Online discourse in a primary school setting

James Rourke

B.A. (Hons)

MA in Education (by Research)

University of York

Department of Educational Studies

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ABSTRACT

The government has laid down the expectation that by 2010 all schools should have some form of virtual learning environment. Although the use of online learning is now common place within many higher education establishments, the uptake of such technology within schools is arguably poor, more so in the primary sector.

Much research has been done in relation to the effects of online collaboration and discourse with adult student learners and this case study aims to explore whether such effects are evident when online discussion technologies are used within a primary school setting.

Using a range of research methods, both qualitative and quantitative, this study explores the emergent issues surrounding the use on an online forum with upper key stage two pupils. It is a small-scale study based on 52 pupil participants and two classes: Year 5 and Year 6. It explores the effect an online forum can have when imbedded into the teaching and learning of two National Curriculum foundation subjects (History and Geography), whilst shedding some light onto the generic benefits and pitfalls of such technology use.

This study found that children evidenced a higher level of involvement within curriculum based discussion and interaction, with a notable increase in social constructivist learning taking place. Student attainment, linked to National Curriculum levels of attainment, was seen to make some slight gains. Pupil motivation and attitude towards their studies was also found to be positively affected.

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CHAPTER 1: INTRODUCTION AND RATIONALE

Online Learning: The Current UK Context

In 2005, the government published its e-Strategy, *Harnessing Technology: a system-wide approach to the application of ICT in education, skills and children's services*. This ground breaking publication proposed that we needed a new understanding of the pedagogies appropriate for a 21st century educational system, arguing that "traditional methods have not achieved enough." (DfES, 2005: p.26)

As part of this strategy, the government laid down the expectation that "by 2010 every school should have integrated learning and management systems (a comprehensive suite of learning platform technologies)." (BECTA, 2007: para. 2). Such technologies, often referred to as Virtual Learning Environments (or VLEs), are now playing an increasing role in the delivery and facilitation of learning throughout the country.

The definitions and terminology associated with Virtual Learning Environments are wide and encompassing, often spurring heated debates as to what they exactly are. The British Education Communication and Technology Agency (BECTA), the government's leading agency in the effective and innovative use of ICT within learning, defines a VLE as "a standardised, computer-based environment that supports the delivery of web-based learning and facilitates on-line interaction between students and teachers." (BECTA, 2003: p.1). Such a refined explanation of this technology is expanded upon further by Weller who cites the following description from Whatis.com:

> A virtual learning environment (VLE) is a set of teaching and learning tools designed to enhance a student's learning experience by including computers and the Internet in the learning process. The principal components of a VLE package include curriculum mapping (breaking curriculum into sections that can be assigned and assessed), student tracking, online support for both teacher and student, electronic communication (e-mail, threaded discussions, chat, Web publishing), and Internet links to outside curriculum resources.

> (Weller, 2007: p.3)

A more useful (especially in terms of this dissertation) and popular definition of VLEs, clearly encompassing the overriding common feature of online communication and discourse, is that used by the Joint Information Systems Committee in the UK, which states that a VLE "provides the online interactions of various kinds which can take place between learners and tutors, including online learning." (JISC, 2000: p.2).

Evident from the vast amount of literature concerning online education, VLE and e-learning technology has, since its genesis, been largely associated with higher education institutions, distant adult learners and to a lesser extent - colleges. During the early to mid years of this decade, statistics have shown a significant uptake of e-learning platforms within universities and colleges across the country, with a 24% increase in usage from 2003 to 2006 (BECTA, 2006: p.17). Indeed more recent research has found that "over the past decade, [the] implementation of VLEs has become widespread in further and higher education." (BECTA, 2008: p.14)

The government's aforementioned target to see all schools incorporating some form of virtual learning experience for their pupils by 2010 has very recently seen a

considerable increase in online learning within secondary and, to a lesser extent, primary schools. Findings from government research has found that "in many [primary] schools, VLE deployment is still in its early stages" (BECTA, 2008: p.14) and that, "the use of VLEs to enhance learning was not widespread." (OfSTED, 2009: p.4).

The use of online technology in the primary education sector is therefore in its very early stages, with OfSTED's very recent research paper, *Virtual Learning Environments: An evaluation of their development in a sample of educational settings*, finding that:

> The use of VLEs in the primary schools visited was very limited. In the secondary schools the effective use of VLEs increased with the age of the students.
>
> (OfSTED, 2009: p.5)

Because of this, there is very limited research into the area of e-learning within primary education and so this small scale dissertation will somehow attempt to explore the use of such approaches to teaching and learning with younger aged learners, focusing on a VLEs utilisation of online discourse and interaction.

Rationale for Study

The delivery of curriculum content is changing rapidly within education; internet-based learning, a wealth of educational software and an increasingly evident use of ICT within schools are heralding a new approach to pedagogy within Britain. The present government proposes that "we need a new understanding of the pedagogies appropriate for a 21st century educational system", having argued that "traditional methods have not achieved enough." (DfES, 2005: p.26). It was evident therefore that as a newly qualified primary school teacher, and an ICT coordinator, I had both the *opportunity* and the *responsibility* to consider new approaches to teaching in an attempt to raise standards, improve teaching quality and trial and evaluate an innovative approach to curriculum delivery within the primary sector.

In 2003, prior to the government's desire to see all schools adopt some form of online learning platform, BECTA stated that it may "be the case that a fully integrated VLE will not be appropriate for a primary school" (BECTA, 2003: p.35).

However in 2005, Miles Berry, a deputy primary head teacher from St. Ives, introduced an online learning platform in his primary school. A report issued in the Times Educational Supplement quoted Berry as being of the same mindset as myself:

> Having read about the impact of virtual learning environments in higher education, I wanted to see whether discussion forums, collaborative workspaces and online assessment might have a similar impact in a primary school.
>
> (Berry, 2006: Internet)

Indeed literature, which shall be explored further in this dissertation, concerning the use of virtual learning in higher education has highlighted the many benefits and advantages of online learning. As a fellow primary practitioner I have been equally as interested as Berry as to whether these successes can somehow be transferred into the primary sector. One of my major interests however, as opposed to Berry's more generic and encompassing study of VLEs, was that of online discourse and interaction and how, or indeed if, online discussion enhanced the teaching and learning experiences of primary aged pupils.

Alongside the justification of evaluating the use of such technologies in the primary sector, a further personal motivation for this study is that of professional development. In his foreword to the government's *Learning and Teaching: A Strategy for Professional Development* publication*,* David Blunkett, the then Secretary of State for Education and Employment, stated that, "I believe that professional development is above all about developing extraordinary talent and inspiration, and especially the classroom practice of teachers, by making sure that they have the finest and most up-to-date tools to do their job." (DfES, 2001: 1). Indeed, as already mentioned, we have entered into an age in which tools and technology, such as the Internet, are playing a pivotal role in classroom practice and the delivery of learning across the country. For such a reason, as a reflective practitioner and a young teacher who wishes to enhance his career and practice, the completion of this research has provided me with the opportunity to use such up-to-date tools and technologies in an attempt to implement and explore something new and groundbreaking within my school. Not only has such a process highlighted to me the beneficial nature of practitioner and reflective educational

research, but it is hoped that it too has enhanced my chance of career progression and status as an ICT specialist teacher.

The Research Project

As a Year 5 teacher, and the school's ICT coordinator, I was keen to explore within this dissertation the practicalities, implications, shortcomings and educational benefits of setting up, and using, an online discussion forum with upper Key Stage 2 pupils. I aimed to use the forum to enable pupils to discuss about curriculum content outside of normal timetabled lessons. I wanted to look at whether these technologies have any pedagogical benefits for younger learners and whether or not it is feasible for the government to encourage their use in the primary sector. I was therefore eager to focus on how online discourse related to more traditional pedagogical theory; how pupils in Years 5 and 6 interacted online; how adults involved in the project, such as teachers and parents, were effected; and whether or not the use of online forums enhanced the curriculum, learning environment and general experiences and attainment of the children involved in the project.

Online discussion forums allow their users to talk and 'chat' online using their computers by means of a 'virtual notice board'. It is a one-to-many mode of communication which does not require the recipients of a specific message or comment to be logged on to the computer or Internet as the same time as the sender. This form of online interaction is different to 'synchronous' communication, such as real-time chat

rooms, which happens instantly and involves all parties being logged onto the computer simultaneously (MSN Messenger being a popular example). Online forums are therefore 'asynchronous' and can sometimes be referred to as online 'conferencing', discussion boards, or computer mediated communication (CMC). Figure 1 outlines the forum used throughout the research project, explaining in a concise manner its features and functions.

The research was carried out during the 2008/09 autumn term in an urban, co-educational, voluntary-aided primary school; it involved the Year 5 and Year 6 class. The project was undertaken by myself, the Year 5 teacher, and a colleague in Year 6. A cross-curricular approach to the forum was adopted, with the groups of children using the discussion boards to talk about their learning, answer and pose questions, and share knowledge relating to a topic currently studied within the classroom. As an example, children in Year 5, whilst studying the Victorians in history, utilised the forum to talk about the role of women in Victorian society and the suffragette movement. Questions were raised by both teacher and pupils, answers were given, knowledge was shared, further questions highlighted and online interaction relating to the topic transpired.

The list of threads enabled users to read or reply to specific discussions.

Features available when posting a new message, included: emoticons, inserting images, inserting links to other websites, creating an online poll.

Discussions were threaded, so that initial posts and any replies were clearly accessible.

FIGURE 1:
THE FEATURES AND FUNCTIONS OF THE ONLINE FORUM USED

Three distinct areas of interest were explored through the research project: Discussion, Involvement and Inclusivity; Skills and Attainment; and Attitudes and Opinions. I felt that these three areas, which form this dissertation's main chapters and research areas, provide a sufficient overview as to the effect online discussion forums have on teaching and learning in the primary curriculum.

Discussion, Involvement and Inclusivity

This chapter looks at how online discourse relates to the fundamental nature of education and communication, linking in to traditional pedagogical theory such as social constructivism, and discourse being at the heart of learning. It attempts to analyse the manner in which upper primary aged pupils converse online, drawing upon evidence and findings from the online forum and fundamentally pupils' posts and contributions. Issues involving increased or decreased involvement in curriculum discussion are covered, and comparisons are made between classroom and virtual learning environments. There is opportunity to discuss the inclusive nature of such work, both in terms of a 'digital divide' (i.e. participants unable to access the Internet), and in terms of special educational needs and how such children respond to such an approach to learning.

Skills and Attainment

Through looking at teacher assessments for individual children involved in the project, this chapter aims to explore if the use of online discussion has an effect on pupil attainment. We look at specific National Curriculum subjects and make evidential comparisons between two units of work; one of which involves the implementation of

the forum. In this chapter, we also explore the IT skills of the projects' participants, reviewing whether or not the use of the forum has had a positive impact on pupil achievement in information, communication technology skills.

Attitudes and Opinions

In this chapter, we look specifically at those involved in the project, with the intention of exploring how online forums effect pupil motivation and enjoyment. Qualitative evidence from interviews and questionnaires enable us to comment on how this curriculum modification could possibly affect pupil attitudes and opinions towards learning, and, indeed, a specific curriculum area. We also explore the views of primary practitioners and make some speculations as to how, or indeed if, such work is feasible in a general primary school setting.

The project adopted a multi-method approach to educational research, using a range of both quantitative and qualitative methods to gain an insight into how such an e-learning approach in primary schools affects teaching and learning. Because of the integral part that I played in setting up and managing the online forum, this research does lend itself to the branch of methodology entitled 'Practitioner Research', in which the teacher (i.e. the practitioner) is central to the research process and can draw upon evidence gathered from their own curriculum modifications (Schön, 1983). More pertinent to this dissertation, however, is the theoretical approach of 'Illuminative Research', in which an innovative and novel curriculum modification or teaching method can be evaluated and assessed by those directly concerned with the project (Parlett, 1977). By doing so, the practitioner can draw upon their experiences, and of those directly connected with

the venture, and shed some light onto the possible successes and pitfalls of their pedagogical programme. In no way is such evaluative research deemed to be fully reliable, valid and dependable – but it is more a case of allowing others to extract and interpret another practitioner's findings.

The aim of this dissertation is such: I have aimed to try out something new and innovative within my own primary school, with the intention of enabling the reader to draw upon my own experiences and conclusions relevant to their situation, background or educational setting. It is hoped therefore that this dissertation will provide a small insight into how, or indeed if, online discussions could be utilised within a primary classroom setting.

CHAPTER 2: LITERATURE REVIEW

The rapid emergence of online technologies during the past decade has provided educators and learners an opportunity to explore, and arguably modify, how we teach and learn in today's world. After all the present mindset of the government is that technology is the means for tackling an educational system, which has "not achieved enough" (DfES, 2005: p.26). It could be seen however that every time a new technology emerges, be it videos, CD ROMs or the Internet, the world of education embraces it as a omnipotent means for doing the same things but in a different way. Weller (2002: 7), for example, mentions a book in his possession entitled *CD-ROM – the New Papyrus* (Lambert and Ropiequet, 1986), which illustrates the typical hype surrounding new technologies and their promises for revolutionising pedagogy. In the same way as CD ROMs were portrayed as being the future replacement of traditional books back in the late eighties, the emergence of online learning poses the same question as to whether or not online discussion is as effective or as beneficial as face-to-face interaction within the classroom.

