to transform their narratives into a new site for professional learning with digital technologies and media for both Karen and Heather. Both of these cases illustrated in their own way how mediation and appropriation of cultural tools is a process involving active agents shaping the course of their own development in response to a range of factors. Thus, the student teachers were active agents impacting on and

influencing their own professional development as well as the socio-cultural contexts in which they were engaging (Pachler et al, 2010). The conceptualisation of a pedagogical keystone (Turvey, 2012) at the centre of teachers' professional ongoing narrative captures this notion of active agency. Like Nardi's hypothetical ornithologist and meteorologist surveying the canopy line, despite the two student teachers being similarly focused on the importance of subject knowledge, they can nevertheless, be seen to be responding to distinctly different past experiences. Although there were similarities in their narrative trajectories, they were in a process of realising distinctly different concerns and ambitions building their own pedagogical keystones, which had meaning to themselves (Nardi, 1996, Turvey, 2012).

Whilst acknowledging the diachronic dimension of the various socio-cultural mediating factors and tools, the narrative ecology model attempted to examine 'the qualitatively different ways in which different people experience, conceptualize, perceive, and understand' the array of cultural and technological tools they have access to (Richardson, 1999, p.53). That is, it was designed to recognise and capture the essentially narrative nature of human action and development in the way that agents 'connect[s] events into a sequence that is consequential for later action,' (Riessman, 2008, p.3); combining synchronic and diachronic perspectives. Cultural tools are not neutral but have a history of their own. However, when cultural tools are appropriated by different individuals, this history may manifest itself differently according to the past experiences and current concerns of different agents as was seen in Karen and Heathers cases. This was also particularly evident in Joe, Laura and Maria's narrative cases and again illustrated the way in which mediation and appropriation involve active processes manoeuvred by individual agents in response to certain socio-cultural constraints and enabling factors; thus the key to understanding this process lies more with the particular perceptions of the individual agent than merely the tools or contexts themselves. This finding suggests that in response to research question three regarding the design of pedagogical and methodological approaches, student teachers need to be located at the centre of this process.

Maria, Laura and Joe were arguably more receptive to the needs of the learners they were working with than Karen and Heather. Maria had wanted the experience to be enjoyable. Joe

and his partner dedicated time out of the intervention for socialising and sharing football humour with the children as discussed in 7.3.1. Laura and her partner designed activities from the start of the intervention that were what she perceived to be child-centred and designed to engage the children interactively through games as discussed in 7.2.3. However, what was it within the narrative cases and past experiences of these student teachers that disposed them towards a more learner-centred approach to the intervention than Karen and Heather's more subject focused approach?

As discussed in 7.1.3 and 7.3.1 respectively, Maria and Joe's use of online communication tools through social networking was embedded in their social lives. As a committee member of the University Snowboarding Club, Joe used FaceBook to update fellow students and organise events. Similarly, Maria made use of a wide range of communication tools to enhance and facilitate her social life from cheap cinema tickets to keeping in touch with family and friends. Laura valued the educational potential of online communication tools equally in terms of their usefulness to her socially, having witnessed the way in which the use of such tools had empowered her mother through a distance-learning course. Such past experiences appeared to play an important role in determining the ways in which the student teachers responded during the intervention, predisposing them to an understanding of the ways in which online communication tools can merge users' needs for enjoyment as an integral part of the learning process. Thus Laura valued the children's 'chatter' around the computer as they engaged with the online games, seeing this as an integral and beneficial part of the process of learning online. The potential of the tools to address issues concerning the affective domains appeared to be a common thread between these student teachers' narrative cases. Enjoyment and entertainment, keeping in touch with family and friends, and an inclusive environment for the Snowboarding Club were all key motivators for Maria, Joe and Laura's use of online communication technologies prior to the intervention. Furthermore, these motivators continued to play an important role within and beyond the framework of the intervention. That is, the rich autobiographical compost, which the student teachers brought to the intervention appeared to play a more significant role in determining their narrative trajectory through the intervention than other socio-cultural or technological factors.

In contrast, both Karen and Heather's prior experiences using online communication technologies were portrayed by these student teachers themselves in much more pragmatic terms. Prior to the intervention, online communication tools were used by these student teachers to perform various functions such as transferring files in Karen's case or as Heather remarked to 'call work....to organise or query events.' There was less evidence in Karen and Heather's narrative cases of online communication technologies resonating with affective domains such as entertainment and enjoyment. On the contrary, in Karen's case there was a scepticism and fear stemming from her concerns about e-safety and young people's exploitation online. These factors were carried through, into and beyond the intervention predisposing both student teachers towards a much more pragmatic approach to the intervention with the children. As discussed in 9.2 Heather used the children's enjoyment of the games as a lever to elicit more information from them in the discussion forum. Similarly, she drew on her mobile phone to text her university-based partner and warn her that the children were copying and pasting information into the discussion forum. Likewise, the value of the online communication tools for Karen were perceived mainly in terms of how well they functioned to develop the children's subject knowledge. When she perceived the children's speed of typing to be inhibiting the development of their thinking, she intervened and typed for the children, regardless of the impact this could have had on their self-esteem or sense of agency over the process.

In terms of mediation and the appropriation of tools, the findings from the five narrative cases suggest the need to view the teacher or student teacher, as being located at the centre of the process of mediation (Nardi, 1996: Schostak, 2006: Daly et al, 2009: Goodson, 2010). Whilst it was clear that the mediational environment including technological tools could yield a range of potential outcomes, the key to understanding *how* particular outcomes came about, lay in understanding individual student teachers' personal histories and perspectives. That is, there appeared to be a certain narrative intent or 'configuring plot' underlying each of the five narrative cases, which the narrative ecology model offered some access to (Bruner, 1990, p.43).

To some extent also, this concurred with Bruner's notion that teaching is 'a direct reflection of the beliefs and assumptions the teacher holds about the learner' (1999, p.5). Each of the five student teachers' perceptions about their learners' needs was rooted firmly in their pedagogical and epistemological beliefs and assumptions. These beliefs and assumptions were themselves based upon a range of a priori knowledge and experience. However, whilst the use of the narrative ecology model highlighted the need for an agent-centred approach to understanding the process of mediation and appropriation, it also shed light on the process of 'narrative cognition' (Goodson, 2010) and its conception as an ecological process as posited by the narrative ecology model. That is, the five student teachers' narrative trajectories appeared to evolve out of an eclectic range of different factors. In this way the findings from the five narrative cases exposed the limitations of the notion of affordance as I will discuss now.

### *10.2.3 The issue with affordance and ecology*

In section 3.3 I asked: 'How significant is the notion of affordance'? This was an important question to ask accepting the premise that tools, technological or otherwise, are socio-cultural constructions that mediate human activity (Vygotsky, 1978: Leont'ev 1981: Wertsch, 1998: Engeström, 2000 & 2001: Daniels, 2001). The five narrative cases confirmed the importance of the premise that tools are socio-cultural constructions but also drew attention to the complexity of this process. The analyses showed that a key issue with affordance is the way that it can be conceived too simply, as the direct pick up, by an agent, of a tool's inbuilt socio-culturally constructed potential. That is, a simple synthesis of two positions; a tool with designed potential and an agent who understands and recognises its potential. As discussed in Chapter 3 the notion of affordance has been challenged before (Oliver, 2005) but mainly on the grounds of its positivist roots in Gibson's work on perception (1979) and the lack of attention given to the socio-cultural domain. Pea (1993) on the other hand points out that Gibson's notion of affordance does acknowledge that 'culture and context contribute to its achievement' (p.52).

From this perspective, the application of the narrative ecology model offered some insights into **how** 'culture and context contribute' to the realisation of different affordances as they are picked up by agents differently. The findings from the narrative cases illustrated how

pedagogical actions with technological tools in cultural contexts involve a complex symbiotic transaction between various cultural, autobiographical and technological mediating influences over which teachers exert agency. It is clear that the notion of affordance is useful in terms of capturing aspects of the symbiotic transaction that takes place when knowing agents utilise the latent potential designed into tools. Neither aspect – knowing agent or latent potential – has meaning without the other. However, this is often conceived of as a tension between two points; the agent and the tool. The narrative ecology approach in Karen's case illustrated Pea's assertion that a tool's yield is contingent upon a far more complex ecology of socio-cultural and contextual factors (Pea, 1993). Furthermore, the findings from the narrative cases indicate that personal narratives and autobiographical factors need to be recognised as potentially playing a far more significant role than is often acknowledged within theoretical frameworks. However, such personal narratives or autobiographical factors still need to be viewed holistically within the wider socio-cultural and technological contexts.

The ways in which Karen utilised the technological tools available to her were dependent on an eclectic and complex ecology of mediating factors. This ecology included her own scepticism about social networking and her experiences of the ways in which she felt some teenage girls portray themselves inappropriately online. The ecology also included Karen's pragmatic and utilitarian views about the function of technologies, together with a strong commitment to the importance of subject knowledge. From this perspective, conceiving the mediating environment as a complex ecology of potentially dissonant and resonant factors enabled a more nuanced view of the process of professional development with technological tools. That is, the narrative ecology model provided some insight into Karen's various personal narratives and the ways in which these set off both resonant and dissonant forces throughout the professional learning experience for her.

Such insights into the complex relationship between a range of contextual and autobiographical factors were seen across the five narrative cases. Joe was the only student teacher to use the Instant Messaging and Chat facilities with the children he was working with. As discussed in 7.3.1, Joe had extensive experience of using a range of social networking tools as a member of the committee for the University Snowboarding and Ski

club. He had set up groups on FaceBook for those going on a trip because it helped people to feel ‘included’ and ‘excited’ in the run up to the trip. These past experiences were carried through into the formal intervention with the children and played a significant role predisposing Joe towards understanding how such tools could also be utilised with the children for different purposes. For example, as discussed in 7.3.1 Joe exploited the directness of the instant messaging tool in order to target individual children and try to focus them more on the subject matter being discussed in the intervention. His past experiences had equipped him with an understanding of the ways in which various technological tools can be utilised to appeal more or less directly to groups and individuals. In the same way he had taken time to tag individuals in photographs from the ski trip in order to make his fellow students feel more ‘included’, he utilised the specific features of instant messaging and chat to appeal directly to the children in order to keep them focused on the subject matter. Joe was not simply picking up the potential of the tools used and realising their affordance. This phenomenon was contingent upon a complex and eclectic range of autobiographical, contextual and socio-cultural factors within a synchronic event; applying the technological tools within the formal intervention. In response to research question three concerning the design of pedagogical and methodological approaches to capture this complexity, locating the individual agent at the centre of the process would appear to be vital but making connections between individual agents’ autobiographical factors and the wider socio-cultural and technological contexts in which they act is also critical.

These findings would suggest also that whilst CHAT and notions of affordance are useful frameworks for locating the various sources of mediation, adaptations are needed that emphasise the subject’s agency in the process of mediation. That is, their capacity to ‘impact on socio-cultural structures and established cultural practices’ (Pachler et al, 2010, p.13). The use of Chat or Instant Messaging is far from being an ‘established cultural practice’ (ibid) in the primary school classroom. However, Joe’s past experiences and understanding of the current context enabled him to challenge the established cultural practices and introduce Chat and Instant Messaging into the pedagogical experience. Viewing the process of mediation by socio-cultural tools merely as one of ‘grow[ing] into the frameworks for thinking afforded by the cultural practices and tools made available’ runs the risk of ignoring the richness and complexity brought to the process of professional learning by individuals and their personal



narratives (Ellis et al, 2010, p.4). Ecological frameworks are useful in identifying the complexity of pedagogical interactions. Luckin (2005 & 2008) and Luckin et al's (2006) description of a resource ecology of tools being gradually tailored towards the learners' needs, discussed in 3.4.2, is a useful way of conceptualising how a range of factors are synchronised by teachers and their pupils to create contingencies for pupil learning and their own professional development. However, the findings from the five narrative cases suggest that more recognition needs to be given to teachers' complex autobiographical experiences and how these manifest themselves to actively influence pedagogical events and activity (Pachler et al 2010). As discussed in Chapter 3 Loi and Dillon emphasise that in ecological approaches to learning 'any part of the environment, human or physical' can be utilised as a pedagogical resource (2006, p.365). My findings suggest that the human factors are vital for a more complete understanding of the pedagogical context.

The application of the narrative ecology model revealed that student teachers' past experiences played a significant role in their responses to current pedagogical challenges and their ongoing professional development with technological tools. Such findings imply that theoretical models of professional development with technological tools need to go beyond affordance and activity theory in order to offer what Goodson terms 'intimately broader theoretical understandings' of teachers' professional development with technological tools within wider political landscapes (2008, p.8). Similarly Friesen (2008) used narrative methods to illustrate the ways in which broad macro-level narratives tend to dominate much e-learning research at the expense of teachers' nuanced micro-level stories. My own application of the narrative ecology model suggests that the micro and meso-level factors that come into play as teachers engage with technological tools in pedagogical contexts, are key factors in the ongoing process of professional learning and development. Furthermore such factors may be more or less explicit, residing both within the professional context of tools and resources, and the autobiographical realm of teachers' past experiences and ongoing personal narratives. As Fisher et al argue, we need to be 'more explicit about the complex and problematic nature of what teachers know and how they come to know it' (2006, p.8). Inherent within 'how teachers come to know' is an implied chronological sequence of events that reaches back into teachers' lives and links forward into their ongoing professional development (ibid). The findings from the five narrative cases suggest that the process I

undertook of using the narrative ecology model to make sense of the student teachers' nuanced perceptions and experiences, could be developed further and used by others involved in or undergoing teacher education. The process has the potential to bring meaning for researchers and teachers, helping us to understand the isolated but nevertheless constituent events within teachers' ongoing professional development with technological tools. So what are the implications for student teachers' professional learning with technological tools and what light did the narrative ecology model shed on this process?

### **10.3 Professional learning: a narrative, multi-site process**

In Chapter 3, I discussed key issues surrounding the knowledge base of professional learning as this was central to my thesis. The complex and problematic nature of professional knowledge and learning was discussed. In particular, the shortcomings of 'segmenting and packaging' professional knowledge (Eraut, 1994, p.10) was discussed especially when teachers are seen to draw upon 'personal knowledge, which is situated and often tacit' (Loveless, 2007, p.512). That is, the need was stressed for more holistic approaches to professional knowledge and learning that recognise that professional knowledge is based upon a symbiotic relationship between a number of different types of knowledge; for example pedagogic knowledge and subject-related content knowledge (Shulman, 1987) or in addition to these, technological knowledge as represented by Mishra and Koehler's TPCK conceptual framework (2003). Similarly the uncertain and unstable nature of professional knowledge and learning was highlighted in the way that professional practice often requires continual adjustments or adaptations of professional knowledge (Schön, 1987: Eraut 1994: Loveless 2007). Furthermore, in order to prepare professionals for the oft-improvisational character of professional practice I focused on Eraut's argument that the capacity to theorise is an important disposition for professionals to develop as they engage in professional practice within authentic contexts and develop positive dispositions to change and development throughout their careers. The disposition to theorise appeared critical within 'holistic, iterative form[s]' of professional learning (Laurillard, 2002, p.71), as did the capabilities to reflect in and on action (Schön, 1987). As such these factors were incorporated into the narrative ecology conceptual model.

However, the application of the narrative ecology model and my analysis of the five narrative case studies has challenged some key aspects of this knowledge base of professional knowledge and learning whilst also supporting other aspects. In the iterative process of professional learning and development, focusing merely on student teachers' capacity to theorise, over simplifies the complexity of professional learning. The synthesis of a range of past, formal and informal experiences in response to the current demands of the intervention or pedagogical context seemed to be a significant factor in an ongoing narrative process of developing and adapting theory in practice. Furthermore the synthesis of such an eclectic ecology of past experience and present concerns – pedagogical, technological, subject content, perceived children's needs - that was seen in the five narrative cases, challenges the traditional formal-informal divide in education. In challenging this arbitrary divide between formal and informal learning the narrative ecologies of the five student teachers also highlight some of the shortcomings in theories of professional learning which fail to adequately recognise the significance of experience beyond the traditional frames of the classroom, school, lecture theatre or university as I will discuss now.

### *10.3.1 Frames of institutional pedagogy*

The narrative synthesis of past experience and knowledge around online communications technologies, with the current concerns and ambitions represented by the school and university-based intervention, discussed in 10.2, suggest the arbitrariness of the 'institutional frames' put around pedagogical activities in formal education at all phases (Kress and Pachler, 2007, p.19). The findings from the five narrative cases question the tendency to frame and define pedagogical activity by site and also suggest that some theories of professional knowledge and learning are prone to being framed and ultimately confined by the traditional notions of formal sites of learning; school, college, university. As discussed in Chapters 2 and 3, Pachler, Cook and Bachmair (2010) ask from a mobile learning perspective:

“are the attempts to confine societally valorized learning into dedicated sites still appropriate and valid? From our cultural perspective, this division is increasingly artificial, even counterproductive” (p.1)

The design of the intervention at the core of this research project was physically and virtually located at multiple sites; primary school, university, online, virtually from student teachers' own accommodation, and within and beyond formal time frames defined by school or

university. Student teachers also spontaneously used their mobile phones during the intervention to communicate with their partner who was based back at the university. Moreover, the intervention and reflection on the intervention prompted student teachers to draw on a range of experiences surrounding their use of online communications technologies from the past or outside of the formal frame of the intervention. There was clear evidence within the five student teachers' narrative ecologies, of dispositions towards online communications technologies being established and developed outside of the frame of the intervention. Such dispositions were then carried through to influence their pedagogical decisions and actions within the intervention with the children. This was seen in Joe's case with regards to the way he utilised the online communication tools to create an inclusive environment for fellow students in a University social club. These actions were mirrored in his use of the technological tools with the children as discussed in his narrative case and in section 10.2.2. Similarly Heather's utilitarian approach to her use of online communication tools in her leisure life was reflected in her pedagogical actions and decisions in the intervention, using the promise of the interactive games to elicit more subject-related discussion from the children.

These insights into the student teachers' past experiences and use of online communications technologies within their leisure lives came about through the application of the narrative ecology model to story and connect isolated but constituent aspects of the student teachers' experiences both within and beyond the intervention; that is, both 'on-site' and 'off-site' experiences were brought together under one ecological narrative framework.

The findings from the application of the narrative ecology model suggest that models of professional learning need to accommodate and recognise the important role that 'off-site' experience can play in student teachers' ongoing narrative of professional development with technological tools. The tight focus of PCK (Shulman, 1987) or TPCK (Mishra and Koehler, 2005) on the symbiotic interface between technological, pedagogical and content knowledge is useful in characterising the interplay between these domains. Similarly, Luckin (2005 & 2008) and Luckin et al's (2006) characterisation of the teacher's gradual narrowing of the micro resource ecology to meet the children's needs signifies the important role that the

teacher plays in shaping and tailoring any learning environment. However neither of these theoretical models adequately accounts for the ‘off-site’ or past experiences of teachers, which played a part in guiding the student teachers’ pedagogical actions and decisions as they appropriated and synthesised the pedagogical and technological resources they perceived to be relevant to the contexts they found themselves faced with. As discussed in 3.4 it seems that we now operate in a ‘mixed economy of pedagogy and learning’ (Kress and Pachler, 2007, p.29). That is, learning and pedagogy is exchanged between multiple sites - formal and informal - and through multiple tools or resources, both technological and non-technological. At the centre of this process is the teacher. In a paper also referred to in Chapters 2 and 3, Pachler et al (2010, p.1) posit a socio-cultural ecology as a model for learning, arguing that learning, professional or otherwise is embedded within a ‘mobile complex’, which they characterise thus:

“By mobile complex we mean the transformation of the world around us, which is increasingly marked by fluidity, provisionality and instability, where responsibilities for meaning-making as well as other risk-taking have been transferred from the state and its institutions to the individual.”

The five narrative cases were certainly characterised by ‘fluidity, provisionality and instability’ (ibid). For example, consider Karen’s shift in thinking, and realignment towards social networks prompted by the synthesis of her explorations of the technologies ‘off-site’ and her experiences using online communications tools ‘on-site’. In terms of fluidity, the pertinence of ‘off site’ experiences to the ‘on-site’ intervention was evident in Joe’s experiences using FaceBook ‘off-site’ or Laura’s experience of her mother’s participation in an online distance-learning course. Similarly, Karen’s ‘off-site’ experience of being invited by a friend’s under-age daughter to be a friend on FaceBook influenced her perception of the formal intervention. However, as Pachler et al (2010) also indicate, within such a fluid and provisional model of professional learning the locus of ‘meaning-making’ is located with the individual. That is, the key to making sense of the complex socio-cultural ecology in which professionals learn, develop and influence the socio-cultural contexts they operate in, was through trying to understand the meanings that student teachers themselves made of the connections between their experiences within and beyond the traditional frames of pedagogical experience. The findings suggest that the narrative process I engaged with of storying student teachers’ experiences within and beyond the intervention captured to a certain extent, the richness and complexity brought to and taken away from the process of

professional learning by individuals. However, this last point is also vital in highlighting one of the limitations of the narrative ecology model itself. From the perspective of the difficult and often inaccessible domain of the intra-psychological, it is important to enter the caveat that we cannot know or capture the whole story.