Several commentators on this area of education however, see e-learning as a means of *assisting*, as opposed to *replacing*, the educational process. Britain and Liber, for example, argue that the use of Virtual Learning Environments is intended not simply to replace the classroom environment 'online', but is to be utilised as a means of providing pupils and students with new tools to facilitate their learning (1999, p. 3). Alexander and Boud, as a further example, view the online context as merely another "space for learning" (2001, p. 4) and adopts a similar theory in so far as online learning

environments can enrich the learning experiences of students by providing opportunities to learn in an auxiliary and supplementary context.

This literature review shall therefore aim to explore other practitioners' research into the world of such new "spaces for learning" – with a view of examining their effects on the teaching and learning process. It shall focus primarily on the use of discussion forums, and other forms of online interaction, and shall endeavour to review the potential benefits and pitfalls of such pedagogical approaches. It is worth pointing out however, that much of what has been written on this subject is predominantly related to higher education (and often adult learners), yet many of the points and issues raised are, arguably, as analogous and parallel to any learners' use of e-technology, regardless of age. Cook and Schwier, for example, whilst discussing the use of virtual learning environments in the primary sector (K-6 level), highlight that,

> While there have been significant studies [in e-learning], there is also growing recognition of the need for further research at the K-12 level. Opportunities for research in this area are numerous. Research at the adult level can inform and provide a context for research at the K-12 level.
>
> (Cook and Schwier, 2008: p. 6)

For this reason, much of what is explored in this chapter shall cover online interaction in generic terms, aiming to explore the fundamental themes and findings and their potential application within a primary school setting.

The curriculum subject of ICT, evident within its actual name – Information, *Communication* Technology, is clearly concerned with the use of technology and its potential for allowing pupils to interact with others. Indeed, one of the five key strands of the primary programme of study for ICT is entitled 'Exchanging and Sharing Information' (DfEE, 1999, p. 100) and this therefore illustrates the importance placed on technology as a means for communicating, learning and collaborating with information and other individuals.

The famous quote from St. Augustine, "I learned most not from those who taught me, but from those who talked with me", goes some way to encapsulate the central role of interaction and discourse within learning. Indeed Vygotsky in his book *Mind in Society*, argued that communication and interaction with others was at the heart of developing knowledge and understanding of the world around us, theorising that through social support, "the understanding of children can be extended far beyond that which they could reach alone." (1978, p. 128). In light of this, researchers such as Garrison and Anderson, believe online discourse to be an effective means of enhancing learners' cognitive and academic development, arguing that,

> Since communication is at the heart of all forms of educational interaction, it is likely that [e-learning's] impact on education systems and individual teachers and learners will be significant.

> (Garrison and Anderson: 2003, p.2)

They go on to further highlight how "discourse goes to the core of the e-learning experience in that interaction is where the strength of e-learning lies and is the essence of an educational experience." (pp. 83 - 84). Internet discussion has therefore been viewed by many researchers such as Laurillard (1994), Mayes (2001) and Garrison and Anderson (2003) as being pedagogically based on the constructivist and collaborative theories of learning.

In the very early days of computer-mediated communication, Harasim (1989) viewed it as much more than a poor replacement for traditional classroom-based interaction. Indeed he felt that the possibilities for using it as and where it was needed was a major advantage and also believed the one-to-many interaction pattern as having much potential. There are several types of possible interaction patterns available with online technology and Stephenson (2001, p. 220) outlined many of these, demonstrating that dialogue can be between: teacher and student, student and student; and in the form of: specialist closed groups, open groups, in real time (which he called 'synchronous') or over a period of time ('asynchronous'), one-to-one, one-to-many and finally many-to-many.

The asynchronous, many-to-many form of communication often found in the form of threaded discussion boards and forums has been used within many online courses and programmes over the past decade. Using Paulsen's (1995) paradigms of common computer mediated communication (CMC), we can view such discussion boards as being highly illustrative of the aforementioned constructivist and collaborative theories.

Indeed Figure 2, which aims to depict the many-to-many paradigm of interaction, shows how learners can interact, and arguably acquire knowledge, both from their teachers and their peers.

Learner

Learner-to-learner interaction

Teacher-to-learner interaction (or vice versa)

Learner

Teacher

Many-to-many interaction
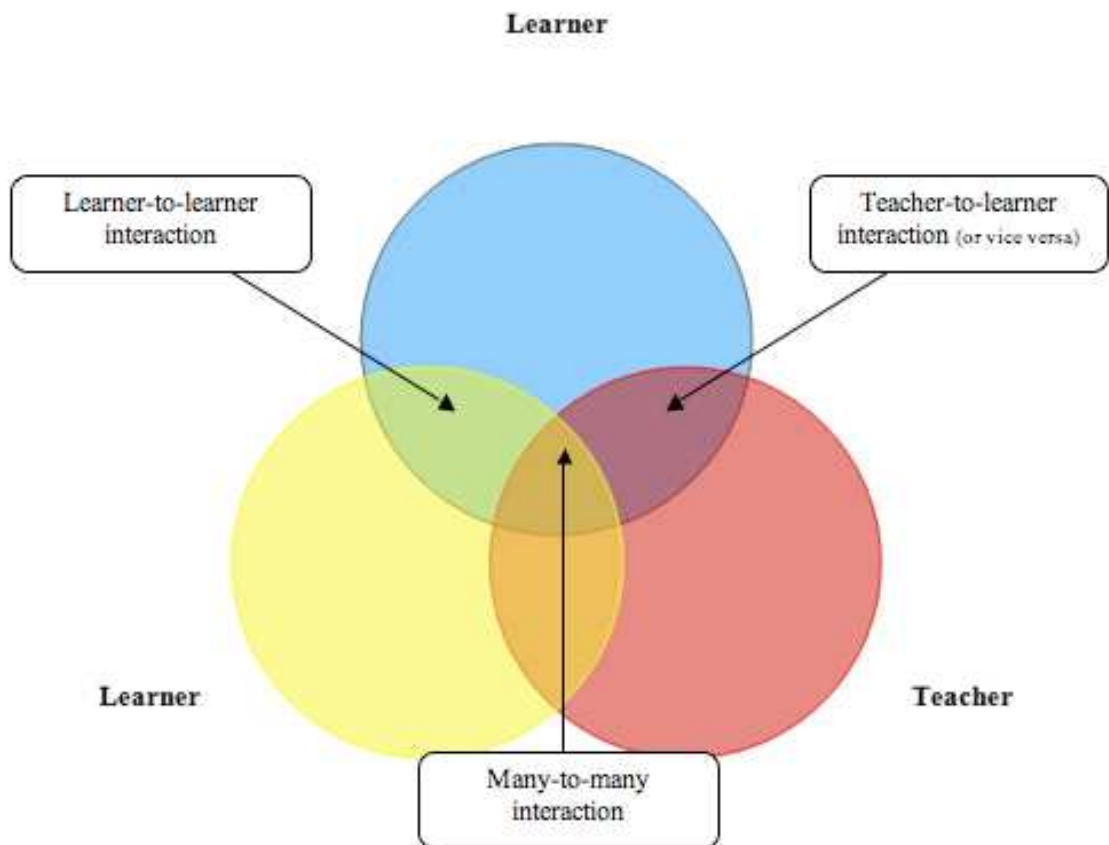
FIGURE 2: SOCIAL DIMENSION OF DISCUSSION FORUMS

Bender (2003: pp. 7-8) in her paper, *Discussion Based Online Teaching To Enhance Student Learning,* makes an interesting reference to this notion of an online learning community and the social dimension of discussion forums. She explores the work of Wegerif (1998) who studied the experiences of twenty-one students enrolled in an interactive online course with the Open University. This study discovered that the success of a student in relation to the degree being taught was largely reliant on whether

or not each participant felt like an insider or an outsider. Bender refers to the response of one particular student who clearly felt that being able to interact, and arguably learn, from their peers was a major advantage of online discourse:

> One student remarked that what she had gained the most from the course was the collaboration with others, in which she learned an enormous amount from her peers and felt that great friendships blossomed between her and some of her online colleagues.

(Bender, 2003: p.8)

Conversely, however, there is the mention of another participant who, unlike the aforementioned student, did not use the online discussion board as frequently. Because of this, this specific learner felt out of sync with the course content and unlike the more active student, who found e-learning to be motivating and welcoming, viewed the use of discussion forums as cold and remote.

The Internet, by its very nature, allows learners the flexibility and ease of logging onto a discussion board anytime and anyplace they choose. Indeed, Horton (2000) sees the development of computers and electronic communication tools as removing the "barriers of space and time", believing that we can now "obtain and delivery knowledge anytime, anywhere". (p. 6). Such a benefit can be of huge importance to participants of elearning as the confines of the traditional classroom have been removed, and the virtual environment has provided a less restrictive way of learning and collaborating with peers and teachers.   There are also reported links into the improvement of home-school

communication and parental knowledge of their child's studies as a result of children being able to access curriculum resources and discussions at home and share these with their parents and guardians (see Fishman, 1998; DfES, 2001b; BECTA, 2003b).

Using the Internet and other digital learning tools can, however, do the complete opposite in terms of being inclusive, flexible and welcoming. Since the genesis of online learning, there has been great talk about a 'digital divide' sweeping across the country, in which people can be classed as the 'information haves' and 'information have-nots' of modern day technology (Wresch, 1996). The importance of home access is, for example, clearly flagged in the Department for Children, Schools and Families (DCSF) Children's Plan, published in December 2007, which states that:

> There are significant educational benefits associated with having access to technology at home. This availability of technology gives learners greater choice about where, when and how they study… At the moment, there are over a million children with no access to a computer in the home. These children are disproportionately from disadvantaged backgrounds, and their limited access to technology reinforces attainment gaps.
>
> (DCSF, 2007: p.78)

Findings in a recent BECTA schools' survey, for example, indicated that "home access [to the Internet] is by no means universal" with the mean proportion of no Internet access being thirty percent and primary school access being twenty seven percent (BECTA, 2008: p.51). With over a quarter of primary aged pupils unable to access the Internet at home, there is a notable issue here of inequality in regards to the use of online forums. The Department for Culture, Media and Sport's recent *Home Access*

initiative, however, aims to target this through a series of financial aid schemes aimed at getting families with low incomes onto the Internet (DCMS, 2009).

The art of communication is rich in skills ranging from the basics of listening to others and responding appropriately, to acknowledging others and showing a sense of interest in what they are saying. Some commentators, such as Thurlow et al., reflect on how communication can be affected when it is undertaken in the realms of the World Wide Web. They explore, for example, how some researchers claim text-based online discourse to be problematic, labelling it as a "deficit approach" to communication insofar as it "lacks important qualities of FtF (face to face) communication" (Thurlow et al., 2004: p. 48). Feenberg (1989) also illustrates this point, considering the impact of unspoken communication and coded phrases in face-to-face interaction, which signal interest and availability to talk, and highlights how online communication is devoid of such signals. Because of this, some may question whether an online learning environment "could really compare with the detail, fluidity, warmth, intimacy and sociability of FtF communication" (Thurlow et al., 2004: p. 49).

This lack of intimacy and sociability however could be seen as a real advantage for some less vocal and shy pupils in their traditional learning environment. Mills for example highlights how "online discussions can increase the participation of students who are shy or uncomfortable speaking in front of the whole class" (Mills, 2006: p. 82), and one could therefore argue that by taking away the need for face-to-face skills and protocols, learners who find traditional classroom environments intimidating can actually contribute and feel part of a community of students.

On the other hand however, there are additional issues regarding the nature of posting thoughts and ideas in such a public fashion, with researchers such as Davie believing that some learners are apprehensive when it comes to posting on an asynchronous discussion thread as it can be viewed as a form of publishing (p. 80). After all, their contribution is there to be viewed for the entire lifetime of the thread and is not a brief situational form of conversation. Implicit within this argument are learners' anxieties about how peers will judge their written work; reactions which normally could be monitored in face-to-face settings. After posting a message on a forum for example, students can wonder whether or not anyone has actually read it and may mentally debate about how it was received. Such a "leap across the ridicule threshold" (Grint, 1989, p. 189) can sometimes result in a poor level of contribution and a resistance to the online tool.

In some findings, such as Abbot's *E-inclusion: Learning Difficulties and Digital Technologies* report (2007), the use of Internet based learning tools is seen as being highly useful in terms of enhancing inclusion for those with special educational needs. Indeed technology in general is viewed by some as being a good way of improving educational outcomes for such vulnerable groups of children with some claiming that although,

> Technology will not provide all the answers to the problems of specific learning difficulties…it can be effective in reducing the number of hurdles that children have to cross at any one time.

(McKeown, 1992: p. 100)

BECTA indeed see the interactive tools of Virtual Learning Environments as being "particularly beneficial to learners with special educational needs" (2007: p. 4), citing issues such as how ICT removes certain barriers for some learners. Detheridge (1997) for example has discussed how pupils who struggle with the art and secretarial skills of handwriting have benefited from using the computer, and word processing tools, to enable them to record and share their learning with others. Having learners use a keyboard, or indeed a piece of voice-recognition software, to input their thoughts in a forum message may be seen by some as a clear advantage of using these online tools as part of homework and everyday teaching activities.

There has been great study into the effects of ICT and its enhancement of learning, with much of what has been written illustrating, and arguably glorifying, it as a major advantage to the teaching and learning process. A DfES government report, for example, using a variety of sources, concluded that, "ICT has been shown to be positively associated with improvement in subject-based learning" (DfES, 2002: p. 4), and a government review of research literature concerning ICT and attainment summarised that, "the evidence from the literature shows positive effects of specific uses of ICT on pupils' attainment" (DfES, 2003: p. 33). Impressive, and arguably clear, as this may be, there are several researchers who point out a two-tier effectiveness of ICT curriculum enhancement. Kyriacou, for example, highlights how there are two levels of ICT use in the classroom: "The first deals with the stimulating aspects of ICT", such as motivation and engagement, whereas "the second level deals with how using ICT genuinely increases the quality of pupils' learning by enabling their knowledge and understanding of the topic in hand to be enhanced through the use of ICT" (Kyriacou,

2009: pp. 53-54). He goes onto further highlight a key issue regarding emerging technologies, such as online discourse, insofar as whether or not pupil attainment has actually been enhanced in a way in which traditional or alternative methods would not have achieved:

> It can take quite some time for pupils and teachers to develop the necessary skills and understanding in the use of ICT for second level use to take place, but when this is achieved, the progress and insights that it offers can be substantial, and sometimes unique (in the sense that it is hard to see how the particular type of deeper understanding by pupils of the topic gained by using ICT could have occurred using any other type of teaching method).

(Kyriacou, 2009: p. 54)

This, as with all emerging technologies, is a major discussion point in regards to online interaction, with several commentators on the subject attempting to analyse the online discourse evident within discussion forums, linking this in to successful evidence of higher level knowledge building.

Camerson et al. (2002) for example make links to Benjamin Bloom's six developmental levels pertaining to the acquisition of knowledge, believing that online contributions and interactions can be linked to evidencing skills in: knowledge, comprehension, application, analysis, synthesis and evaluation. They argue, for example, that learners can show indication of these skills within forum posts – and that such levels can help to evaluate the quality of student learning.

Jonassen et al. (1995) contends that "knowledge construction occurs when students explore issues, take positions, discuss those positions in an argumentative format and reflect and re-evaluate their positions" (p. 16) . Wallace cites the work of Gunawardena et al. (1998) who build upon Bloom's ideas, and linked it to the analysis of online discourse, developing a model and coding scheme for online interaction with five stages of knowledge construction:

- sharing and comparing of information;
- discovery and explanation of dissonance or inconsistency among ideas, concepts of statements;
- negotiation of meaning / co-construction of knowledge;
- testing and modification of proposed synthesis or co-construction; and
- agreement statement(s) / applications of newly constructed meaning

Using such a model to analyse the discussions of online learners, Gunawardena et al found that "participants rarely moved beyond the second stage and stayed mostly in the first stage of sharing and comparing information", going onto further highlight the finding that "dissonance was rarely acknowledged when it existed and participants created agreement where it did not exist by not acknowledging differences." (cited Wallace, 2003: p. 247). Such research could therefore argue that the quality of learner knowledge development using online forums is often found to be at a superficial level.

Whilst reviewing online discourse's effect on quality knowledge building, it is worth noting one of the few studies relating to Virtual Learning Environments and the performance of primary aged pupils following the National Curriculum. Miles Berry, a deputy head teacher at a private school in St. Ives, conducted a small-scale study into the effects of VLEs on mathematics teaching and learning within a primary class. His research found that although there were many perceived benefits, including an increase in motivation and collaborative learning, the actual enhancement of national curriculum attainment was not as notable. He found, for example, that the VLE "had a significant effect in moving pupils' attitudes and approaches closer to a social constructivist model of learning" yet highlighted that there was a "positive, although not significant, effect on test scores". (Berry, 2005: p. 16). His data showed a small positive effect on average pupil attainment but not that statistically significant bearing in mind factors including variable cohort ability and the small-scale nature of the study.

Other researchers however, although focussing on secondary-aged pupils, have found some greater evidence of positive effects on achievement in student learning, with Ravenscroft and Matheson as an example finding increased conceptual understanding, participation and discussion by pupils engaged in a virtual learning environment. Within this study, which was linked to attainment in national curriculum science, results of a quantitative analysis "showed that the introduction of the dialogue games [a form of online discussion tool] produced significant improvements in the students' knowledge of the topic compared with conventional teaching alone" (Ravenscroft and Matheson, 2002: p. 98).

The level of participation in asynchronous discourse has been explored by several academics in this field, with researchers such as Grint (1989), Davie (1989) and Wresch (1996) citing issues such as student intimidation and the digital divide as having a negative effect on the quantity of contributions posted within a given forum. Pilkington (2004) goes onto further highlight the central role of the course leader or teacher and their effect on the success of an online discussion. She found that the lack of immediate feedback to pupils' posts, for instance, was both isolating and resulted in a low frequency of pupil interaction. Dennen (2007) also found that too much or too little teacher participation in online discussions reduced the number of messages students posted and she felt that the instructor's role was a bit of a balancing act; ensuring that learners were encouraged and acknowledged through regular teacher interaction, that discussions were structured and clearly focussed on the learning matter, yet, above all, were student-centred and led.

In contrast to the issue of low student participation, there are some studies that have highlighted the over use of a forum as being a problem. Some research indicates that certain students' contributions can be far too excessive and the actual purpose of the discussion, and subsequently much of the pedagogical value, is lost. Mishra and Juwah in their study found for instance that a handful of overly active contributors might dominate online discussions and that,

> In many instances, posts in discussion forums are irrelevant and sometimes very unwieldy due to the sheer volume of posts, thus causing the students to lost sight of the essence of the discussion. These situations in our view usually arise as a result of inappropriate use or improper use of discussions.

(Mishra and Juwah, 2006: p.164)

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Central to such appropriate use of online forums is the teacher and the role they play in designing, mediating, assessing and facilitating the pupils' interactions so that learners are contributing and developing their knowledge, skills and understanding of a topic. Indeed the belief by some that elearning shall somehow replace traditional teacher-led instruction and learning is disputed by researchers such as Cerliner who argues that,

> Professors aren't going away soon. In fact, rather than replace professors, e-learning depends on professors from top to bottom, from planning and design to management and delivery. Students still need strong and clear role models and guidance in their courses. They need a master-guide who can navigate them through new and challenging subject matter.

(Caliner, 2008: p. 65)

Minshull airs a similar view believing the teacher's role in "constructing, monitoring and facilitating the learning process" is vital, highlighting that "just setting up a discussion board and hoping students will engage with it doesn't work" (2004, p. 5). With this responsibility however comes a clear need to understand, both technologically and pedagogically, online discussion boards. This can often cause problems, especially in the primary sector, where the IT competency of generic (as opposed to IT specialist) primary teachers can be a major barrier to the uptake of new technologies. BECTA's (2010) very recent guidance paper *21st Century Teacher: Are you Ready to Meet the Challenge?* reflects this issue and aims for school managers to take a more proactive role in the development of practitioners' IT skills and capability.

Alongside the issue of teachers' IT skills and capability, several commentators have noted other reasons behind potential barriers against the uptake of elearning and online discussion. Conole (2006) noted the isolating nature of learning using a computer as being a factor in teacher resistance to the introduction of new technologies; Hiltz (1988) has made clear mention of the time commitments elearning requires on the part of the teacher, describing the process of online learning as being like parenthood insofar as "you are on duty all the time, and there seems to be no end to the demands on your time and energy" (p. 441); and BECTA puts forward the issue of willingness, illustrating that some teachers are apprehensive about reshaping their role and approach:

> Moreover, the development of new pedagogies can be a substantial professional challenge: teachers must learn new skills and rethink and refashion the teacher–learner relationship. Developing pedagogical approaches of active learner engagement, facilitating and scaffolding learning rather than transmitting knowledge, using new, more open, questioning techniques, and undertaking assessment for learning all provide significant challenges to a teacher's role and identity. A lack of time, willingness or the resources to develop new pedagogical approaches is a major barrier to fully exploiting the educational potential of digital technology.
>
> (BECTA, 2008b: p. 20)

The aforementioned first level use of ICT within the classroom, described by Kyriacou as dealing "with the stimulating aspects of using ICT" (2009, p. 53), has been largely associated with its motivational and enjoyment-enhancing effects on learners. The regular use of ICT across different curriculum subjects is seen by some to have a beneficial and motivational influence on students' learning (Cox 1997), with Passey et al. for instance, having studied the use of ICT in a selection of schools, finding that,

> Pupils and teachers in this sample of schools widely reported that using ICT has positive motivational impacts upon learning. The forms of motivation identified are supporting positive pupil commitment to a desire to learn and to undertake learning activities. Pupils and teachers recognised that some aspects of quality of work are improving when ICT is used, that attitudes towards schoolwork and homework are often more positive, and that pupil confidence and abilities to perform learning tasks are often enhanced.

> (Passey et al., 2004: p. 16)

These generic effects of ICT have also been found to be evident in the specific use of virtual learning environments, with BECTA (2006) stating that, "one of the key benefits of curriculum delivery through a VLE appears to be increased motivation" (p.18). An even more recent report cited the findings of a pupils' poll into how children best enjoy learning: Students ranked 'using computers' fourth out of 16 when asked their favourite ways to learn. The top three other choices were 'learning in groups', 'doing practical things' and 'learning with friends' (BECTA, 2010: p. 6). One could, arguably, make links between three of the top four methods and the use of online discussion forums as a teaching tool (ICT, learning in groups and learning with friends).

Berry's primary VLE case study found that the primary pupils involved in his pilot evidenced increased motivation and enthusiasm through using the online discussion and learning tools found on the VLE, *Moodle*. After analysing a variety of data collected, for example, he concluded that comments made by pupils involved in the study 'were almost entirely positive' (p. 11), and cited qualitative examples such as:

> "This has been a great year for maths. I loved moodle!"

"It's a great way of doing homework and it's fun!"

"I really like to use moodle because I find homework discussion really helpful."

<div align="right">(Berry, 2005: pp. 11–12)</div>

Charles Clarke, the then Education Secretary, highlighted a relevant connection between enthusiasm and achievement in the foreword for the government's *Excellence and Enjoyment* agenda, stating that, "children learn better when they are excited and engaged…when there is joy in what they are doing, they learn to love learning." (DfES, 2003: p. 3). The use of online technologies could therefore be seen as one way of enhancing pupils' learning experiences and achievements in the primary classroom. Bender for example, in her paper *Role Playing in Online Education: A Teaching Tool to Enhance Student Engagement and Sustained Learning,* makes an interesting link between collaborative e-interaction, and increased motivation within the classroom, arguing that:

Discovering new ways to inspire students is a worthy teaching goal. When students love what they are learning, the process feels meaningful, they retain the information better, and the experience motivates them to learn more.

<div align="right">(Bender, 2005: p. 1)</div>

Internet based interaction and collaborative learning has been found to have an influencing effect on the motivation and enjoyment of online learners. Nippard and Murphy (2007) for instance found that the social presence and online community, inherent within forums and asynchronous many-to-many communication tools, might help to increase student satisfaction both academically and emotionally. This has also been reported in a study of a graduate course in communication carried out by Rourke and Anderson (2002) who found that adult learners were greatly engaged and enthused by the concept of peer-to-peer and peer led discussion, gaining satisfaction from the fact that learning with fellow students was "more responsive, more interesting, and more structured" (p. 19), as opposed to instructor-led and mediated discourse.

There are however commentators who view the use of online technologies as suffering from a strong case of hyperbole, in which "strong claims are made that are neither rooted in solid research nor borne out by practice" (Carliner and Shank, 2008: p. 16). Indeed Carliner and Shank highlight the range of pitfalls regarding online learning through making one aware of the many findings evident within literature reviews on the topic. They argue for example that many of the studies carried out attempt to catalogue projects' failings using euphemisms such as 'lessons learned', 'pitfalls to avoid', 'strategies for success', and 'challenges'. They reference some titles of academic papers as a further illustration, with reports entitled *In eLearning No One Hears You Scream: 101 Pitfalls of eLearning* (Click2Learn, 2004) somehow providing evidence that the hype of online learning is, in reality, deeply effected by a range of downfalls and barriers. As an illustrative example, some Forrester Research noted that "70 percent of those who start an e-learning course never complete it" (Islam, 2002, p. 23) and this provides a suitable counterexample regarding the aforementioned effects on learner

motivation. After all, if, as some commentators have found, online discourse motivates and enthuses participants, then why did this large scale research project discover many online learners to be discontinuing their studies prematurely.

Perhaps one of the reasons, however, behind the high drop out rate in relation to this distant learning online course was that it was predominantly undertaken through the Internet. Issues already mentioned, such as online communication not really being on a par to the "detail, fluidity, warmth, intimacy and sociability" of traditional face to face teaching and learning (Thurlow et al., 2004: p. 49), may go some way to argue that the notion of blended learning is more beneficial and effective.

Littlejohn and Pegler (2007) make the interesting argument that 'the opportunities for using e-learning on its own are far fewer than where e-learning is integrated (blended with) other approaches as a form of blended learning" (p. 1). This theory of pedagogy involves elearning being used in connection with traditional classroom based teaching and learning and is seen more as a teaching tool which enhances and compliments, rather than replaces. By taking this stance, primary educators can arguably blend their existing teaching and learning methods with that of online discourse, so that new opportunities and platforms for learning-focussed interaction enable pupils to get the most out of their educational experiences:

> Blended with traditional methods, replacing some of them, e-learning allows a new relationship with learners to develop. It takes them beyond the confines of the traditional classroom, extending collaboration and enabling teachers to bring new resources into their teaching.