## 10.4 Limitations

### 10.4.1 *The whole story; nothing but?*

In Chapter 4, I addressed issues surrounding the knowledge base of language and how it related more specifically to my own research questions regarding the factors that affect student teachers' development of their pedagogical practice with online communication tools. In 4.1 my two key questions concerned the expression of student teachers' pedagogical presence online and also their acceptance of the online medium as a legitimate space for learning. These questions highlighted my intention to take a holistic view of language and as such I drew attention to some of the issues of lexical or taxonomical approaches to the analysis of language, which tend to isolate or abstract utterances from their meaningful context. The findings from the narrative cases imply the need to take a holistic view of the ways in which pedagogy or practice may be represented or expressed through utterances. As discussed in 10.3 professional learning and development with technologies in the case of the five narrative cases was influenced significantly by a complex socio-cultural ecology of factors both within and beyond the period of the intervention, and at multiple sites present and past.

From this perspective, the narrative ecology approach offered the potential to make connections between spatially and temporarily isolated but nevertheless constituent factors; that is, factors from the past and present and, factors between different sites of learning. This was vital in beginning to make explicit some of the student teachers' 'intrinsic motivations' (Xi and Feenberg, 2006, p.1) as they utilised online communication tools for pedagogical purposes. As Oh and Jonassen's (2006) findings suggest, participants' epistemological beliefs can affect the course of their online pedagogical activity and dialogue. There was clear evidence of this in Karen's case as subject knowledge was given primacy throughout the intervention over other concerns such as children's needs. On the other hand, Laura was able

to temporarily subjugate her focus on the subject knowledge to spend time helping the children get to grips with using the online communication tools more effectively as was Joe. Similarly, Maria's epistemological stance was also significant in that her fears about not 'knowing' enough about the subject matter led to her developing the strategy of using and repurposing pre-mediated information and text from children's websites whilst working online. Such insights would not have emerged if my analysis of linguistic forms were not 'subsumed within a meaningful context' (Warschauer, 1996, p.447). The key to the meaningful context was the student teachers and their 'intrinsic motivations' (Xi and Feenberg, 2006, p.1). Blake's call for 'a proper ecological relation' between face-to-face and online learning (2000, p.184) discussed in Chapter 4, would appear to be significant if research is going to provide a deeper understanding of the relationship between the elusive intra-psychological domain of individual agents and their explicit utterances and actions online or face-to-face (Vygotsky, 1978: Wertsch, 1985). It would appear that approaches to the analysis of online dialogue, which detach the dialogue as text or spoken utterance from their source, are inadequate and incomplete as Wertsch argues (*ibid*). Detaching dialogue from its source to render it for analysis – evident in many approaches to computer mediated communication - removes the potential for contextualised meaning through the stories individuals have to tell that put their utterances into a meaningful context. This was a trap into which I still managed to fall in the pilot study despite trying to avoid it, as discussed in 5.6.

However, it is important to recognise that the narrative ecology model does not claim to offer a complete map of the intra-psychological motivations and intentions of teachers as they appropriate technological tools for pedagogical purposes. The intra-psychological domain is elusive (Vygotsky, 1978: Wertsch, 1985). Nevertheless, in the same way that a good novel can encapsulate and portray a complex ecology of inter-relating characters with different motivations across different historical and socio-cultural contexts, the narrative ecology model attempted to encapsulate the richness and complexity that guides teachers' pedagogical activity. It was an attempt to 'build an adequate account of higher mental functioning' in the cases of the five student teachers (Wertsch, 1985, p.94). Thus an 'adequate account' (*ibid*) required far more than fragments of categorised dialogue or text rendered for analysis. Again, analogous to reading a novel, the more we know about a



character from the way they respond to various isolated but constituent events and perspectives throughout the novel, the more we can infer about their motivations and intentions, whilst we may never be certain. I gathered a limited range of data generated by the five student teachers throughout the duration of the intervention. Using the narrative ecology model enabled me to make connections between the different and diverse aspects of this data in order to offer a glimpse of the range of factors and higher order thinking influencing the teachers' ongoing professional development with technological tools. With regards to the complex knowledge base of language, my findings echo Xin and Feenberg's (2006) assertion that dialogue and utterances serve multiple functions relating to the whole person and cannot be reduced merely to the cognitive domain. Utterances, spoken or written, encapsulate a wider socio-cultural and autobiographical ecology, which is not rendered explicit by taxonomical or lexical approaches to the analysis of language as seen in much CMC research (Anderson et al, 2001: Dennen, 2005: Irwin and Hramiak, 2010). The application of the narrative ecology model supported Wertsch's assertion that attempts to analyse mediated activity in isolation are always 'incomplete, if not seriously misleading' (1998, p.74). However, this last observation exposes another potential pitfall of assuming there can ever be a complete story of professional development amenable to research; an issue which the analysis of the five narrative cases shed light on.

In section 4.2, discussing the conceptualisation of language within this research, I noted Wegerif's assertion that fixed or final interpretations of utterances are impossible because one cannot assume that they refer to 'fixed or stable identities' (2008, p.349). The findings from five narrative cases support this assertion. Heather and Karen's narrative cases in particular were characterised by both moments of uncertainty and certainty. Consider again this extract from Karen's interview:

"They certainly seemed motivated by it, but I think it would take more practice probably and more input for them to use the tools as you would want them to. You know, the novelty of it and them being able to you know, the emotions... [pause]. The emoticons to personalise it is quite nice, but if you were trying to make it less fun and more educational...[pause]. No that's not right those should be linked anyway....[Pause]." (Interview 12<sup>th</sup> December 2007)

Who is she talking to when she states 'if you were trying to make it less fun and more educational...[pause]. No that's not right those should be linked anyway'? Qualifying herself

in this way implies that as she speaks she is listening to herself and therefore also talking to herself as well as the interviewer. Aware that she may be contradicting herself, saying something she does not believe or indeed something which I as interviewer might disagree with, she tells herself and me, 'no that's not right.' These are the utterances of a teacher who is in a state of disequilibrium (Pachler, 2009). Such a mix of certainty and uncertainty was a characteristic seen in the other narrative cases. In 9.2.4 I drew attention to Heather's reflection on how it was a pity that society seemed to value certain knowledge over other knowledge. This was a point for ongoing uncertainty for her. Although she sympathised with the primacy given to activities such as reading and writing, equally she felt that this could be problematic. Again this gave a glimpse of a dynamic intra-psychological dialogue at the core of professional learning supporting Wegerif's assertion that identity, professional or otherwise is not a 'fixed or stable' entity but a process characterised by continual change and development (2008, p.349).

Thus the limitations of the narrative ecology model itself are exposed, for how can we be certain that the model has captured the richness and complexity of the narrative cases? As Wertsch warns, people can 'manifest different stances towards a particular narrative line' at different points in time (1998, p.100). From the perspective of the difficult and often inaccessible domain of the intra-psychological, how do we know if we have captured the whole story and, is there a whole story to capture? The glimpses into Maria, Joe, Laura, Karen and Heather's complex socio-cultural narrative ecologies suggest that the different stories of their professional development are in a constant state of change or disequilibrium. The process of professional learning and the appropriation of technological tools is a dynamic and continuous one. The narrative ecology model enabled me to capture some of the complexity and richness of the student teachers' ongoing development and refinement of their own pedagogical tools and wider professional practice in large part because of the holistic approach taken. However, it would be overstating the case to claim that this was anything like a complete picture. The implications of a constantly changing and iterative process of professional learning and development are that there is no whole story to capture, merely markers along the journey that can be rendered more accessible to meaning and research through narration. Moreover this glimpse into the domain of identity formation as a dynamic process revealed further limitations of my research, as I will discuss now.

#### 10.4.2 Further limitations

Wenger asserts that ‘issues of identity are an integral aspect of a social theory of learning’ (1998, p. 145). Indeed, issues of identity could be traced in all of the five narrative cases; from Joe’s identity as a young undergraduate student interested in snowboarding and participating in this community through social networking, to Karen’s concern as a member of the parent community about the way other friends’ children were representing themselves on FaceBook. As Wenger also maintains, the ‘concept of identity serves as a pivot between the social and the individual’ (ibid). Identities are formed and negotiated, Wenger argues within communities of practice (1998). However, a limitation of my teacher-centred approach to this research and specifically the narrative ecology model is that in its current iteration, it does not adequately encapsulate the ways in which professional identities may be formed and developed further through participation and negotiation within communities of practice. As student teachers, Maria, Joe, Laura, Karen and Heather were at the same time members of different and numerous communities of practice in the broadest sense. These communities converged at times. For example, carrying out the intervention in school in the presence of their lecturer (myself) brought together communities of practice surrounding primary schools and university. This was manifest in the uncertainty that the student teachers expressed concerning how they should introduce themselves to and be addressed by the children; first name terms or surnames. I encouraged them to decide for themselves. Further iterations of the narrative ecology model would benefit from a closer engagement with the knowledge base around identity and communities of practice. Not least also because a further limitation of the conceptual model and the methodological approach taken is that it was extremely time consuming and dependent to a large extent upon my own role as an insider researcher facilitating and constructing the narratives.

If I were to embark on this research again or develop it further I would consider introducing the student teachers to the narrative ecology model and encourage them to collaborate in the construction of their own narratives in response to a similar intervention. Supporting each other in this way to explore the autobiographical, socio-cultural and technological factors impacting upon their concerns and ambitions in pedagogical contexts has the potential to foster more of a community of practice amongst student teachers. As Wenger contests, ‘we define who we are by the ways we experience our selves through participation as well as by

the ways we and others reify our selves' (1998, p.149). From this perspective, encouraging student teachers to narrate their own and each other's narrative ecologies of technologies and professional practice could prove a powerful tool.

## 10.5 Summary of findings

This research project set out nearly six years ago to discover what are some of the factors that affect the development of student teachers' online pedagogical practice. Subsequently on realising that a more fundamental question lay beneath, the focus of this research intensified and shifted slightly. The focus became the design of a pedagogical and methodological approach that could capture individual agents' pedagogical activities within a complex technological and socio-cultural ecology; that is, to address my third research question. Thus the narrative ecology conceptual model evolved and was applied. The findings from the application of this conceptual model, discussed firstly in each narrative case and then in sections 10.1 to 10.4 are summarised thus:

- Mediation by and appropriation of technological tools for pedagogical purposes is an active process contingent upon a complex and eclectic ecology of socio-cultural, technological and autobiographical factors.
- Autobiographical factors can play a potentially more significant role in the process of appropriation and mediation than the affordances of technological tools.
- Use of the narrative ecology conceptual model to story student teachers' experiences and perceptions of a professional development intervention with technologies has the potential to create new sites for student learning.
- Student teachers' complex and diverse past experiences lead to nuanced perceptions and understandings of the appropriation of technologies for pedagogical purposes.
- Professional learning and knowledge construction is an inherently narrative process requiring both intra-psychological dialogue with oneself and inter-psychological dialogue with others.

- Professional learning and development is a multi-site process, requiring the synthesis of an eclectic ecology of factors both past and present in order to respond to current pedagogical concerns with new technologies.
- Narrative approaches can offer insights into continually evolving professional development with technological tools, but not the whole story.

These findings have implications for the ongoing design of opportunities for professional development and research with new and established technologies in teacher education, to which I remain committed within my own continuing professional role in Higher Education. I will conclude by outlining the implications of these findings for my own professional role and others' concerned with the development and research of effective opportunities for professional development with technologies in education.