<div align="right">(DfES, 2005: p. 10)</div>

CHAPTER 3: CONTEXT, RESEARCH METHODOLOGY AND METHODS

<u>Context of school and pupils</u>

This research project was carried out by a primary school teacher in his second year in the profession. It involved two classes in Upper Key Stage Two; Years Five and Six. The school is best described as an urban city centre Roman Catholic and co-educational primary state school, which serves a wide and, in comparison to many schools in its locality, multiculturally diverse area. There are several children who come from forces families on limited postings and there is a higher than average pupil turnaround, with many pupils joining and leaving the school throughout the year. The proportions of pupils with learning difficulties and/or disabilities and those eligible for free school meals are broadly average on a national level. The school has just fewer than 200 pupils on roll, operating a one form entry intake system of thirty children per academic year.

The classes involved in the project can be outlined as such: Year Five was made up of 29 children (sixteen boys and thirteen girls), with the Year Six class having 23 children (thirteen boys and ten girls). In Year Five, four children were on the school's special educational needs register, and in Year Six there were two. The researcher was the class teacher for Year Five and the Year Six class was taught by another qualified practitioner, uninvolved in the research design and analysis. Table 1 outlines the key characteristics and demographics of the two cohorts involved in the project, outlining any relevant contextual information deemed appropriate.

Cohort	Boys	Girls	Home PC Access	Home Internet Access	SEN Register	EAL
1: Year 5 29 pupils	55%	45%	97%	83%	14%	10%
2: Year 6 23 pupils	57%	43%	100%	91%	9%	0%

TABLE 1: CONTEXTUAL INFORMATION OF PUPILS INVOLVED IN THE PROJECT

Context of software and forum

Online forums, blogs and discussion boards are an increasingly common feature of the World Wide Web. There are several web hosts and companies that provide Internet users with cheap, sometimes free, forums and online discussion software. The host 'ForumUp (Figure 1) was used for this project as it was free and provided the appropriate features required to tackle the research aim and questions. ForumUp was accessible via http://www.forumup.co.uk/ and seemed to be a perfect way for a non IT specialist teacher to set up and run:

> Anyone, even with no experience can open a Forum and discuss his/her favourite subject with other people with the same interests. This is a community! Opening a forum with us is free and easy. You can shape your forum through the admin panel and you are NOT required to be a master in HTML or PHP.

> ForumUp (2009)

Pupils and members of staff could be registered onto the site, using individual email accounts set up through e-Pals (an online email facility programme used by many primary schools in the UK). Once registered, they were provided with a username and password. This then allowed the site administrator to tackle security and child protection issues by securing the forum home page so that only registered, and approved, users could view and use the site.

Registered users of the site were able to:

- Post, read and reply to messages (asynchronous communication).
- Attach web links and images to their messages.
- Vote in and set up online polls.
- Send and receive internal e-mail messages.

Research Methodology

As previously mentioned in the introductory chapter of this dissertation, this research was undertaken by myself as part of an attempt to introduce a curriculum modification and explore its effect on the teaching and learning process within my school. As a direct participant in the project, such research lends itself to an approach commonly referred to as 'Practitioner Research'.

Laurence Stenhouse, a leading academic on such an approach to educational research, argued that "curriculum research and development ought to belong to the teacher" (Stenhouse, 1975: p.142), having believed that "it is not enough that teachers' work

should be studied; [but that] they need to study it themselves" (ibid: p.143). Indeed, the government's wish to see primary schools introduce virtual learning environments by 2010 poses the argument that it should be the primary practitioners *themselves* who evaluate whether or not such work is beneficial and possible within the primary sector.

This research did not follow a common definition associated with this field of methodology in so far as "action research investigates everyday problems experienced by teachers" (Elliott, 1981: p.32). Indeed, there was no specific problem or issue which needed addressing. Instead, it took greater influence from Kemmis and McTaggart who highlight the possibility that "all you need is a general idea that something might be improved". (1982: 65). This notion would relate more clearly to the project's aim of exploring whether or not online discourse improves teaching and learning in the primary school.

It was found therefore that this type of research drew greater inspiration from an approach presented by Malcolm Parlett, entitled 'Illuminative Research'. Such methodology adopts a multi-method approach to evaluating a curriculum modification with the aim to:

> "study the innovative programme: how it operates; how it is influenced by the various situations in which it is applied; what those directly concerned regard as its advantages and disadvantages; and how students' intellectual tasks and academic experiences are most affected"

> (Parlett, 1977: p.10)

A popular criticism associated with such evaluative and illuminative research work is the integral nature of the evaluator within the research process and the possibility of data and findings being affected by a prevalent degree of subjectivity (Woods, 1986). Anderson for example highlights how "it is easy to be critical of many evaluations as their validity is often suspect", arguing that many "are not grounded in reliable and valid data". (1990, p.184). For this reason, I have made sure that any speculations are made as such and are based on data collected as opposed to pure opinion or personal bias. I have attempted to use robust and varied research methods and procedures, such as triangulation, to further ensure that data is as reliable as possible. Aside from such criticisms relating to subjectivity however, the proactive role as researcher within a project does have its benefits: a point Cohen et al. argue, stating that by:

> "being immersed in a particular context over time not only will the salient features of the situation emerge and present themselves but a more holistic view will be gathered of the interrelationship of factors.
>
> (Cohen et al., 2000: p.311)

Such immersion, they add, assists in the generation of "thick descriptions" (p.311) which lend themselves to precise explanation and interpretation of events rather than relying on the researcher's own inferences. My access to a variety of different data, which was both qualitative and quantitative; the opportunity for triangulation of methods and sources; and the regular contact and involvement with the project's participants and the forum itself has allowed me to get a well rounded view of how online forums affect teaching and learning in the primary classroom. Such a benefit, I

believe, has allowed me to assess and interpret the successes and pitfalls of such work far better than somebody uninvolved in the project.

An extremely important point to highlight now, relating to such personal interpretations of the data presented in this dissertation, is that of the speculative nature of any conclusions made. Indeed, due to the small-scale nature of the research, and evaluative methods adopted, there is a clear opportunity for fellow practitioners reading this dissertation to use my findings and interpret them in a different light to myself. This, some academics such as Roizen and Jepson would argue, is a major strength of case study and evaluative research:

> One important advantage of a study of cases is that the richness of the material facilitates multiple interpretation by allowing the reader to use his own experiences to evaluate the data."
>
> (Roizen and Jepson, 1985: p.12)

When planning and conducting an evaluative case study, Robson (1993) highlights the need for a trade-off between "looseness and selectivity" (p.149). Looseness, he argues, is required in order for the evaluator to keep an open mind and to be aware that unexpected issues or themes may arise; Selectivity is equally as important, as a structured approach is necessary in order to focus the research and critically explore key themes which are already known within the academic community. This has been the first time that myself or indeed my primary school has carried out such an online learning project, and so an open-minded approach to the evaluation of this project was required. On the other hand however, I had some expectations and prior knowledge of what possibly could be achieved; of what has been highlighted by other researchers in

literature concerning eLearning; and of my personal experiences of using online discourse during my undergraduate degree. For this reason I decided to place my research methods in the centre of Robson's "exploratory-confirmatory" spectrum (Robson, 1993: p.149); focusing my research questions in relation to previous research, personal experiences, and possible outcomes and themes, whilst ensuring that I kept an open mind to emerging issues or findings within the context of a primary school.

During the early stages of drawing up ideas for a research project, it became apparent that I had some basic understanding and knowledge of the effects online learning has on its learners: At university, for example, I was a user of a virtual learning environment called *WebCT* which was used regularly amongst primary trainee teachers to share good practice and teaching ideas whilst on teaching placement. I had also grown more aware of the government's plans to bring online technologies into the heart of teaching and learning within schools; and noticed an increasing number of academic publications relating to the effects of eLearning within higher education. Whilst acknowledging the risk of data confirming one's expectations or prior experiences being readily recognised, and that contradictory or vague findings may be interpreted in the light of previously held beliefs, I have attempted to ensure that robust research methods and analysis have been adopted. For this reason, we now go onto looking at operationalisation and the research design process.

Research Design

After deciding the main aim of my study was to explore the use of online discussion boards at a primary school and their effect on teaching and learning, I adopted the process of 'operationalisation' by composing some key research questions. Cohen et al. highlight the importance of such an approach, believing that:

> The process of operationalisation is critical for effective research. What is required here is translating a very general research aim or purpose into specific, concrete questions to which specific, concrete answers can be given. The process moves from the general to the particular.
>
> (Cohen et al., 2000: p.75)

Figure 3 outlines these key research questions, highlighting three strands: the exploration of pupil's ability to use online discussion forums and their effect on involvement and inclusivity; the survey of attitudes and opinions relating to such work in primary schools, including links to pupil motivation and enjoyment; and the scrutiny of pupil attainment and skills in relation to the use of online discourse. I felt that these areas for research would mirror similar areas of interest highlighted in literature concerning online learning within higher education, whilst providing the opportunity to explore a variety of different themes and issues inherent to the primary sector.

Research Aim

To explore the use of online discussion boards within the primary school

DISCUSSION, INVOLVEMENT AND INCLUSIVITY

Can the use of online discussion forums increase involvement and inclusivity?

How do upper key stage two pupils contribute to online discussions?

SKILLS AND ATTAINMENT

Do online discussion forums enhance attainment in a National Curriculum area?

Does the use of online discussion forums enhance pupils' attainment in ICT?

ATTITUDES AND OPINIONS

How do non IT-specialist primary school teachers feel about online discussion forums; and are they capable of setting up and managing one?

Do online discussion forums have any motivational effect on the learning and perception of a specific subject?

FIGURE 3:

THE GENERATION OF RESEARCH QUESTIONS

Having focused my research from a general aim, I then prepared the different ways of finding the answers to my questions. I decided to use both qualitative and quantitative methods as a means of evaluating the effect of my curriculum change, an approach favoured by several educational researchers. Cohen et al. (2000), for example, argue that the "advantages of [a] multimethod approach in social research are manifold," believing that "triangulation techniques are suitable when a more holistic view of educational outcomes is sought" (p.115). This triangulation approach, argued by some as a powerful way of improving the validity of a researcher's findings (see Campbell and Fiske, 1959), has enabled me as the evaluator to back up and authenticate any initial, subjective observations or interpretations with other forms of evidence (i.e. using multiple methods to highlight the same findings). As an example, a research question, such as, "*Do online discussion forums have any motivational effect on the learning and perception of a specific subject*?" can be tentatively answered by using both quantitative and qualitative, as well as objective and subjective, means. Where findings are corroborated by greater, and varying, forms of data, I believe that the reliability of results will likely to be higher. For this reason, I have tried to answer my research questions using a variety of different data collection methods. Figure 4 illustrates how one question can be answered with greater validity and reliability by using several forms of data to back up findings; whereas Tables 2 and 3 highlight the different forms of data collection and which research questions they attempt to shed light upon.

Above all however, because of the reliance on several forms of qualitative methods, the use of triangulation in this case study has allowed me to steer away from the trap of overly subjective interpretations based on one form of subjective evidence; and, I believe, has enabled me to gain "a more detailed and balanced picture of the situation", (Altrichter et al.,1996: p.117) – an obvious aim of this endeavour.

Method: Pupil questionnaires

Information gained: Pupils' attitude towards Geography learning, pre and post the use of the online forum.

Data: Qualitative and quantitative. Subjective – pupils' personal opinions

Method: Informal lesson observations

Information gained: Pupils' level of enthusiasm and enjoyment in Geography lessons.

Data: Qualitative Subjective –observer's personal opinions

Do online discussion forums have any motivational effect on the learning and perception of a specific subject?

Method: Formal pupil interviews

Information gained: Pupils' opinions relating to Geography learning

Data: Qualitative–pupils' personal opinions

Method: Usage statistics of discussion boards

Information gained: Number of pupil posts in Geography discussion threads.

Data: Quantitative. Objective – statistical. Subjective – evaluator's interpretation.

FIGURE 4: EXAMPLE OF TRIANGULATION

	Pupil Posts	Post and Usage Analyses	Lesson Observations (pupil contribution)	Formal Pupil Interviews	Pupil Questionnaires	Staff Questionnaires	Informal Observations and Discussions	ICT Skills Audits	Teacher Assessments in specific subjects
How do upper key stage two pupils contribute to online discussions?	✓	✓							
Can the use of online discussion forums increase involvement and inclusivity?	✓	✓	✓	✓		✓	✓		
Do online discussion forums have any motivational effect on the learning and perception of a specific subject?		✓		✓	✓		✓		
How do non IT-specialist primary school teachers feel about online discussion forums; and are they capable of setting up and managing one?		✓				✓	✓		
Do online discussion forums enhance attainment in a National Curriculum area?	✓						✓		✓
Does the use of online discussion forums enhance pupils' attainment in ICT?				✓	✓			✓	

TABLE 2: DATA COLLECTION METHODS USED IN RELATION TO THE RESEARCH QUESTIONS THEY SHED LIGHT UPON

	Pupil Posts	Discourse and Usage Analyses	Lesson Observations (pupil contribution)	Formal Pupil Interviews	Pupil Questionnaires	Staff Questionnaires	Informal Observations and Discussions	ICT Skills Audits	Teacher Assessments in specific subjects
Quantitative		✓	✓		✓	✓		✓	✓
Qualitative	✓			✓	✓	✓	✓		

TABLE 3: TYPES OF DATA COLLECTION

Data Collection Methods

It is now necessary to look at the strategies and research methods adopted throughout this case study, so that a firmer understanding of how and why data was collected can be achieved. Each research instrument shall now be examined, with: reasons for their usage explained and a description of how they help to answer the research questions; an evaluation of their effectiveness in terms of reliability and validity; and a critical analysis as to their general benefits and pitfalls.

1.1 Pupil Posts

At the heart of the research project was the online forum, and the posts the children themselves wrote: This therefore seemed to be a beneficial way of obtaining rich and useful information about how pupils in upper key stage two actually converse online; and how they use such technologies.

Unlike the observation of discourse or behaviour within the classroom, which can cause specific problems in terms of successful recording, the observation of electronic discourse was much easier; the only observable behaviour was the typed interactions between pupils and teachers. An online forum automatically saves and stores comments and posts made on a web server, and the forum, by its very nature, threads and presents the history of discussions made online. This therefore made it very easy to record, track and use pupil posts when a generic theme emerged. Indeed, during the course of the project, themes did emerge and individual pupil posts could therefore be used as illustrative examples.

Because observations of these posts were made privately on the PC of the evaluator, there is the added bonus of it being an unobtrusive research method. Indeed, an observer sitting at the back of a classroom can raise certain issues regarding 'reactivity' and participants changing their behaviour through the knowledge of being evaluated (Shaughnessy et al., 2003: 113). Accepting the fact that pupils were aware that the forum was being trialled in the context of a research project, I still believe that their posts are less affected by such potential bias reactions and feel that such data is reliable.

1.2 Online Discourse Analysis

During the course of the project, which lasted a full term, a large number of posts were made on the discussion boards. It was difficult therefore to sift through 797 online pupil-composed messages. A major issue emerged in terms of how such a high quantity of evidence could be analysed without the results being unreliable. Although the actual posts themselves could not fall into the trap of being unreliable, because of their written nature, there was a clear opportunity for the researcher to use them to illustrate whatever point one might wish to make. The problem was therefore found in the potentially biased interpretation of the posts themselves.

For this reason, a discourse analysis system was set up to analyse the contributions found on just two of the discussion threads; thus condensing the amount of evidence and providing a more structured approach to the interpretation of the nature of children's online discourse. Influence was taken from techniques, such as 'interaction analysis' in which behaviour is categorised during observations, and 'event sampling'

(Cohen et al., 2000: p.308), in which tally charts are used to show the number of times certain behaviour is observed.

Categories for the discourse analysis were decided upon using: prior personal experience of using online forums at university; the research presented regarding online discourse in higher education; and informal observation and experience of how children interact within the classroom. I decided to categorise elements of the contributions made on the forum as such, with table 4 outlining my personal definitions for each construct:

- Sharing knowledge and information

- Asking questions

- Answering or responding to pupil-initiated questions

- Answering or responding to teacher-initiated questions

Type of interaction	Definition
Sharing knowledge and information	Provides some information regarding the curriculum subject matter that the discussion board is concerned with.
Asking questions	Asks a question relating to the curriculum content.
Answering or responding to pupil-initiated questions	Responds to pupil's question with information or advice.
Answering or responding to teacher-initiated questions	Responds to a teacher's question with information or advice.

TABLE 4: CODING OF DISCUSSIONS FOR DISCOURSE ANALYSIS

Cohen et al. point out that such a structured approach to observation is:

> Very systematic and enables the researcher to generate numerical data from the observations. Numerical data, in turn, facilitate the making of comparisons between settings and situations, and frequencies, patterns and trends to be noted or calculated.
>
> (Cohen et al., 2007: p.398)

Because of this, it was felt that I could make greater interpretations into the way the participants conversed online, by turning such qualitative evidence into a quantitative source which could be analysed and compared to the classroom environment in a more structured way. Indeed by using such categories I was able to comment on issues such as: the degree of social constructivist learning evident amongst peers; the level of pupil contribution and comparisons between classroom and online; and the degree to which pupils had the opportunity to share some knowledge or information or ask questions.

This research method was not without its issues however. Two problems became apparent: First of all, there is a notable degree of subjectivity involved with classifying a post and as such this poses problems relating to the reliability of this data. There were occasions in which it was necessary to make a personal judgement as to whether or not a post evidenced a particular form of discourse. For example, in one post a child shared some information which was totally incorrect. This then begged the question as to whether or not it should be counted. In such a case it was recorded as, although the information was inaccurate, the discourse was still 'sharing' in nature.

Another issue concerned itself with the actual validity of the constructs, or categories; in so far as it was sometimes difficult to place a post within one specific category (for

example, a child answering another pupil's question whilst at the same time sharing some knowledge or information). Cohen et al. highlight the importance of making sure that categories within structured observations are discrete (i.e. there is no overlap between them) and advocate that a pilot should be developed and tested "in order to iron out any problems of overlap of categories" (Cohen et al., 2007: p.398). Unfortunately this did not take place, and so a decision was made that one post may be placed into more than one category if there was evidence of it fulfilling more than one requisite. The data, overall however, was still very useful and provided much insight into the actual nature of the participants' discussions.

1.3 <u>Usage Analysis</u>

During the duration of the project, 797 pupil-written posts were made on the discussion boards (non-curriculum related posts excluded). These posts were varied in nature and posted by 52 pupils and 2 teachers over the course of one term. It was felt useful for these posts to be categorised in a similar, albeit simpler, way to the 'online discourse analysis', which analysed in greater detail the nature of discussion evidenced within two threads. By using the categories outlined below, it was felt that a basic overview of how the discussion forum was used could be established:

- Number of pupil posts
- Number of teacher posts
- Number of posts unrelated to curriculum content

In order to explore issues concerning the level of engagement; the ability to keep focussed on the curriculum content; the involvement evidenced by the teachers; and the degree in which primary aged pupils are involved in such online conversations, I decided to collate some usage statistics relating to the number of posts made by the two groups involved in the project; alongside recording the number of posts unrelated to curriculum content. I did this in two ways: The administration panel of the forum allowed me to see how many posts each user on the site had made since a specific date; this therefore proved easy in terms of data collection. Alongside collating data regarding the entire forum, inclusive of all discussion boards, two further sets of usage statistics were compiled relating to the History and Geography threads analysed in more detail; this was done so that levels of involvement could be compared with those observed in the history and geography classroom–based sessions. The frequency of curriculum-unrelated posts however required a lot more work in terms of trawling through each and every post and recording whether or not the post was pedagogically focussed on the learning matter.

2.1 <u>Lesson Observations – Level of whole-class pupil contribution</u>

Using a system similar to the 'event sampling' method for data collection (Cohen et al., 2000: p.308), I observed three geography lessons in Year 6; and three history lessons in my own Year 5 class (carried out by a PPA cover teacher). Within this process I recorded, using a tick sheet system, whether or not each child within the class contributed to a whole-class part of a lesson. Each child was listed and a tick placed against their name if they made some form of contribution relating to the curriculum content; only one tick was recorded regardless of how many times a contribution was

made. The following criterion was used in order to assess whether a positive recording could be made:

- The contributions had to be related to the session aim or curriculum content.

- The contribution had to be made during a whole-class section of a lesson, in which everybody in the class had the opportunity to hear what was being said.

- The definition of a contribution included: asking questions, answering a question, and sharing information or knowledge.

The intention behind this was to gauge the level of open contribution evidenced within the classroom environment, with possibilities of comparing this against the level of contribution evidenced by pupils online. Data from these six sessions were translated into percentages, highlighting a positive score in terms of pupil whole-class contribution for the two groups. Average percentages were also worked out.

This data does have issues regarding validity and it is important to highlight these: First of all, as previously mentioned, with all types of lesson observations, there is the possibility of 'reactivity' – with pupils contributing more within class because a person is observing them (Shaughnessy et al., 2003: 113). Secondly, there could be a number of factors relating to the sessions themselves which either hamper or enhance the opportunity for whole-class contribution. Indeed, taking into account the fact that the teachers were aware of what I was evaluating, there is an increased chance that their lessons were planned to include an increase in such opportunities. Thirdly, these

findings were based on only six individual sessions and so it should be noted that such results are not fully reliable.

2.2 Lesson Observations – Discourse Analysis

Similar to the discourse analysis carried out using the online discussions (section 1.2), two sessions were observed using an identical approach and set of categories. One of these sessions was in a Year 6 geography lesson, and one was in a Year 5 history lesson. The aim behind this was to gain an understanding of how pupils communicated within the classroom environment.

Unlike the online environment, where discourse was readily stored and available, the observation of all communication within a given lesson was very hard to achieve. For this reason only two sessions were analysed and several other observers were required to sit with individual groups of children so that all discourse could be recorded. The observers sat with the children throughout the session and marked down, using a tally, any evidence of a child fulfilling the descriptions outlined in table 4. Any discourse, regardless of whether it was within a small group or to the whole-class, was recorded. Discourse relating to non-curriculum content was ignored.

Several issues concerning this form of data need to be questioned. I understand, for example, that the information is only a 'snap shot' of one specific session and so one must accept that the results are purely speculative. Indeed, there is also a need to be aware that the use of multiple observers could cause reliability issues. After all, Cohen et al. highlight that "different observers of the same situation may be looking in

different directions, and so there may be inconsistencies in the results." (Cohen et al., 2007:p.411). Because of this, steps to clarify the definitions of each construct were undertaken prior to the observed sessions.

3   Formal Pupil Interviews

Even though evidence of pupil opinions regarding the online forum was explored through the use of a questionnaire, I believe that the use of interviews provided a more detailed and enlightening range of qualitative data. Anderson for example raises the point that "people are more easily engaged in an interview than in completing a questionnaire", and that such a data collection technique enables the participant to provide "more complete information" by allowing the researcher to "clarify questions and probe the answers of the respondent." (Anderson,1990: p.222). This was felt to be the case, and some good quality comments, opinions and evaluations regarding the project were noted and used accordingly.

At the end of the project, three pupils from each of the two participating classes were invited at random to partake in a group interview, which posed a small number of questions relating to the use of the online forum within school (see appendix 1). The interview adopted an 'interview guide' approach, with the intention of keeping the process as conversational and situational as possible. A selection of open ended questions, relating to themes or topics that had become apparent during the course of the study, were planned in advance and these were explored in an informal manner with the children. I steered away from the more individual, formal approach to interviewing

because of the age of the children and the fact that I wanted them to feel at ease when sharing their thoughts and feelings about the project. Indeed, Cohen et al. highlight the same argument, stating that, "group interviews of children might...be less intimidating for them than individual interviews." (Cohen et al., 2007:p374).

The group interview was tape recorded, and although some researchers such as Nunan raise issues with this approach, such as it being off-putting, intrusive and generating far too much data (Nunan, 1992: p.153), I believe that it was far more important for me to be engaged in the conversation with the children as opposed to taking notes during the interview process. Indeed, during the course of the interview it dawned on me just how much information I would have missed if I had adopted such a written method.

Having conducted the interview, I realised that the full transcript of the conversation would generate far too much data, and I thus adopted an approach advocated by Woods (1986), which suggests that the audio recording can be listened to and a selection of important points and comments can then be transcribed and noted.

4. Questionnaires

I decided to obtain a lot of my evidence involving attitudes and opinions regarding the project, by issuing questionnaires. Hopkins (2002) highlights the benefits of such an approach, believing that questionnaires "are a quick and simple way of obtaining broad and rich information from pupils." (p.117). Indeed, more apt, is the argument that one of

the most obvious way of gathering information about people and their opinions and actions is to ask them directly (Robson, 1993: p.227). Two groups of participants were questioned; pupils and teachers.

4.1 Pupil Questionnaire – Curriculum Related

A set of questionnaires were designed in order to explore the pupils' opinions regarding their history and geography learning. The aim of this was to assess the effect of the online forum on the children's motivation and attitudes within the context of a curriculum area. Year 5 completed the one relating to history, whereas Year 6 was asked to complete the one relating to geography. These questionnaires were given twice during the course of the project; first at the beginning to assess children's prior attitudes, and then at the end. This allowed me to assess the positive and negative responses towards their view of geography/history learning before and after the discussion forum was introduced as a teaching and learning tool. 29 pupils completed the history questionnaires, and 23 pupils completed the geography questionnaires; the response rate being 100%, thus being wholly representative of the project's participants.

Initially, during a pilot issue, a set of these questionnaires were given out using a Likert scale (Likert, 1932), whereby children were asked to judge their stance on a statement using an attitude score (see appendix 2 for an example). After discussing this approach with pilot candidates, it seemed to be too confusing for primary-aged children, and so a more simplified format was required. I therefore used a closed questionnaire, whereby

children answered simply yes or no to a series of questions (appendix 3). I also included visual aides (i.e. smiley/sad faces) to help them. This new approach seemed to cause less confusion and was therefore more successful.

4.2 Pupil Questionnaires – Forum Related

After the project had been completed, I issued an open-ended questionnaire (appendix 4), whereby pupils were simply asked to answer *'What they thought about www.superpupil.com'* (superpupil.com being the web address for the online forum). This type of questionnaire provided me with suitable qualitative data concerning the children's thoughts about the forum, in the same manner as the small-scale pupil interview. Dawson highlights several benefits when using such an open-ended approach to questioning, ranging from it not stifling responses made, to respondents being "able to speak their mind" and "raise new issues". (Dawson, 2006: p.90). On the other hand, however (an issue which did become apparent after the questionnaires were collected in), such questions can lead to minimal responses with some respondents writing very little and not backing up any points made.

4.3 Staff Questionnaire

In order to explore whether or not such work is feasible in the primary sector, I decided to question teachers within school about their opinions, skills and abilities in terms of setting up and managing an online discussion board (appendix 5). The aim of this was

to assess the views of non IT-specialist, general practitioners and gauge an awareness of whether or not they felt confident in carrying out such a curriculum modification themselves. This questionnaire adopted the use of a simplified Likert scale, which helped to assess the strength of feeling or attitude towards a selection of statements. 11 teachers were given the questionnaire, with 10 of them completing them; the response rate being 91%.