## **10.6 Conclusions and implications**

Evidence of the allure of the educational potential of new technologies is pervasive in schools in the United Kingdom, as was discussed in Chapters 1 and 2. The Labour government of 1997 - 2010 invested significantly in ICT in education and aligned much of its education policy towards the modernisation of the education system, with new technologies playing a central role in the promotion of a contemporary education system. Much of this was based on the laudable aim of increasing access to education for all through technological innovations in pedagogy. However, it is clear as the findings of this project suggest, that we cannot assume that technological innovation will automatically lead to pedagogical innovation. Furthermore, it cannot be assumed to be simply a matter of providing CPD opportunities for teachers as Hammond has noted (2010). Professional learning and development with technologies is dependent upon a complex socio-cultural ecology of factors including most importantly the autobiographical experiences and motivations of the teachers at the centre of this process. Technologies can indeed 'be used to re-inscribe existing inequitable power relations' (Bruce & Hogan, 1998, np). However, as Fuller states, despite the characteristics and features designed into technological objects, when they interface with the complexities of socio-cultural contexts and agents with different autobiographical concerns and ambitions, 'a chance arises for something to happen, a signal to get strange by coming out the wrong end' (Fuller, 2005, p.166). Fuller does not mean 'wrong' in the moral, judgemental sense but in

the sense of deviating from intended design. This has significant implications for ICT in teacher education and research, as I will conclude now.

### *10.6.1 Teacher education, toolmakers & technology*

It was evident from this project that teachers' professional development with technological tools progressed according to their own 'habitus of media use or their habitus of learning' (Pachler et al, 2010, p.2). That is, all of the student teachers in the project had developed particular dispositions to the use of online technological tools prior to the intervention. Their assimilation and experience of technological tools together with their various attitudes and values about learning and knowledge led to five individually nuanced trajectories of professional learning and development. This implies the need for professional learning and development opportunities in teacher education that recognise teachers as the pedagogical toolmakers. Pedagogical tools, technological or otherwise are developed and refined through professional practice, according to an eclectic and complex ecology of autobiographical and socio-cultural factors, but teachers remain the most important point of reference or locus in this process (Daly et al, 2009). Furthermore the increasing complexity and personalisation in the process of professional learning incorporating technological tools echoes Hammond's (2010) detection of a shift in responsibility for ongoing professional development towards the individual teacher. Against a backdrop of increasing complexity with regards the range of technological tools available and the various personal dispositions that different teachers bring to these it seems inevitable that 'teachers are seen as bearing a greater responsibility to identify and address their own development' with technological tools in professional contexts (Hammond, 2010, p.28).

Thus, teacher-centric models of professional development and learning that create opportunities for teachers to *synthesise* a range of prior experience and knowledge as they experiment and explore with new technologies are likely to facilitate more meaningful approaches to professional learning with technological tools. That is, approaches to professional learning with technologies in teacher education need to recognise the broad autobiographical and socio-cultural complex within which technological tools are utilised by individuals. Teachers' pedagogical use of technological tools to provide contingencies for their children's learning cannot be detached from this broader autobiographical and socio-

cultural context. Teachers draw on a wide range of personal and tacit experience and knowledge as they teach or prepare to teach (Loveless, 2007). Those in teacher education still have an important role to play in creating contingencies for professional learning with technological tools. Contingencies for professional learning with technologies that give voice to teachers' tacit knowledge and personal experiences and perceptions are vital. As this research has illustrated through the five narrative cases, teaching and learning with technological tools often involves challenging 'established cultural practices' (Pachler et al, 2010, p.13) and being open to 'improvisation' (Loveless, 2007, p.520). The move towards more advanced modes of professional and pedagogical activity have also been characterised by Alexander (2010) thus:

“Advanced modes of professional thinking are also tacit and less readily codified and generalised. Just as many novices need the security of rules and a bounded repertoire....so experts need to be freed from rules and prescriptions and be given the liberty to operate autonomously, creatively and instinctively.”

(p.505)

Such processes involve taking risks and there may be limitations in the extent to which novice teachers in ITE can take advantage of such opportunities. Nevertheless, only providing student teachers with 'the security of rules and a bounded repertoire' (ibid) in their development of their professional practice with new technologies would appear to be setting them up to become 'the competent teachers of today [but] the ossified teachers of tomorrow' (Eraut, 1994, p.71). The latest policy document from the UK Coalition government (DfE 2011,) recognises that trainee teachers need a range of high-level skills, knowledge and understanding, including well-developed interpersonal skills. However, less encouraging is the implied move towards more school-led training because 'university-based trainees see their training as too theoretical' (DfE, 2011, p.14). Such a move would do little to address the gap, perceived or otherwise between pedagogical theory and practice, both of which are equally important. Furthermore, one would have to question the extent to which the current environment of high-stakes testing and the competitive economy being encouraged in the UK schooling system would be conducive to creating the spaces for student teachers to take risks.

Risk taking characterised the design of the pedagogical research intervention I carried out with my student teachers. This was evident during one particular incident when working in



school with the students, which has since become particularly significant for me. When working in school with the primary children and the student teachers, the class teacher responsible for the class told me that she thought I should know that one of my student teachers was using her mobile phone to text during the lesson. There is no doubt an element of risk to developing pedagogical strategies with technological tools, as this anecdote suggests. However, when I explained that the student teacher was communicating with her partner online concerning the activity with the children, the use of the mobile phone within the classroom setting was accepted and understood by the class teacher as a necessary strategy within the intervention. In this way, designs for professional learning can facilitate and legitimise appropriate opportunities for teachers to experiment with new technologies in ways that might otherwise pose too much of a challenge to the established structures or cultural practices (Pachler et al, 2010). However this last observation also highlights important implications concerning the complex role of the insider researcher.

#### *10.6.2 Narrative in Education Research*

My act of explaining to an established teacher why one of my student teachers was using her mobile phone during a lesson seems symptomatic of the wider role that narrative can play in supporting and promoting professional development with technological tools in education. It is in its own small way an example of how narrative methodologies can be utilised to create ‘stories of action within theories of context’ (Goodson, 2005, p.231) that empower student teachers to take risks, experiment and if necessary challenge the status quo. Whilst there will always remain issues of equity, voice and representation (Goodson, 2005; Cortazzi and Lin, 2006) in education research, narrative methodologies in education research offer a fertile meeting ground for professional learning and research in education. There was clear evidence in the five narrative cases presented that the student teachers’ pedagogical activities within the intervention were contingent upon a much deeper ‘configuring plot’ (Bruner, 1990) which was itself influenced by an array of personal prior experience and tacit knowledge. The main issue that remains with the overall design of this research project is that I am the teller. The five narrative cases have been co-constructed by myself to a large extent and the student teachers to a much lesser extent. How we as researchers ‘get, translate and represent’ (Cortazzi and Jin, 2006, p.28) participants’ stories will always remain problematic.

However, the act of storying the student teachers' experiences and perceptions of the intervention using the narrative ecology model, did create favourable terms of trade (Goodson, 2005) between the student teacher perspective and insider researcher perspective. The narrative approach developed throughout this thesis offered the opportunity for both myself and the student teachers to *synthesise* a range of prior knowledge and autobiographical experiences that would not normally enter into traditional pedagogical approaches in Higher Education. Narrative methodologies opened up the possibility, limited though it still was, to understand more about the whole student teacher experience in my research and teaching about technologies in primary education. Ultimately, as Goodson notes (2010) this is a question of emancipation. As researchers, and as educators we have an obligation to seek methods that offer *all*, opportunities for freedom through greater knowledge and understanding of themselves and the complex socio-cultural environments in which they operate in order to refine and develop pedagogical tools. The implications are that narrative methodologies have the potential for researcher and researched alike to 'imagine themselves in new ways' (Clandinin et al, 2006, p.10) if we can open ourselves to sharing and learning from each others' stories of professional development within wider political contexts. As Rogers states:

"To free curiosity; to permit individuals to go charging off in new directions dictated by their own interests; to unleash the sense of inquiry; to open everything to questioning and exploration; to recognise that everything is in a process of change – here is an experience I can never forget."

(Rogers, 1983, p.120)

Such processes are inherently personal and challenging (Goodson, 2010). As such they have implications for the ways in which we both facilitate and research professional learning with technologies in Higher Education with integrity and respect. The introduction of technological tools into the complex process of professional learning adds yet another layer of complexity to the autobiographical and socio-cultural currents in which my students and I act and develop. I make no apology for the fact that the development, implementation and evaluation of the narrative ecology model has become as much if not more of a vehicle for my own professional development and understanding as for the student teachers who participated in the process. As a researcher and teacher I am myself a toolmaker. I hope that other student teachers will continue to benefit from the ongoing narrative that is my own professional development. It is a process that has enabled me to free my own curiosity and

sense of inquiry, which is surely central to the role of teacher educators and researchers with a commitment to developing professional practice in education.

Word Count = 82, 092

## Afterword

### *The Toolmaker*

*“P.. P..Pass the square Bud”*

*“What square Dad?”*

*“There that I need...get this edge lined up...the spirit....level.”*

*His busy, empty hands gesture to me again*

*Losing the words now,*

*Pointing to something he sees clearly yet invisible to me.*

*He looks disappointed.*

*We’re negotiating his waning days as the*

*Dementia gradually takes*

*All he once held dear.*

*The slow goodbye.*

*But what endures as the mind wanes?*

*A slide rule...a micrometer....*

*The toolmaker’s tools*

*“Four .....mil .....Bud”*

*“What is Dad?”*

*“Need a four mil...f.. fix....fixing”*

*Once he handled with pride and deftness*

*Machine tools: Micrometers, vernier calipers,*

*He crafted tools to make components for jet engines.*

*Now I watch him struggle with*

*Spoon,..... taking..... food..... from.....*

*Plate..... to..... mouth.*

*These remaining fragments of my Dad are buried deep in the narrative of his life. Isolated and brief, these fragments of speech and actions make little sense to anyone else apart from my Mom, my Dad and myself. But he goes on making his tools somewhere in his waning mind and imagination. He’s a toolmaker you see. Aren’t we all?*

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# Appendix A: Consent Letter and Information for Parents

Faculty of Education and Sport



University of Brighton



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Lorraine Harrison  
Head of School

Direct lines

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e-mail: kt6@brighton.ac.uk

Monday 31<sup>st</sup> March 2008

Falmer  
Brighton BN1 9PH  
Telephone 01273 600900  
Fax 01273 643555

Dear Parent/Guardian and children

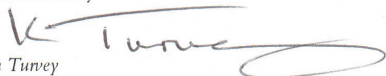
I am carrying out research into children's and teachers' use of the Internet for educational purposes. On Friday 2<sup>nd</sup> May and Friday 9<sup>th</sup> May between 11am and lunch time, I will be bringing a group of student teachers into school to work with the children in ~~the~~ class.