5   Informal Observations and Discussions

Because of the integral part I played in this case study, I had regular opportunities to work alongside pupils, teachers and parents who were involved in some way with the online forum. This therefore provided plenty of scope for recording informal observations and discussions made throughout the course of the project. In order to utilise such useful, qualitative evidence, it was decided that anything worth noting was recorded and stored in a journal. Whilst accepting that such selective methods for data collection can be influenced by bias and over-subjectivity, I have endeavoured throughout this case study to keep extremely open-minded and make sure that all relevant forms of evidence are recorded and taken into account.

6   ICT Skills Audit

As a means of determining what effect the project had on the development of children's IT skills, I decided to issue a self-assessment audit before and after the case study (appendix 6). These audits asked pupils to answer honestly whether or not they could do certain technical tasks relating to Internet usage, such as open Internet explorer, on the computer. The audits used closed questioning (either yes or no) and adopted a similar format to the pupil questionnaires (e.g. using visual aides).

It is important to highlight that the use of self assessments as a means of evidence can pose reliability issues; especially concerning overly subjective, and incorrect, findings (i.e. children lying about their actual ability). Before administering these audits however, the pupils were told to be completely honest about their abilities and were reminded that all audits were completed anonymously (only a random number was used so that pre and post audits could be identified and matched). Because I felt that the children had answered honestly however, I decided to use the results.

7. Teacher Assessments

In order to assess any effect that the use of the forum had on pupil attainment, I decided to have two history QCA units of work taught in Year 5 and two QCA units of work taught in Year 6. Table 5 outlines which units were covered, whilst highlighting which topic involved the use of the online discussion forum.

	Not using the online forum	**Using the online forum**
Year 5 HISTORY	Unit 11 – "What was it like for children living in Victorian Britain?"	Unit 12 – "How did life change in our locality in Victorian times"
Year 6 GEOGRAPHY	Unit 15 – "The Mountain Environment"	Unit 14 – "Investigating Rivers"

TABLE 5: UNITS OF WORK COVERED

The initial unit was carried out using the school's normal approach to the teaching of that subject, with the latter integrating internet discussion into the planned learning activities. As with all foundation subject units, a teacher assessment was made using unit expectations as devised by the QCA (2000a, 2000b), and the National Curriculum level descriptors for geography and history as outlined by the DfEE (1999). Professional judgements were made based on evidenced pupil work and performance within each unit, using the school's tracking sheets (appendices 7-8) to highlight pupils as either 'overachieving', 'achieving' or 'underachieving'. This recording system reflected the unit expectations as provided by the QCA (2000a, 2000b) and was used throughout the school for all foundation subjects.

The evidence gathered from these assessments clearly holds issues regarding its reliability. Pupil performance within these units could be severely affected by factors, such as quality of teaching and interest in the topic covered. To clarify further; a pupil may perform better in the topic about rivers because the classroom-based teaching of that theme was of a better quality than the planned unit about the mountain

environment. Additionally, some pupils may perform better in a unit about children's life in the Victorian era because, as opposed to a study about how life has changed within the school's locality, they personally find that topic more appealing or interesting. These factors do need to be taken into account when reviewing the findings.

Another issue became apparent with regards to the use of teacher assessments; Trochim, for example argues that,

> Whenever you use humans as a part of your measurement procedure, you have to worry about whether the results you get are reliable or consistent. People are notorious for their inconsistency.

> (Trochim, 2006: p. 1)

Indeed, it could be argued that the assessments made during this research are unreliable because they are based on the subjective, and potentially biased, opinions of the teachers involved. For this reason, I attempted to safeguard against this by doing two things. First of all, I ensured that two classes were involved in the project, with the Year 6 class teacher being responsible for assessing her own children. By doing so, I aimed to ensure that a practitioner, unattached to the research, could make their own judgements. Secondly, a moderation process involving the school's history and geography coordinators took place, in which children's work and evidence were re-assessed (without the knowledge of the class teacher's original judgement). This process saw a 98% correlation, with only one child being moved down to an 'underachieving' judgement. I was happy therefore for these findings to be used within this case study,

yet feel it important to highlight that they are far from being wholly conclusive or representative.

Presentation of Findings

Data collected throughout this research has been collated and presented in a variety of different ways. Qualitative research, collected through formal interviews, open-ended questionnaires, informal observations and individual pupil posts, are presented in a purely narrative form. The reason behind this being that, "when presented in narrative, [qualitative data] provides tones and a means of helping the reader to 'connect' with the research that pure numerical data is unable to convey" (Burton et al., 2008: p.147).

Quantitative data collection methods, which include closed questionnaire responses, usage statistics, discourse analyses and pupil audits and assessments, are presented using statistical means. A range of descriptive statistics have been used in order to achieve this, attempting to "convey the essential characteristics of the data by arranging the data into a more interpretable form" (Johnson and Christensen, 2008: p.465).

Percentages have been widely used to convey statistical evidence, particular through the presentation of positive and negative responses to questionnaires and the level of certain observed discourse, as it was felt that such a representation of data allows the reader "to translate disparate measures into a common coin that permits easy comparisons among

the measures" (Thomas, 1998: p.194). Indeed, a further advantage of using percentages to convey data "is that they are a familiar part of the general public's everyday living, so research results expressed [in such a way] can be readily understood by a very broad audience" (ibid). Where percentages have been used, I adopted the universal practice of rounding up or rounding down the result to the nearest whole number.

On occasion, some forms of evidence are presented using graphical means, such as bar graphs, in order to make it clearer to the reader what has been found out. Many academic researchers, such as Burton et al., argue for this, stating that, "the impact of numerical data can often be further enhanced and simplified through the use of tabulated or graphical presentation" (Burton et al., 2008: p.149).

When averages have been made, such as the average number of teacher posts, or the average response rating on a questionnaire, the mean has been used in all occasions except for that concerning the average number of pupil posts: Because it became apparent that five pupils were using the forum excessively in comparison to the observed average child, it was decided that using the mean (or arithmetic average) in order to find the central tendency would result in positively skewed results. After all "the mean uses the magnitude of all the scores and is affected by the scores in the tails of a distribution (i.e. by the large numbers and by the small numbers)" (Johnson and Christensen, 2008: p.475). It was decided therefore to opt for the median result for the average number of pupil posts by listing each child's recorded number of posts made during the project in numerical order, and finding the central variable. This, I believed, would be more reliable than an average score positively skewed by a small number of pupils' 'over-enthusiasm' to use the forum; after all, the median result was 7 and the

mean 14. Through informal observation, I would argue that the former is more accurate of an average.

When presenting written comments, quotations or extracts from individual posts, I have ensured that while the wording and content is kept the same, the punctuation and spelling has been corrected where necessary so that they can be understood more readily and used more effectively within the main discussion.

Analysis of Data

The atomistic approach to data analysis was used in the dissemination of my findings. This approach advocates that "the initial research questions are used as a structural device with data being reintroduced to support the analytical process" (Burton et al. 2008: p.144). In order to do this, I realised that I needed to group my findings in light of the areas I first set out to explore. Anderson highlights the need to do this, stating that:

> A vast amount of material may be accumulated during a case study – one of the major tasks is to analyse, code and categorise it.
>
> (Anderson, 1990: p. 153)

I therefore spent time categorising my evidence in relation to the six research questions. An example of this can be seen in Figure 5, where I attempt to illustrate how data

collected could be placed under the following analytical category: *How do non IT-specialist primary school teachers feel about online discussion forums; and are they capable of setting up and managing one?* Such a process enabled me to collate the data gathered and provide opportunities for it to be 'compared and related to past research findings and theoretical perspectives from the literature.' (Burton et al., 2008: p.144).

Staff Questionnaires

Average agreement ratings from the follwoing statements, given to all members of the teaching team in school:

"Discussion boards engance teaching and learning."

"I would use discussion boards in my own teaching."

"I would feel confident setting up an online discussion forum."

"I would feel confident supervising and facilitating online discussions."

How do primary school teachers rate their level of IT expertise?

Usage Statistics of Forum

On average, how many posts do teachers make to a specific thread over the course of a unit of work?

What percentage of posts, made by teachers, are unrelated to the curriculum content?

Informal Observations

A member of staff makes the following comment to the researcher: "How on Earth do they expect us to implement something like this, when we have so many other government requirements which need fulfilling?"

The researcher notices that the Year 6 teacher is struggling with the technicalities of using the online forum. She asks the researcher for help on several occassions.

The history coordinator, whilst moderating pupil assessments, makes a comment about how much more evidence there is to assess pupils, because of the forum posts.

How do non IT-specialist primary school teachers feel about online discussion forums; and are they capable of setting up and managing one?

FIGURE 5: EXAMPLE OF ATOMISTIC APPROACH TO DATA ANALYSIS

A significant amount of data was qualitative, and as such, has been used to enlighten more than one research question. Comments recorded through informal observations and discussions, for example, required a greater level of interpretation on my part. It was important therefore for me to scrutinise such comments and attempt to pigeonhole them into certain areas of the study. This process was especially beneficial in terms of realising pertinent themes surrounding the use of such work within schools, and as such, greatly aided my interpretation of the findings:

> Qualitative data, by its very nature, is more open to ambiguity and requires the identification of emergent key themes for it to be organised and collated and interpreted. Reponses are likely to be unique to each individual respondent so the researcher needs to be alive to the potential patterns that might exist and be aware of opportunities for categorisation.
>
> (Burton et al., 2008: p.147).

Ethical Issues

Wellington states that, "concern for ethics should start at the outset of any research project and continue through to the write-up and dissemination stages" (Wellington, 1996: p.7). For this reason, the whole research process has kept in line with ethical practice. At the start of the case study, for example, children, staff and parents were told about the project and why it was being carried out. Parents were issued with a letter (appendix 9) and a consent form was completed for all pupils involved with the online forum. An introductory lesson concerning the use of the forum was delivered to the pupils in both classes and, within these sessions, children were made fully aware that

their posts and contributions may be used as evidence of how children use online forums to facilitate their learning. Questionnaires and interviews were always preceded by a comment regarding anonymity; clearly highlighting to the respondents that their comments were made anonymously and that they should answer honestly without fear of come-back.

During the write-up process of this study, I have endeavoured to respect the anonymity of all respondents, contributors, and the institution in which the project took place. Individual posts, comments or cases are presented anonymously, sometimes using coding where necessary (e.g. P1 = pupil 1). Cohen et al. believe that the "dignity, privacy and interests of the participants should be respected" (2000, p.71) at all stages of the study: A view with which I would whole-heartedly concur.

CHAPTER FOUR: DISCUSSION, INVOLVEMENT AND INCLUSIVITY

i) Can the use of online discussion forums increase involvement and inclusivity?

During the course of the study, three classroom based lesson observations were carried out for each of the two cohorts in order to gauge an awareness of the percentage of pupils who make at least one form of contribution during whole-class discussion or interaction. Table 6 illustrates the findings from these observations showing the percentage of pupils in attendance during the lesson who contribute, with a clear link to the curriculum content, to whole-class interaction.

	Lesson 1	Lesson 2	Lesson 3	Lesson 4	Lesson 5	Lesson 6
	Year 5 – History			Year 6 - Geography		
Percentage of pupils in the class who contributed in some form during whole-class discussion or interaction	31%	39%	46%	64%	48%	48%
Total number of pupils in the classroom	29	28	26	22	23	23

TABLE 6: LESSON OBSERVATIONS – LEVEL OF WHOLE-CLASS PUPIL CONTRIBUTION

Based on the mean percentage result from these limited observations, 46% of the pupils in attendance during a given lesson made some form of contribution openly to the teacher and all other pupils in the classroom.

Pupil contributions to the online discussion threads for their geography and history studies were also recorded, with 100% of pupils from both cohorts using the forum at least once to post a curriculum-related message for their peers and teachers to see. Tables 7 and 8 indicate the median average number of pupil contributions, with Year 5 pupils making an average of four contributions and Year 6 pupils making five contributions during the course of a topic's thread.

Year 5 History Thread	TEACHER	PUPIL
Total number of posts related to curriculum content	18	132
Average number of posts made	18	4 (median)

TABLE 7: USAGE STATISTICS – YEAR 5 HISTORY THREAD

Year 6 Geography Thread	TEACHER	PUPIL
Total number of posts related to curriculum content	17	110
Average number of posts made	17	5 (median)

TABLE 8: USAGE STATISTICS – YEAR 6 GEOGRAPHY THREAD

Although the actual number of contributions made during the classroom observations were not recorded, it is possible to state that contributions made openly to all learners and teachers within a learning environment rose from 46% to 100% - with the online discussion forum evidencing a greater involvement rate of pupils.

It could be argued that this extremely high contribution rate attributed to the online forum use rests on the fact that pupils were encouraged to use the forum as part of their homework and so there was an expectation that all students had to submit some form of post during a topic's study. The Year 6 teacher in an open-ended questionnaire, for instance, reflected that her "children had to contribute because of the forum being used as part of homework" and that "there was an expectation for all pupils to get involved in discussions and the sharing of knowledge". This expectation and culture is arguably not as evident within traditional classroom teaching, in which children tend to often talk and discuss openly only when there is a personal willingness to do so.

One child commented during a formal interview that they found it easier to talk online and attributed a sense of shyness and panic in the classroom when questioned further. The pupil in question stated that they were often "scared of getting something wrong" and that they would feel "silly" if they asked an easy question in front of their friends. This comment reflects the findings of Mills (2006, p. 82) insofar as the online nature of forums takes away the intimidating social environment of the classroom and allows learners to interact and contribute in the comfort of their own homes. This child's experience however contradicts the findings of Davie (1989) and Grint (1989) whereby in their research some students view online posting as a form of publishing and thus potentially daunting. No pupils involved in the project commented about the forum being such a public domain and there was an overriding perception that the forum was easier to interact on, with a further child's questionnaire comment stating that, "it's easier [to interact on the forum] because you don't have to put your hand up or talk in front of everybody." This poses the question therefore of whether or not younger aged

learners have a different perception of writing and text-based publishing, and whether they actually view it in the same way as public interaction.

Linked to the finding that online forums can enhance the involvement of all primary pupils in whole-class discourse, there is this notion of the 'anytime, anywhere' nature of the Internet (Horton, 2006: p. 6). Providing pupils with the opportunity to answer a question or share an idea online in front of a computer after a lesson has been delivered not only removes the confines of the classroom but also the lesson itself. Within the traditional classroom, for example, lessons are often encouraged (as the Year 6 teacher commented during an informal interview) "to be face paced" and so the ability to provide thinking time is often hampered. Perhaps one of the potential reasons why student involvement has increased in this study is because the children had time to reflect, further revise and construct their thoughts, questions and ideas before publicly sharing them. Indeed, myself and three other teachers in the school commented on the benefit of this, with one practitioner remarking that it would be near impossible for a teacher to allow opportunities for all pupils to openly voice their opinions and questions within the confines of a short one-hour lesson.

Aside from the 100% contribution rate, it is important to analyse the median number of posts made by pupils. As mentioned in the methodology section, the median was chosen so that the more active contributors did not positively skew the overall impression of the average number of pupil posts made in a thread. When looking at the number of posts made by each pupil, it became apparent that there was a large difference: Some pupils posted in excess of 15 messages whereas some only contributed one or two times during the course of a thread's history. Although the median number of posts does reflect a

more realistic average, it is worth discussing several findings relating to the overly active and the less-active students.

Having observed the posts of pupils it was clear that several students were regularly accessing and posting on the forum site. These children kept a keen eye on the development of discussions and were often very eager to respond to pupil initiated questions; researching or developing answers and then sharing them with their peers. These children, unsurprisingly, had regular access to the Internet at home and, when questioned informally, used the Internet recreationally most nights. Such pupils were clearly more advantaged than those children who had limited or no access to the Internet. One parent, for instance, came into school to argue the point that it was unfair for her child to be expected to use the forum as part of homework because they did not have access to the Internet at home. Indeed the level of Internet access at home for the Year 5 and 6 cohorts was 83% and 91% respectively and so there was a notable percentage of students who were disadvantaged by such a 'digital divide' (Wresch, 1996). Taking this into consideration, opportunities were provided within school for children to use the computers during playtimes. This, however, still posed a significant unfairness in the use of such a tool with the children. It was evident for example that pupils who accessed the forums regularly at home gained much more from the experience, with children with limited or no home access being less enthusiastic about its use during formal interviews. Indeed one student remarked that they didn't really like the forum because they felt left out of "all the fun". Such a finding mirrors that of Bender (2003: p. 8) who commented that participants who do not regularly use (or indeed are able to access) a forum tend to find the learning experience cold and uninviting.

Another parental comment, provided through the means of a letter written to school near the end of the project, highlighted an unexpected and notable benefit of using the forum as a means for homework. This parent wrote that she was "greatly impressed by the use of the forum as a way for [Child's Name] to do his homework," going onto explain further that, "because of his dyspraxia, he's always found writing up his work difficult and unmanageable." Using the computer as a means for this specific child to share his knowledge and learning with his teacher and others, proved to be a highly beneficial advantage of using the forum. Similar to the research of Detheridge (1997), for instance, this pupil was able to 'show off' his ability in history more easily than by the traditional way of writing in an exercise book because the barrier of handwriting was removed.

Whilst on the topic of parents, it is worth mentioning a distinct increase in parental communication during the course of the forum use. Indeed, the Year 6 teacher noted in her questionnaire that, "parents seem to rate the forum highly", commenting that they are pleased with the way it has "improved communication" and an "awareness of what is being studied in school." One post in the Year 6 Geography thread, as a further illustration, read:

> "My mum's just said that my nana remembers the barges on the Ouse. They used to transport coal up the river."

Such an example, highlights the potential benefit of using an online communication tool within the primary classroom setting; with several government publications such as

BECTA (2003b) and DfES (2001b) claiming that by using the Internet for learning activities at home and out of the classroom, there is an increased opportunity for parents to see more about what is being studied and learned by their child: A benefit regularly advocated by government ministers, practitioners and researchers alike because of its perceived effect on a child's attainment and education.

ii) How do upper key stage two pupils contribute to online discussions?

Using a simplified interaction coding system, this study was able to compare the way children interact both within the classroom and also on the discussion forum. Table 9 shows the number of recorded incidences based on two classroom-based lesson observations, with Table 10 presenting the analysis of two discussion boards. Figure 6 compares the two results.

Evidence of pupils...	*Session 1 (Year 5): History*	*Session 2 (Year 6): Geography*	*Both Sessions*
Sharing knowledge and information	36 (43%)	45 (45%)	81 (45%)
Asking questions	5 (6%)	7 (7%)	12 (7%)
Answering or responding to pupil-initiated questions	9 (11%)	6 (6%)	15 (8%)
Answering or responding to teacher-initiated questions	33 (36%)	41 (41%)	74 (41%)
Total number of recorded incidences	83 (100%)	99 (100%)	182 (100%)

TABLE 9: DISCOURSE ANALYSIS OF LESSON OBSERVATIONS

Evidence of pupils...	**Discussion Board 1 (Year 5): History – The Victorians**	**Discussion Board 2 (Year 6): Geography - Rivers**	**Both Discussion Boards**
Sharing knowledge and information	70 (38%)	67 (45%)	137 (41%)
Asking questions	26 (14%)	15 (10%)	41 (12%)
Answering or responding to pupil-initiated questions	34 (18%)	23 (15%)	57 (17%)
Answering or responding to teacher-initiated questions	56 (30%)	44 (30%)	100 (30%)
Total number of recorded incidences	186 (100%)	149 (100%)	335 (100%)

TABLE 10: DISCOURSE ANALYSIS OF DISCUSSION BOARDS
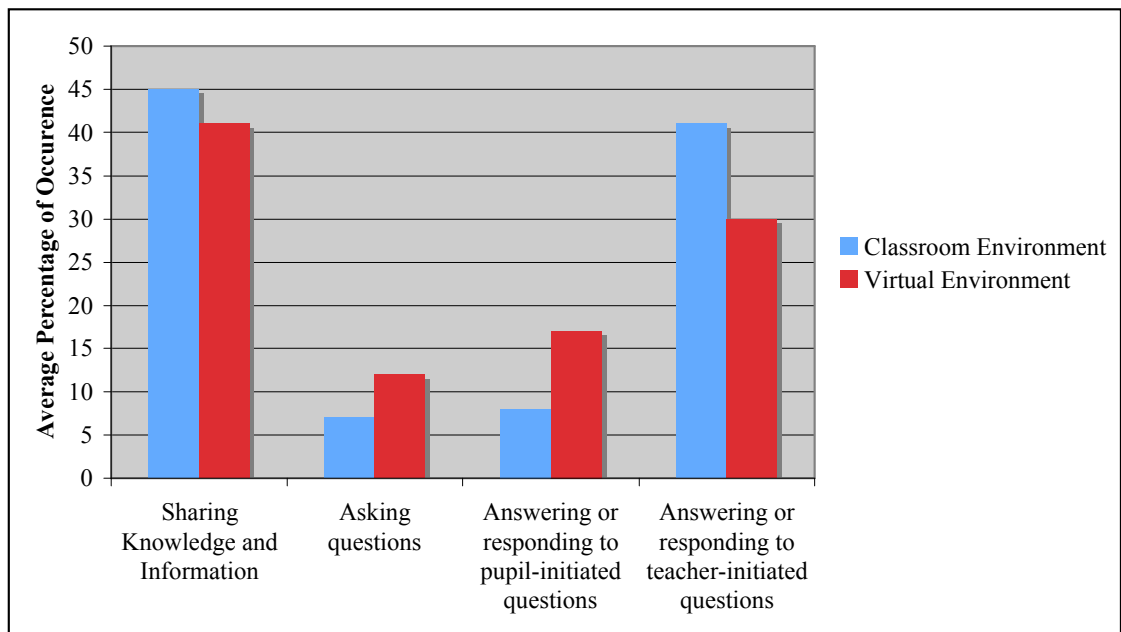
The majority of interactions, both within the classroom and the online forum, were of a sharing nature. Pupils shared information and knowledge regularly, both as a means of answering questions but also as a means of showing what they know and understand about a topic or subject. One reason behind this may rest on the teaching culture of our classrooms, with many teachers regularly questioning and probing children's thinking as a means for both assessment and the facilitation of knowledge development. This is evident in the findings, as the 'Sharing Knowledge and Information' and 'Answering or responding to teacher-initiated questions' both have a high frequency occurrence in observations and analyses.

The use of the forum did show a slight gain in the frequency of children asking questions. As an example, the history lesson recorded 5 pupils asking a question relating the curriculum content, whereas the history discussion thread recorded 26. Although the discussion thread had a greater scope for collecting data (as the lesson observations

were only one hour long), there is still a slight increase in the overall frequency of student questioning taking place on the forum: 7% of classroom based interaction was of a pupil-questioning nature, in comparison to 12% in the virtual environment. Perhaps one of the reasons behind this is the aforementioned finding that some pupils found the discussion forum less intimidating and that children had more time to think about and devise questions.

One of the most interesting results from this data is concerned with the way pupils responded to questions, both pupil-initiated and teacher-initiated questioning. The results show that there was a decline in the frequency of students answering teacher-initiated questions on the discussion board, with a notable increase in the occurrence of pupils answering pupil-initiated questions. In the observed lessons, 8% of recorded incidences evidenced children responding to questions posed by their peers – yet on the discussion threads this was 17%. Such a finding could argue that there was greater evidence of social constructivist learning taking place in the virtual environment; whereby pupils were supporting fellow learners through answering their queries, concerns and gaps in knowledge and understanding.

This finding is furthered mirrored in the results from a pupil questionnaire with specific reference to the *"I learn a lot about Geography/History from my classmates"* and *"I help my friends with their Geography/History learning"* statements (Figure 7). These results show that after the introduction of the discussion forum, the agreement rating to the first statement rose from 9 students to 38; with the latter statement rising from 15 to 36. In percentage terms this would show that only 17% of the students involved in the project initially thought that they learned a lot from their peers with a rise to 73% after

their use of the discussion board; and 29% of pupils initially believed that they helped their friends in their geography/history learning, rising to 69% after the forum use. This data would argue that the use of the forum gave students a greater sense of learning from their peers and assisting others classmates in their studies.
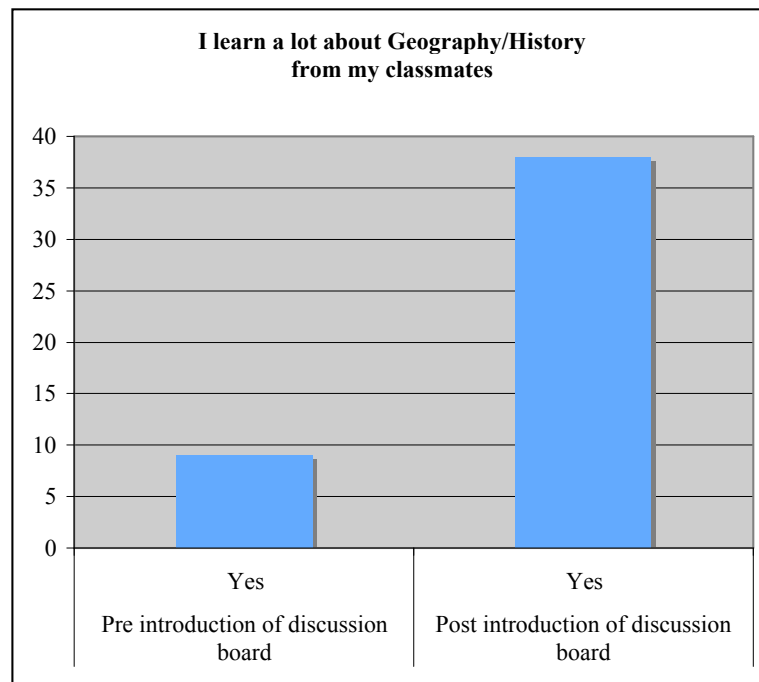
n = 52
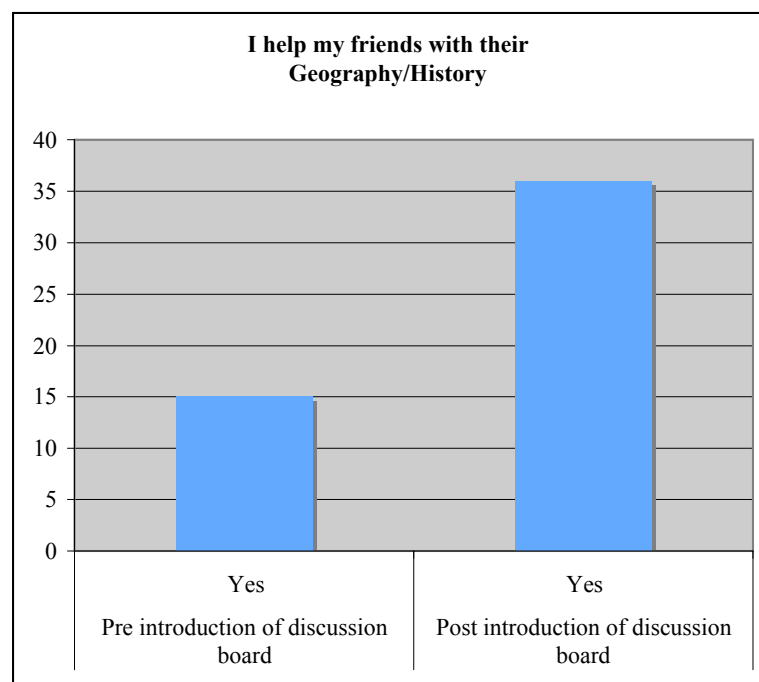
n = 52

FIGURE 7: RESULTS FROM PUPIL QUESTIONNAIRE – PRE AND POST FORUM USE

(SOCIAL CONSTRUCTIVIST LEARNING RELATED STATEMENTS)

Linked further to these findings is that of the qualitative comments provided by pupils in their questionnaires and interviews. One child, for example, wrote in their open-ended questionnaire:

> "I thought it was a really good idea doing [the forum], and letting us speak to our friends on it. I like it if we get stuck because we can ask a question to our friends and if someone is stuck I can help them out."