The student teachers and I will be introducing the children to a Virtual Learning Environment we have set up where the children and student teachers can take part in an online discussion forum and try out some online educational activities. The website they will be using is not accessible to the general public. The themes of the work the children will be doing will focus upon safety online and also caring for the environment. The activities and discussions are designed to relate closely to the National Curriculum.

The student teachers and I will be involved in evaluating the effectiveness of using an online discussion forum as an educational tool, and the children's anonymised discussions will be shared with others within the educational research community. Whilst measures will be taken to ensure the children's anonymity this cannot be guaranteed a hundred percent. However, having carried out a risk assessment for this exercise I believe there is very little risk to the children and certainly less than when using the Internet in general. As I have mentioned, the website is not available to the general public and it is monitored regularly by myself and the student teachers.

I feel this represents a unique opportunity for both the children and the student teachers and we are looking forward to collaborating online with the children. However should you have any objections to your child's involvement in this short project please feel free to contact me. I have also included a further information sheet about the website we are using. I would appreciate it if you could return the consent form below to ~~me~~ ~~them~~ if the form is not returned we will assume that you consent to your child taking part.

Many thanks for your co-operation in this matter.  
Yours sincerely

  
Keith Turvey  
Senior Lecturer Education

I confirm that I have been fully informed about the VIPs project and give/do not\* give my consent

For .....to take part.

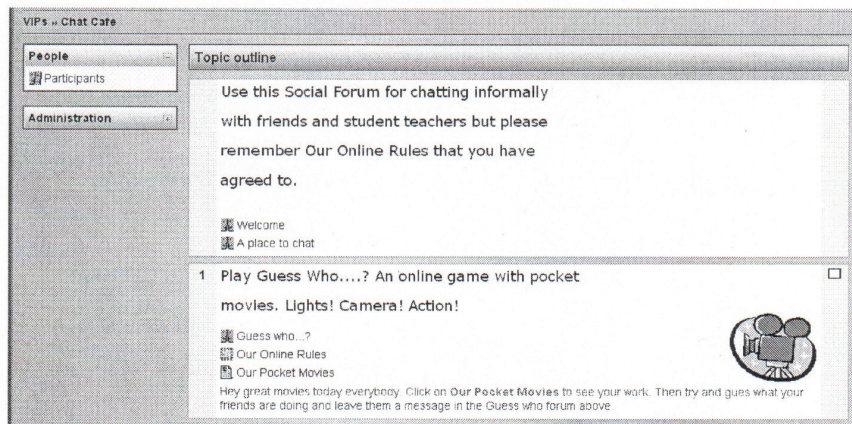
Signed .....(Parent/Guardian)

Signed ..... (Child)

\* delete as appropriate



## Virtual and Integrated Partnership in Primary Schools (VIPs) Information Sheet



### **What is the VIPs website?**

*This type of website is what is often called a virtual learning environment (VLE). This is basically a website where teachers and children can exchange and share information. It differs from normal websites in that children and teachers can upload content that they have created with ICT easily themselves without having to know how to create web pages. All schools will be expected by the Government to provide these kinds of facilities in the near future.*

### **Can anyone access the website?**

*No, anyone can get to the home page by typing the following address into Internet Explorer <http://amkt6.esl.bton.ac.uk/moodle/>*

*But beyond this users need to have an account set up by the site administrator.*

### **What are the educational benefits?**

*When children create work in school with ICT it often stays in an electronic file and other people rarely get to see it. Using the website, if the children wish, they can display their work where the other children and teachers can see it. There are also many tools like discussion boards where children and teachers can share ideas through exchanging information. This can be beneficial for their language work, their general keyboard skills and their confidence with using ICT. It is also an opportunity to teach children about Internet safety and the appropriate use of new communication tools.*

### **Who is responsible for VIPs website and why has it been set up?**

*The website is maintained and monitored by Keith Turvey. We want to investigate the educational benefits for the children and also the student teachers who are training to become teachers. Children's and student teacher's online discussions are anonymised and downloaded. These are then analysed to assess any learning taking place and also to develop student teachers' questioning strategies.*

## Appendix B: Interview Schedule

### Interview Schedule

#### Prompts

For the purpose of transcribing please can you say your name and course? (This will be anonymised in the transcription.)

Can you describe for me briefly the online activities you carried out with the children and how you feel they responded?

Could you tell me how valuable or not you found the online activities in terms of developing your own professional role?

- ◆ What things did you learn yourself about e-learning or using online communication tools with children?

Could you describe the online conversations you had with the children and how they responded?

Could you see yourself using any of the tools we've used in this project in your own practice?

- ◆ If not why?
- ◆ If yes how and why?

Tell me about your own use of online social networks.

We're all changing and developing as teachers but can you tell me what sort of teacher you are? What's a successful days teaching for you?

## Appendix C: Karen's Narrative Summary with Responses

Narrative summary, Karen

Karen's base-line survey indicated contrasting use and value of online communication tools in her leisure and professional life. Certain tools were rated as 'of no use' in her social life, such as discussion forums whereas in her professional role they were rated at the other end of the spectrum of usefulness. Interestingly, however, the qualitative responses on her baseline survey indicated how the separation of the social and the professional is difficult, for Karen indicated that she found discussion forums particularly useful for reading 'other student perceptions of observations' and 'feedback from school visits.' Although this is obviously embedded within her professional concerns there is also a sense of the discussion forums performing for Karen a social function in enabling her to remain in touch with fellow student teachers to find out how they were getting on whilst on teaching practice. This convergence of the social and professional was also evident in the interview with Karen. When she was asked about her use of social networks they seemed to perform a similar function of updating or being updated by her student-teacher colleagues on progress with assignments as evident in the following extract:

*Karen: Yes I use it a little bit but I can't pretend to understand a lot of these things that are going on [presumably referring to some of the social networking tools within Facebook].*

*KT: OK*

*Karen: whilst these assignments have been going on I've been updating people by saying 'only 200 words to go!' or 'only a conclusion away.'*

*KT: OK so you make reference to your professional life in those social networks?*

*Karen: Yes*

Karen's initial indication on her baseline survey that discussion forums were 'of no use' to her socially was indicative of scepticism towards social networking. Linked to this, and evidenced in her other responses, was the notion that her use of social networking tools was essentially functional. For example, this was seen in some of the qualitative data she offered in that her use of msn messaging was mainly to take advantage of 'file transfers.' Similarly, as well as contacting friends with her mobile phone, this device also performed a number of practical functions for Karen such as 'bookings – alarms – camera and music recording facilities, stopwatch/timer and bluetoothing music/photos.' That is, despite the potential for social interaction offered by new communications tools, for Karen it appeared that their usefulness was more related to the ease with which such technologies facilitated the day-to-day pragmatic functions such as transferring photographs and music between devices. She did use social networks such as msn 'to keep in contact to an extent with some friends I see rarely' but this was not their primary function. This functional and pragmatic view of the use of the technological tools was an approach that appeared to emerge also within Karen's experience of the school-based intervention using the VLE.

Karen and her partner employed a range of online tools within the VLE to raise and address the issues surrounding children walking to school. They repurposed video news reports featuring school children from the BBC website about the issue of getting to school using environmentally friendly means. These were embedded into the VLE. They also provided a discussion forum focused on the subject matter 'Walking to School' with various prompts to elicit responses from the children. They provided a social forum for the children to access in their own time to introduce themselves. However, the majority of the content and tools used were focused on their chosen subject matter of walking to school with the related safety and environmental issues. As well as being apparent in the visual appearance of Karen and her partner's area of the VLE this main focus from the start on the subject matter emerged in the interview with Karen. When asked why she had chosen to use video she commented:

*Em...I searched for just a short clip really that might focus the subject matter. ...which I thought....we were talking about walking to school and the safety aspects about walking to school think that could be a wide range in terms of personal safety...when could they go? Could they walk? Traffic safety....road traffic.... Roads around schools, parking issues... the*

*two clips they varied slightly but both [the two video news clips uploaded] had school, parking...getting to school issues and how two schools dealt with it differently.*

That is, the video clips were chosen primarily because of the need to ‘focus the subject matter.’ Throughout the intervention, Karen and her partner prioritised the subject matter; although they had also made links to websites containing interactive games based around the subject matter, these games were perceived by Karen and her partner to detract from the issues. For example, commenting on the games Karen remarked in the interview:

*Em I think they enjoyed them but certainly [laughs to self] when they got onto the road safety website...the games that were in there although we didn't let our little group go on them straight away...when they saw others playing games they were like can we do that?*

That is they restricted the children's access to these games in the first instance feeling that they did not serve the function of their lesson objectives as well as the other content and activities they had provided for the children through the VLE. This approach to the use of the online environment also appeared to resonate with Karen's pedagogical views and beliefs which emerged later in the interview after the intervention. On one level her pedagogical beliefs appeared to centre around the notion of the teacher as deliverer of content as she noted that:

*'In the right environment I can see that being able to get information to students that you want to and for them to share you know if there's queries and things over what they're meant to be doing I can see how that can work.'*

However on another level these beliefs appeared to be challenged by her experience of the intervention using the online tools with the children. This was expressed again in the interview where she attempted to make sense of and reconcile different aspects of the experience relating to the children's level of engagement and motivation in tension sometimes with her own focus on the subject matter. For example:



*They certainly seemed motivated by it but I think it would take more practice probably and more input for them to use the tools as you would want them to. You know the novelty of it and them being able to you know the emotions...the emoticons to personalise it is quite nice but if you were trying to make it less fun and more educational....no that's not right those should be linked anyway....[Pause] I'm not sure...I think the focus and making sure what the focus of the session was because it was quite limited the actual conversation that was actually had.*

Karen was disappointed by the response of the children within the discussion forum as indicated at the end of the extract above. She identified a gap between the thought processes she witnessed at first hand when the children were discussing their responses, and the actual content of the written responses the children made in the online discussion forum. As she remarked 'when it came to typing it in it was one.....maybe two-word answers or very limited so didn't really reflect what the thought processes had been.' Concerned with the pace of some **(this was more that I felt individual skills with typing and literacy hampered the children's answers, and therefore limited their ability to express themselves fully. This is why I volunteered to type what they wanted to say)** of the children's typing and the shortness of their replies Karen resorted to typing for some of the children when she was working face-to-face with the children. This way she felt that the written text would indicate more the quality of the thought process she had experienced in face-to-face discussion with the children as this reply she made on behalf of one of the children illustrates:

*"(Karen writing for Liz) I walk to school with my little sister and my big sister who's 8. Sometimes my nan walks with us. I have to walk quite a long way to school. We use zebra crossings and traffic lights to cross the road."*

For Karen then the use of the discussion forum by the children did not function adequately to convey the children's understanding of the subject matter. Although it had provided a catalyst for face-to-face discussion of the subject matter the fact that it did not always reflect the depth of the children's thinking was problematic as she reflected in the interview:

*KT: OK Right....do you think it matters that the level of reflection was deeper than the text indicated?*

*Karen: Em.....[long pause]*

*KT: Does it matter to you as a teacher?*

*Karen: Yes I felt it did....but also not really knowing the children and what thought processes they might .....if I didn't know that they'd had that conversation that might have been....it could be interpreted as just a flippant answer.*

Karen also reflected more on this phenomenon in her assignment and another aspect emerged. Reflecting on how the children in her group's discussion postings were often under-developed and failed to reflect their thought processes she commented that 'I have reservations about whether it is suitable for some of the youngest Key Stage 2 children as they may be unable to articulate sufficiently to engage fully without additional support.' Similarly in a personal reflection posted to the student teacher forum she reflected:

*"I wonder if this age range is ready for virtual conversations. Maybe some are mature enough, and have sufficient ICT capability, but this wasn't immediately obvious, and even on a 1:4 basis it was hard to keep them on target."*

That is Karen had significant reservations about the age appropriateness of engaging in online discussions with KS2 children. (As per my quote above – I did say the youngest KS2 children. I was working with Y3/4 I believe – and some of them low achievers. I thought at the time, and still do, that older KS2 pupils could engage better with forum, as they could probably articulate better) Furthermore this appeared to resonate with her wider views and concerns about the use of social networks by young people in general. Since engaging in this module she confided that she had signed up to Facebook to find out more about social networks. However, her experiences since signing up to Facebook had compounded her reservations about the appropriateness of such forms of communication for young people. A



daughter of a friend had approached her online, which had concerned her for the following reasons related to her age:

*a twelve year old has invited me to be her friend and I thought there was an age restriction...when I challenged her, she's lied about her age....I have not accepted her because I've seen material that I don't think is acceptable for kids to access and er...I did ask her does her mum know who is also on Facebook so does understand...er whether she knows about it...she does but whether she realises the implications of er.....*

Similarly she went on to remark:

*And what's interesting that the way some of these 12 year old girls you know they've only got to stand a little way back from the camera and their age is not that er obvious so that's a worry.*

It is clear from these responses that Karen's concerns about the age appropriateness of using online discussion with primary-age children within educational settings stemmed from her concerns regarding the wider discourse around e-safety and children. Her experiments with social networking outside of her university course had confirmed some of her apprehensions about children's vulnerability online. The extent to which this affected her approach to the intervention as a whole is difficult to quantify but the interplay between her professional use of online communication tools was routed in a range of factors including her pedagogical beliefs and values regarding the age appropriateness of working online with primary school children influenced by wider socio-cultural discourses around e-safety.

Overall, Karen's encounter of the intervention had caused her to reflect on her experiences. She noted how carrying out the online work with the children had been a catalyst to her finding out more about social networking tools, commenting that 'some of these are now instinctive modes for me.' Taking stock of her own use of social networking tools she had surprised herself, remarking that 'I considered myself a minimal user of social software until I scrutinized how I make use of the internet.' Whilst after the intervention she remained sceptical about the use of online communication tools within formal education she remained

open to their potential and was able to reflect critically on the ways in which she might approach their use differently in future. Within the online intervention she had carried out she identified several barriers. Foremost was ‘unfamiliarity with the children’ and ‘introducing ourselves, the subject matter and Moodle tools into one teaching session.’ That is she had begun to acknowledge that within the pedagogical process online as much as in a face-to-face session, addressing the subject matter at times needs to be subjugated in order for an effective learning environment to be established.

## Appendix D: Ethical Protocol

### Ethical Protocol

This protocol has been drawn up with reference to the guidelines of the British Educational Research Association (BERA, 2004) and the University of Brighton Research Ethics Committee guidelines.

#### What the partnership school can expect

*The word 'participants' is used here to refer to all of those involved in the project at school level; children, parents/carers, teachers, head teachers. The term 'researcher' refers to the project leader (Keith Turvey)*

All participants can expect to be consulted fully and given written and verbal information about the aims of the project.

Participants will be given time to consider before becoming involved in the project and they may withdraw at any point. Participation is voluntary.

The design of the project will give careful attention to ensuring that the children are engaged in relevant educational activities related to the curriculum and with appropriate learning objectives.

Measures will be taken to secure the anonymity of the children and school in any dissemination of the findings through publications or presentations. However 100% anonymity cannot be guaranteed, due to the identity and work place of the researcher being in the public domain.

The student teachers' and children's online dialogues will be downloaded from the VLE and kept securely by the researcher.

The virtual learning environment used by the children and student teachers will be password protected and kept on a 'secure' server, although it is impossible to achieve 100% security. In the event of a

breach of security such as an unauthorised person gaining access to the VLE it will be shut down immediately and the relevant authorities informed.

The researcher will establish a code of conduct regarding the appropriate and safe use of the VLE with the children and student teachers. The use of the VLE will be monitored regularly by the researcher.

There will be a clear end point to the school phase of the project with children and student teachers given the opportunity for closure in their discussions.

At the end of the school phase of the project, the researcher will share the findings with the school-based participants in the form of an informal written report to which they will be invited to respond if they wish.

If the participants have any concerns regarding the conduct of the research which they are unable to share with the researcher, they can contact the researcher's line manager, Lorraine Harrison, Head of the School of Education, University of Brighton, on Brighton 600900.

The researcher has completed an enhanced CRB check and will provide the school with a copy of the certificate at the beginning of the project.

### **What student teachers can expect**

Student teachers can expect to be consulted fully and given written and oral information about the aims of the project.

They will be given time to consider before becoming involved in the project and they may withdraw at any point. Participation is voluntary.

Should any student wish to withdraw from the research component of the module (interviews, questionnaires) they can do so in the knowledge that this will have no impact upon their progression in the taught module or the rest of their course.

The project is designed to have direct relevance to student teachers' professional development as ICT specialists offering them the opportunity to develop their own knowledge, understanding and skills in using online communication tools within an educational context.

Measures will be taken to minimise any impact upon student teachers' work load particularly during assessment periods. The collection of any data not generated through the normal participation within the module will take place at the beginning of the module and then when the module has been completed; thus avoiding any periods of formal assessment.

Raw data, in the form of interviews, questionnaires or exchanges between the student teachers and the children will be kept securely by the researcher.

Any data used to disseminate findings from the project will be anonymised, although absolute anonymity cannot be guaranteed due to the identity of the researcher and their place of work being in the public domain.

Student teachers participating in the research project will be invited to a debriefing session at the end of the academic year when the researcher will share any preliminary findings and invite the participants to respond either orally or in writing.

All research activities within the project will have been scrutinised by the University of Brighton Research Ethics Committee

Should a student teacher have any concerns regarding the conduct of the research which they are unable to share with the researcher, they can contact the researcher's line manager, Lorraine Harrison, Head of the School of Education, University of Brighton, on Brighton 600900.

### **What the researcher expects**

Student teachers must abide by the online code of conduct negotiated with the children regarding the appropriate use of the online environment and support the children in the safe use of the VLE.

Student teachers must support the researcher in monitoring the use of the VLE and report anything that concerns them immediately to the researcher.

## Appendix E: Letter to student teachers & informed consent form

Faculty of Education and Sport



**University of Brighton**

Direct lines

01273 643378  
e-mail: kt6@brighton.ac.uk

Tuesday 2<sup>nd</sup> October 2007



**School of Education**

Lorraine Harrison  
Head of School

Falmer

Brighton BN1 9PH

Telephone 01273 600900

Fax 01273 643555

Dear Year 3 ICT specialists

I am writing to you to give you as much information as possible about the e-learning research project that is linked to the E-learning and Citizenship module. As you may be aware, this module is designed very differently to most of the other ICT specialist modules on your course. Built into the module is a practical element which entails working online with a group of primary school children from a local primary school. You will then be given opportunities to reflect upon this experience. Another element to this module is its focus for an ongoing PhD research project which I am undertaking. Whilst the nature of the module will not change you do have a choice about whether to participate in the research element of the module.

I believe that the research element to this module can provide us with a useful opportunity to inform the way we enable students like yourselves to acquire the knowledge and understanding to engage effectively in e-learning processes with children. This is also important from the perspective of the new standards for QTS which now identify knowledge and understanding of e-learning strategies as an important strategy within a teacher's pedagogical repertoire. Consequently the aims of this project are:

- To develop a reflective-practice-based approach to the development of student teachers' pedagogical knowledge and understanding of the processes of engaging in online learning dialogues with children.
- To trace the development of student teachers' professional and pedagogical online identities in their teaching and learning dialogues with children.
- To add to knowledge and understanding within the ITE curriculum and community regarding the process of educating student teachers about the educational application of online communication tools.

If you decide to participate in the research element of the project you can be assured that the methodology has been designed to minimise any additional workload. You would be asked to complete a short questionnaire and participate in a further interview. Your online discussions with the children will also be collected and analysed as part of the process. Further information regarding the ethical protocol that will be followed is also attached here.

Best wishes and look forward to working with on this module

Yours sincerely

Keith Turvey

UNIVERSITY OF BRIGHTON

**Participant Consent Form (Student teachers)**

**E-learning Project**

- ◆ I agree to take part in this research which is to develop pedagogical knowledge and understanding of the processes of engaging in online learning dialogues with primary school children.
  
- ◆ The researcher has explained to my satisfaction the purpose of the study and the possible risks involved.
  
- ◆ I have had the principles and the procedure explained to me and I have also read the information sheet. I understand the principles and procedures fully.
  
- ◆ I am aware that I will be required to complete a survey and participate in two interviews.
  
- ◆ I understand that any confidential information will be seen only by the researchers and will not be revealed to anyone else.
  
- ◆ I understand that I am free to withdraw from the investigation at any time.

Name (please print) .....

Signed .....

Date .....



## Appendix F: Pilot Online Dialogue 2 (POD2)

Thread posted by child - Punishment for bullies; what do you think?	Line
<i>Child 1: I think bullies should be punished like any other people who hurt a person. What do you think?</i>	1
<b>Student Teacher 1:</b> I am not sure that they should be punished but they need to be helped and given some support and told that it is wrong to bully and asked what they would feel like if someone bullied them.	2
<b>Student Teacher 1:</b> I am not sure that they should be punished but they need to be helped and given some support and told that it is wrong to bully and asked what they would feel like if someone bullied them.	3
<b>Student Teacher 1:</b> I am not sure that they should be punished but they need to be helped and given some support and told that it is wrong to bully and asked what they would feel like if someone bullied them.	4
<b>Student Teacher 1:</b> I am not sure that they should be punished but they need to be helped and given some support and told that it is wrong to bully and asked what they would feel like if someone bullied them.	5
<i>Child 1: you advice is alot better. they should be told it's wrong.</i>	6
<b>Student Teacher 1:</b> I can see what you are saying Sophie, but it is easier said and done. We need to know why bullies bully. Sometimes they are as scared as the person they are bullying. It is only with help they can get over their problems and deal with them in a sensible manner. However, there are those bullies who no matter what will continue to pick on those that won't fight back.	7
<b>Student Teacher 1:</b> I can see what you are saying Sophie, but it is easier said and done. We need to know why bullies bully. Sometimes they are as scared as the person they are bullying. It is only with help they can get over their problems and deal with them in a sensible manner. However, there are those bullies who no matter what will continue to pick on those that won't fight back.	8
<b>Student Teacher 1:</b> I can see what you are saying Sophie, but it is easier said and done. We need to know why bullies bully. Sometimes they are as scared as the person they are bullying. It is only with help they can get over their problems and deal with them in a sensible manner. However, there are those bullies who no matter what will continue to pick on those that won't fight back.	9
<b>Student Teacher 1:</b> I can see what you are saying Sophie, but it is easier said and done. We need to know why bullies bully. Sometimes they are as scared as the person they are bullying. It is only with help they can get over their problems and deal with them in a sensible manner. However, there are those bullies who no matter what will continue to pick on those that won't fight back.	10
<b>Student Teacher 1:</b> I can see what you are saying Sophie, but it is easier said and done. We need to know why bullies bully. Sometimes they are as scared as the person they are bullying. It is only with help they can get over their problems and deal with them in a sensible manner. However, there are those bullies who no matter what will continue to pick on those that won't fight back.	11
<i>Child 1: I understand what you're trying to say but some bullies just bully for the sake of it. They go around looking for trouble and try to cause a problem.</i>	12
<i>Child 1: I understand what you're trying to say but some bullies just bully for the sake of it. They go around looking for trouble and try to cause a problem.</i>	13
<b>Student Teacher 1:</b> I do agree with you Sophie, but what I'm also saying is that there are children who bully because they have problems and need help themselves. We can try and stamp out bullying, but I don't think we will ever completely get rid of it.	14
<b>Student Teacher 1:</b> I do agree with you Sophie, but what I'm also saying is that there are children who bully because they have problems and need help themselves. We can try and stamp out bullying, but I don't think we will ever completely get rid of it.	15
<b>Student Teacher 1:</b> I do agree with you Sophie, but what I'm also saying is that there are children who bully because they have problems and need help themselves. We can try and stamp out bullying, but I don't think we will ever completely get rid of it.	16
<i>Child 1: Children who bully have probably got problems but why do they take it out on other children they have no excuse for that.</i>	17
<i>Child 1: Children who bully have probably got problems but why do they take it out on other children they have no excuse for that.</i>	18
<b>Student Teacher 1:</b> I know there are no excuses for bullying others Sophie, but some children who bully and have problems take it out on others because it is a way of getting noticed. They don't know how to ask for help straight out, so when they bully it may be a way of them saying to someone "help me, I need help".	19
<b>Student Teacher 1:</b> I know there are no excuses for bullying others Sophie, but some children who bully and have problems take it out on others because it is a way of getting noticed. They don't know how to ask for help straight out, so when they bully it may be a way of them saying to someone "help me, I need help".	20
<b>Student Teacher 1:</b> I know there are no excuses for bullying others Sophie, but some children who bully and have problems take it out on others because it is a way of getting noticed. They don't know how to ask for help straight out, so when they bully it may be a way of them saying to someone "help me, I need help".	21
<b>Student Teacher 1:</b> I know there are no excuses for bullying others Sophie, but some children who bully and have problems take it out on others because it is a way of getting noticed. They don't know how to ask for help straight out, so when they bully it may be a way of them saying to someone "help me, I need help".	22
<b>Student Teacher 2:</b> I don't think they should be punished, they need help and if you are being bullied you need to let people know so the bullies can be stopped.	23
<b>Student Teacher 2:</b> I don't think they should be punished, they need help and if you are being bullied you need to let people know so the bullies can be stopped.	24
<b>Student Teacher 3:</b> They need to understand how they feel and how they make other people feel so that they understand why it is wrong to bully, not just be punished.	25
<b>Student Teacher 3:</b> They need to understand how they feel and how they make other people feel so that they understand why it is wrong to bully, not just be punished.	26
<i>Child 1: If someone is bullying someone then they get away with it. They just get sat down and talked to but if someone is hurts someone one time they get in trouble. That's not fair on the other children. There is one rule for one and one rule for another.</i>	27
<i>Child 1: If someone is bullying someone then they get away with it. They just get sat down and talked to but if someone is hurts someone one time they get in trouble. That's not fair on the other children. There is one rule for one and one rule for another.</i>	28
<i>Child 1: If someone is bullying someone then they get away with it. They just get sat down and talked to but if someone is hurts someone one time they get in trouble. That's not fair on the other children. There is one rule for one and one rule for another.</i>	29
<b>Student Teacher 2:</b> It is not nice to bully, however I am not sure that punishing them is the best thing to do. Maybe they need help instead.	30
<b>Student Teacher 2:</b> It is not nice to bully, however I am not sure that punishing them is the best thing to do. Maybe they need help instead.	31
<i>Child 1: I think they do need help but why do they take it out on other children. They haven't got a excuse good enough for that.</i>	32
<i>Child 1: I think they do need help but why do they take it out on other children. They haven't got a excuse good enough for that.</i>	33
<i>Child 2: I think you are write Sophie they should be treated the same horrible way.</i>	34
<i>Child 2: I think you are write Sophie they should be treated the same horrible way.</i>	35
<i>Child 1: Thank you samuel you're the only one who's agreed with me, although some people today have changed my mind slightly but only on the fact that they might have a problem.</i>	36
<i>Child 1: Thank you samuel you're the only one who's agreed with me, although some people today have changed my mind slightly but only on the fact that they might have a problem.</i>	37
<i>Child 2: so why dont thy agree with you you maake a good point.</i>	37

## **Appendix G: Pilot Phase Interview Schedule**

### **Interviews Pilot Phase October 2006**

Can you please begin by telling us some background information about yourself (name, course, year, specialism etc.)?

Can you describe for me your experiences of the Elearning and Citizenship module so far identifying any highlights or frustrations?

What would you say are some of the advantages or disadvantages of learning about and using the online community alongside the children?

How important do you feel the face-to-face work carried out with the children is?

How significant would you say the online activities have been for either yourself or the children?

Could you see yourself adopting any of the face-to-face or online strategies in your own teaching in the future? Explain why or why not

How far would you say the experiences you are having in this module are contributing to your professional development as a teacher?

### Appendix H: Heather's annotated interview transcript

**LP Interview**

Can you start for me by describing the online activities that you carried out with the children and how you feel they responded

Yeh well the first session I was at Uni and my partner was in school ...we had quite a few games and placvers for them to look at including websites for them to research on.

Yes

And we had two discussion forums one was sort of a hi how are you ...what rules should we design for using this site and the other one was more about the e-safety part.

Right

I found that the em..conversation flow so it started a little bit and then I had a text from my partner saying 'open up the games.. open up the games' and then I didn't hear from them for a while. I tried to prompt a bit more talking before I opened up the final game where it was this challenge to er I don't know...to open up the and say what do you think you've learnt? Then I got another text to say "put the other game up..put the other game up." Then I text back saying "try and get them to write something" and she said er "well it's coming to the end of the lesson so just put the other game up." I got a few responses but it wasn't that kind of in-depth discussion it was more kind of that's my answer.

Right...So that. How did that feel being at the university then?

Well yes it's kind of like I didn't know what was going on because it's like I'm waiting for any questions. Being out of control because you've got a rough lesson plan in the sense that we'll do this then this then this and I expect this and this to happen between these events. Thinking that my partner was aware...had the same expectations that I had but then the text said "put the games on" seemed to me a bit more it wasn't my expectation of what would happen and the encouragement of talk. Whereas if it was more my own lesson your expectations can be met or not. Whereas being two people in two places doing the unknown was a bit 'Oh right OK yes do that then.

Right I see yes. So how did you feel the children responded over the two weeks, when you were at University but also when you were face to face?

Well when I went to school I actually asked them how they felt about this. And they liked it they said they liked playing on the games. Erm I then asked do you think you could use it as an actual tool> They all said yes but the two boys said they'd been on it but no-one else was using it and the other one said his computer was too slow. They could see the limitations but I think they responded well. Possibly because of the site but also possibly because they had these quite young (presumably referring to themselves)... innovative new idea

*Control comes throughout as a theme - see at end too. She has clear firm views/expectation - this seems a point of tension here.*

*Interesting the way she relates the experience through the interview using different voices - teacher voice children's voices, narrator.*

*Referring to the novelty - new tool also higher level of adult attention student to pupil ratio*

*Asked the children - teachers needs.*

*Teacher between 2 teachers*

*Asked the children for their views*

*Steps*



Thinking how it might be embedded more in the classroom activity - reflection critically or intervention

Seems to be saying for it to be an experience that would contribute to my own professional dev. and we it would depend on the type of teacher you were - ethos etc.

REFLECTION -> questioning  
 the sustainability - critically reflect the context.

with some games that they got to mess around on. But if I was thinking about it long term it could fizzle out quite quickly. It was like we've got these young quite interesting people and this new game type learning. Possibly the responses could go down. But they did respond quite well and we did get the chat going and we did get response...there was discussion...no one just sat there doing nothing.

We'll come back to that in a minute. I interested in the idea you say that 'it could fizzle out' ...so what steps as a teacher might you take to keep children engaged online?

I think you'd have to monitor it well and update it and refresh it. Yes I think one of the points raised is that it forces you to be more organised...but then I don't necessarily agree with that because you could just leave it and have no news up on there for years. But I think if you kept it exciting and it did actually have a purpose instead of like oh well we've got this new learning environment and let's go on it today. If it was integrated in as a tool to enable a different kind of learning and enhance the collaborative working that was already in your classroom I think then it probably would keep it's interested because it had a purpose. It was still new even though the thoughts on it weren't new and also rather than just having games and then a conversation try having a video and then not maybe having discussion sometimes and using in different ways and different times just having discussion.

Referring to a discussion had with other students at university

THEORETICAL/ REFLECTIVE

Hmm

So keeping it different and changeable.

Right OK....Erm how valuable or not have you found carrying out the online activities in terms of your own professional development?

Erm.....I think there is value to it. I think the two sessions we've had in school is a snippet. I don't think it represent the full value of it. Because it is a bit kind of two random topics....I think I wouldn't use it all the time and I think that rather than it being a tool to suddenly enable discussion and collaborative working and non-confrontational - all of the things we've talked about - I think it has to be your ethos of the classroom anyway and that erm you do allow for discussion and yes it's ok to make mistakes that's not what we're looking for, it's about getting ideas down...I think if you were a teacher who always looked for spelling they couldn't switch that off...to apply it on a computer. They'd still be worried about spelling and looking for it on the computer. That would have to be the ethos you first initial ideas it about the ideas you're developing .... That's a good process to go through.

Again referring to some of the theoretical discussion

I'm interested in ...you mention the ethos there. Do you think that you can express you know is it possible to express ethos online then for you?

Erm yes I think so (pauses)

Did you feel that from your experience?

child centred?

I'm not sure but I think in a way you can because you do ask the children and we asked them how they think they could I mean we asked them how they think they could use the site. I mean it wasn't touched on greatly but...And like we carried that on you know 'this is how we learn and these are the rules of the site' you know they're all ethos. We're asking them about the rules and limitations and expectations and the working part of it does convert online. Whether you need your outside influences before you go online...could you just turn on a computer and all of the sudden you have ethos...probably not. I think you can apply them both and reinforce them both in the classroom and online.

Attitudes! Values! Classroom seen in virtual - of vice versa.

Feels that created an opportunity to try something which she may not have tried otherwise

Right

Attitudes and values about inclusion may have stopped her from adopting approach with all the internet.

Reflects critically

takes pride in critically reflected view here

So I think I wouldn't have probably thought of doing a forum. But on my own I probably wouldn't have used it in that way and erm for me I can really see what about all those children that haven't got a computer or haven't got the internet or there's four children in the family and two are doing GCSE and they're always on the computer That's quite a big flash up to me because I'm interested in inclusion and in those children who generally aren't included. With all these different methods they still seem excluded. I feel this could just be another thing that excludes them.

Yes I see and ....how is that...different to what you might have got out of just say looking at Moodle for example in university and not engaging with the children?

I think I would have been put off quite quickly because at first glance it's quite boring...it's quite grey you can't change the writing much really I mean you can change the font and stuff but when you have a forum it looks like that...when you have a research thing it looks like that...I mean it's not like when you go on CBeeBies it's like flashing things over here and different writing and different sections. It's lot more eye-catching and you think what would a child want to surf through CBeebies or Moodle? I don't think Moodle is particularly aesthetically pleasing not for me anyway... but having a go with it and seeing

Critical of the software design perspective



*Taken by surprise by the children - 100 papers -> prompted a re-evaluation*

how you could use it and seeing that children do actually seem to like using it I think surprised me more I thought they'd be a bit more Oh this is boring but they did seem to actually enjoy it.

OK that's interesting. Let's move on. You talked earlier about the types of conversation. Can you describe the types of conversation you had with them or your partner had with the children and how you felt they responded?

The recycling one 'what can we do?' that was when my partner was at Uni and I was in school. Erm On that one she asked a specific question which did enable them to go and research but then their reply back was a copy and pasted excerpt from the website and so obviously that wasn't really engaging in conversation because it was just copy and pasting, passing on information but they haven't read it...

*Again critical reflection on her and her partners' planning etc.*

*This is consistent with what she says later about*  
So did they actually .....which bit (finds the online discussion for student to indicate the copy and pasted part) *'there's always a reason for things'*

Further down ....I think it's that bit there and if you read it like 'waste paper merchants or resource management companies' (reading the children's posting) Actually I read through some of the bits when I was in school and it's not really that accessible for them...they don't know what that means. I had to explain quite a lot of it which was a fault of ours because we hadn't gone through the site enough to check that it was appropriate for their level but like it's very obvious that they'd copied it. I did let her know that they'd copied it (using mobile to text).

*critical reflection on their own practice.*

Right

So as you can see she's written can you tell me in your own words? As you can see they've written "OK" and a big smiley face. Their comments were 'Oh she knew, she knew....' (imitating the children's surprise). But that didn't inspire them to engage in conversation because by then they'd found more games and more things to do.

*Ethos of classroom environment -> Also wider socio-cultural context*

*about learning*  
So there was a sense that this was the wrong thing to do was there?

*Affordance of e-learning tools*

Possibly yes and it was a bit kind of cheating...

Where do you think that came from?

*used mobile to inform partner*

Well it's probably again like in the classroom if you were to hand in work that obviously wasn't yours the teacher would pull your work or if you said something that was very kind of 'I wouldn't expect you to say that' you'd ask questions to kind of expand on and I don't know their kind of level of coverage of plagiarism but whether there is anything you know you shouldn't just copy and paste when I used to be in school I mean not necessarily in primary....

Do you think your partner (online) would have spotted it. Did you have chance to talk to her about it?

Also critical reflection on negative affordance of tools.

She did text back and yes I gathered because she'd found it really over the top I mean 'Local Authorities, Waste Management Companies or Recovered Paper Merchants' even we're going 'what' so I think she did spot it and if we'd gone on again a very child friendly site that had it in very like child friendly terms it may have been less easy to spot and you could use it as an assessment...so you can't always like less easy to crack like look at this 'good use of vocabulary, understands the ideas and manages to break that down into points' (teacher voice) whereas in fact they've just gone copy and paste and they don't even know what it says. I think in that way you could be ticking all of these things, yeh they understand and you move on when actually no-one understands because it was just a copy and paste job.

Wider socio-cultural values about learning - individual contribution etc.

Right hmm

Which I'd have never thought about until they did it. It's quite interesting. I'm quite pleased that they did that really because you can see.

Innovation prompted re-evaluation

Right ..hm so it's made you understand a little bit more some of the issues. OK what about any of the other conversations. What would you say about the other discussions? Have you had the chance to reflect on any of these?

Yes well obviously I read through with them while I was there because they were 'is that OK? Is that about right?' because they were wanting my approval before they sent it.

Right hmmm

Valuing 'individual' over shared 'group' discussion

And they did....there were three girls working with one computer and we discussed what they should send and it had obviously been quite pushed that they would 'if I have a say it's your turn to type and if it's your turn to type...' So that way it was quite good because they were all having a go but it meant that 'you have to give a point, you have to give a point, you have to give a point' It was like banded about into a sentence that then was put onto the thing whereas when I was typing and I was at Uni I just got the end result of a sentence or two so I may not have seen it as all of their different ideas. It could have just been one so I think it would work better if it was just one person to one computer.

Uncertainty - dis-equilibrium Between wider socio-cultural values regarding

Adapt to her own views and theories of learning

Right

ATTITUDES + VALUES - ASSESSMENT individual

I think you'd see more their idea because it's going to be more thinking and doing rather than having a discussion band out ideas first. So if you talk in terms of learning so they can have a pair and they can discuss it before they open it out to everybody you know in terms of social development and intellectual...on that side of it. Is it better to let them talk before they offer the kind of seen discussion point or should you in terms of being able to see their ability in these view points, not allow them that discussion and to come straight from them?

Tension here

Interesting here she poses it as a question

But then this seems to create tension with what theoretically she has learnt about learning



The wiki comes up a number of times I wonder if it is because of the teacher's individual contributions?

Hmmm. Yes that's interesting. So what was the discussion around the computer like as they were framing what they were going to say?

Erm...they were quite I think a couple of them did lead it a bit more....one wasn't very good at spelling and when it was her turn to type she wrote it and erm the other girls did delete it and put it correct....Not in a nasty way...it was done like very nicely but again that was changed so it wasn't her input in that sense and because some of the words they couldn't quite decide how to spell so they changed it. But it was kind of one would start a sentence like "recycling is..." and then "Oh no no... 'we need to recycle because' and it would get changed and they'd all say because of the planet and they'd ask 'what do you think?' And I'd say..they did a couple of points and I'd say well what about animals? What about the netting they use on oranges what might get trapped in there and they said animals and things like that so that was another point that because they'd spoken to me they were able to expand on them and then if hadn't been there would that have come up I don't know...it's that sort of question

Again tension between individual and collaborative views of learning  
ASSESSMENT Attitudes + Values

Yes OK, moving towards the end then. Could you see yourself using any of these tools in your own practice?

Yes I think erm the wiki is quite good as it is more like less crossy outee like you can change it without you can redo it and decide whether you're going to keep it or not..I think there is a place for a forum. I think it could be quite good in like 'what do you think about the topic?' So you run it over a topic...you could possibly use it as listing their ideas before you start the topic and you could run it again at the end to see if they've changed in any way. Like through discussion in your class if you're teaching through that way ideas would change rather than trying to get the ideas to change whilst in that forum.

Again my i- track -d asosos individual

Right

You could kind of map there they were, there they are and you could see by the difference in responses or who responds or some of the things I think you could use it in that way. More that way than 'we're going to have an hour on the forum' and trying to get them to develop their ideas in that set time. Have it as a before and after might work better for me.

OK fine....OK obviously we're all changing and developing all of the time but what sort of teacher do you describe yourself as?

Fantastic! (Laughing ironically) Erm I think I'm quite aware....of different issues in the class ....I find it quite interesting about why isn't that child behaving and I'm very much on the influences rather than the child. It doesn't just happen like they wake up one morning and they wake up one morning I say oh I'm going to be evil today. There's usually some reason so I'm really interested in things like that so that makes me aware. I'd say I'm fair and a fun teacher in that I engage and have a laugh with the children but I make it very clear where the boundaries are. And I stick to that boundary so it's better for them there's more structure

Establishes herself as someone who is interested in looking beyond the surface - A thinker - 'aware'

Theorises her beliefs about behaviour management

and they know where they are. And I'd say I'm a positive and stickers sort of person in that I do actually believe in praise and encouragement but I do actually think it's important to emphasise that they have chosen that and it's not just suddenly that they got this sticker. There's a reason for this sticker whatever the rules and that they chose the right behaviour and they've now got the reward so that if they choose not to that's an actual choice they've made but I think it's important to emphasise that. I know a lot of opinion now is are they then learning doing just for the sticker rather than doing for the learning, the actual point of the learning but I think if you make it clear that it's a choice that they are making it's OK because you're rewarding the choice rather than rewarding this miraculous happening that somehow they did this work and that day God decided that they were going to do a page or whatever ...it was their choice and that's what I'm rewarding.

children's agency - choice

Right...You bought up learning there what about your thoughts about how children learn best then?

Extrinsic NI theory been internalised one ... I think there

Again draws on theory to back her beliefs about learning

Well just with variety and because I think if you were to hit .....I think there are different intelligences and there is importance in the other intelligences like you know social, interpersonal, intrapersonal ....I'm interested in that as well and I think they are important as well. I think it's a shame that society pushes the more have to be able to read , write and do it in like a comprehensive way but on the flip side of that they are very important skills so you can't just go 'oh well you don't know how to write a letter it doesn't matter' but I think it's not all about writing the received copies from the book (?) There's different ways of and I think if you provide a context and a purpose it really does help things like that. I agree that talk helps and they can bounce ideas off and I think they're important skills for life....you need to be able to when you don't know say right I need to be able to go how am I going to do this? I could go to the library I could visit my friend and have all of those skills so if you don't know how to do something you at least know how to find out something because that's the important thing. If don't know anything about History it doesn't bother me so much because I know how I can find out about History when I need to or if something comes up I feel I have the skills to talk to people, write a letter or phone somebody.

Right hmm

And that's important as well to develop so not necessarily fully on you'll be alright because you know how to spell if they come across something new and just go ah. That's important as well how they develop a system of how to learn.

OK well thank you very much \*\*\*\*\* that's really interesting



Appendix I: Narrative Ecology used in Analysis of Case