Comments made during interviews regarding this aspect of the forum were also very positive in nature with comments such as, "it felt good finding answers out for my mates" and "I liked helping other people in the class out because I felt a bit like a teacher and I got to show others what I know" illustrating the motivational and social-constructivist opportunities that the forum provides.

Observations of the discussions themselves highlighted several other features and trends. One of these issues was that of posts made that were not related to curriculum content. Indeed, it was clear that a large proportion of the pupils' posts were often of a trivial nature and were not concerned with the academic topic being discussed or studied. Usage statistics, for example, show that out of 797 pupil messages posted during the course of the project, 93 of them were unrelated to the curriculum. Many of these consisted of general 'chit-chat' or trivial comments and caused the flow of the discussions to be hampered. Midway through the Year 5 history thread, for instance, a mini discussion about a reality TV show transpired and, as such, resulted in the purpose and aim of the thread to be lost. Table 11 highlights the level of posts made unrelated to curriculum content and also illustrates how, because of this problem, teachers had to

make several posts of a class management or behavioural nature in order to get the discussion back on course. One of the reasons behind this may rest in the fact that the pupils were not made fully aware of the rules and 'netiquette' of the discussion forum prior to its launch and so there was a lack of awareness of how students should behave online.

ALLFORUMS	TEACHER	PUPIL
Total number of posts made, related to curriculum content	117 (81%)	704 (88%)
Total number of posts made, unrelated to curriculum content	27 (19%)	93 (11%)
Total number of posts made	144 (100%)	797 (100%)

TABLE 11: USAGE STATISTICS CONCERNING CURRICULUM RELATED CONTENT

Another issue, which became apparent, was that of the quality of posts and the level at which students' thinking and learning was developed. Through personal observation of the threads, it is clear to say that the primary children involved in the project tended to write very descriptive and short comments and showed limited evidence of more advanced forms of discourse, as mentioned by Gunawardena et al (1998). Indeed the finding that, "participants rarely moved beyond the second stage and stayed mostly in the first stage of sharing and comparing information" (cited Wallace, 2003: p. 247) was clearly the issue in this case study.

No single post or thread showed evidence of argument or debate, and therefore dissonance or inconsistency among ideas was not apparent. The general type of pupil post was of a sharing nature, in which children shared with their peers some fact or finding. On several occasions however, there was evidence of children building upon a peer's initial posts – with the following example highlighting a more developed discussion:

Pupil 1: Florence Nightingale wanted to help the wounded soldiers in the Crimean War so she went there and helped sort out the hospitals. They were really disgusting and dirty and she helped to change how hospitals were run.

Pupil 2: She also set up a training school for nurses when she came back. It was called St. Thomas's. I think because of her work, doctors realised that women really can help the sick.

Pupil 3: Did you know that a black nurse called Mary Seacole also wanted to help in the Crimean War but she wasn't allowed to? I've just read her story at http://www.spartacus.schoolnet.co.uk/REseacole.htm. I think the government at the time didn't really like black people.

Pupil 1: That's so racist! Thanks for the link! Did you notice that Florence Nightingale even refused her help as well!

In this example Pupil 1's knowledge and understanding of Florence Nightingale, the healthcare system and the role of women in Victorian society was further enhanced by an additional fact provided by Pupil 2. Pupil 3's link and comment also allowed Pupil 1 to explore a related emergent issue concerning Mary Seacole and racial discrimination. One could argue that because of this peer-to-peer discourse, Pupil 1's, and indeed all pupils', historical knowledge and understanding was enhanced.

Not all posts however were as well developed as this example, with several of the threads resembling a long list of key facts and quotes from the Internet. The Year 6 teacher, for example, commented that when a research question such as "What is a tributary?" was given as part of homework, "the children tended to research one key fact, type it in (or sometimes even copy and paste it), post it and then log off". These types of closed discussion questions tended to result in such superficial discussion with limited evidence of children actually interacting with one another. The better discussion threads, on the other hand, tended to have a more open-ended question or theme, often providing the pupils with more opportunity to research or comment on something that interests or intrigues them.

The issue of copying and pasting direct from the Internet became a major problem during the project, with several pupil posts showing evidence of lifting facts or information directly from online encyclopaedias or other sites: The language used was clearly too complex and the information sometimes inaccessible for primary aged students. When this occurred, it was clear that children were not necessarily discussing or understanding the information presented but were merely posting it up because there was an expectation to contribute or share some finding. These threads therefore tended to become very unwieldy and lacked evidence of pupils genuinely interacting with the subject matter.

CHAPTER FIVE: SKILLS AND ATTAINMENT

i) Do online discussion forums enhance attainment in a National Curriculum area?

Teachers in the case study's school used the QCA unit expectation descriptors (QCA 2000a, 2000b), and National Curriculum level descriptors (DfEE, 1999) to gauge whether or not individual pupils were performing above, in line or below national expectations for a given subject or QCA unit of work. For pupils in Years 5 and 6, the average child would be working at, or towards, Level 4, whilst higher achieving children would show evidence of working at Level 5 and above, and lower ability children working at Level 3 or below. In order to make an overall judgement, practitioners would use a variety of assessment evidence to inform their decisions on a child's attainment. Evidence would usually include children's written or pictorial work and teacher's recorded observations of dialogue or practical activities. As mentioned in the methodology chapter, two units of work were carried out for each of the two cohorts involved in the project– one using the school's usual approach to the teaching of history and geography, and one which included the use of the online forum (see table 5). By doing so, we were able to collect assessment evidence for each pupil, and comment on, and evaluate, whether or not the forum's use had a potential effect on pupil achievement and attainment. It is important to note the possible difficulty in viewing such subjective teacher assessments as being wholly reliable and valid and so, as mentioned in chapter 3, moderation activities were undertaken by both the two class teachers involved in the project and the two coordinators of history and geography in school. This practice enabled children's perceived attainment to be moderated, judged against assessment descriptors and given an overall judgement.

Appendices 7 and 8 highlight the assessment data recorded for the two cohorts, showing

the judgements made by members of staff for each child during two units of work in

either history (Year 5) or geography (Year 6). These results are further illustrated in

percentage terms in table 12, with figures 8 and 9 showing the comparable nominal

value. It is worth pointing out at this point however that, in view of the small sample

size and nature of the data collected in this small scale study, it was not thought to be

appropriate to apply statistical tests for the data presented in this and other tables. As

such, all comparisons need to be regarded with caution and interpreted as potentially

emerging patterns and trends.

	Underachieved	Achieved	Overachieved	Total Pupils
Not using the online forum Year 5: Unit 11 – "What was it like for children living in Victorian Britain?"	4 (14%)	20 (69%)	5 (17%)	29 (100%)
Using the online forum Year 5: Unit 12 – "How did life change in our locality in Victorian times"	2 (7%)	17 (55%)	10 (34%)	29 (100%)
Not using the online forum Year 6: Unit 15 – "The Mountain Environment"	2 (9%)	17 (74%)	4 (17%)	23 (100%)
Using the online forum Year 6: Unit 14 – "Investigating Rivers"	1 (4%)	12 (52%)	10 (43%)	23 (100%)

TABLE 12: ASSESSMENT DATA – PERCENTAGE OF JUDGEMENTS
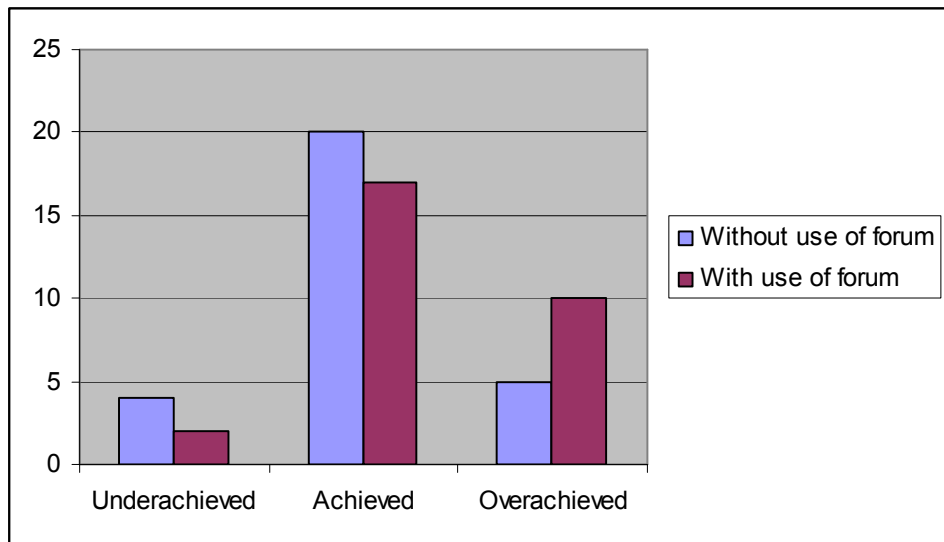
FIGURE 8: ASSESSMENT DATA – YEAR 5 – COMPARISON OF JUDGEMENTS
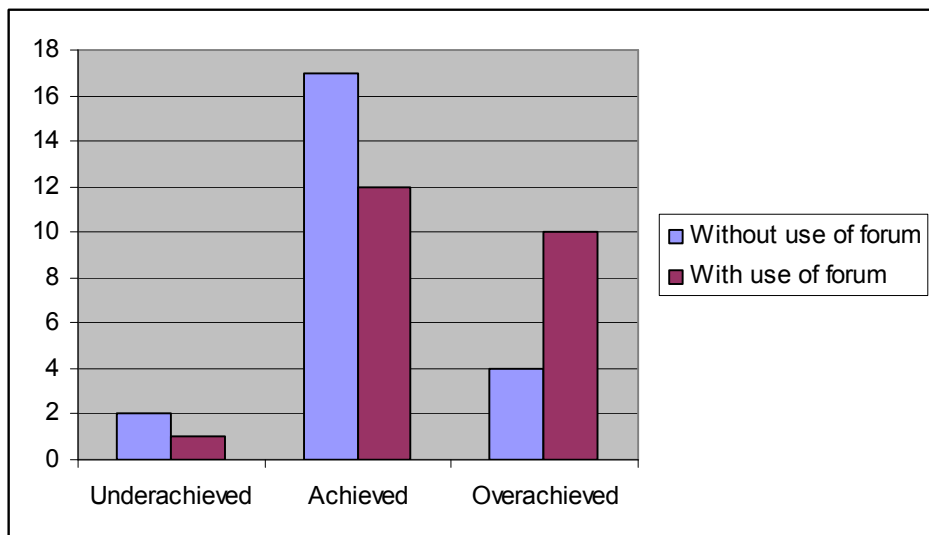
FIGURE 9: ASSESSMENT DATA – YEAR 6 – COMPARISON OF JUDGEMENTS

It is possible when looking at this data to make several comments about the forum's effect on children's judged attainment in these two foundation subjects. Year 5, for example, saw a 7% drop in the number of pupils underachieving in History, whereas in Year 6 this was 3% for Geography. Indeed, there was even one child in Year 5 who

made an attainment gain from underachievement to overachievement after the introduction of the online discussion board. A most notable increase however was found in the number of pupils who were thought to be performing above expectations; with a 17% rise in the number of Year 5 pupils gaining such a judgement and a 26% rise in the number of Year 6s evidencing this higher ability. These findings could argue that the units which used the online discussion forum as a learning tool evidenced a higher attainment rating, particularly in respect to getting more pupils into the Level 5 overachievement category, and as such mirrors the findings of Ravenscroft and Matheson (2002) in which significant improvements in student knowledge of a topic can be enhanced through virtual means. There are many possible causes behind this evidenced improvement in children's attainment and so we shall now attempt to explore these potential reasons.

During the moderation process, the school's history coordinator made an interesting comment about the increase in evidence available for the assessment of each child. Indeed during the moderation activity of the first unit of work (undertaken without the use of the forum), the majority of evidence available was that of worksheets and written activities undertaken in children's exercise books and topic folders. The second unit of work however saw a most notable increase in such evidence of learning and achievement, as the discussion threads and the pupils' individual posts provided teachers with more of an understanding of what pupils know and can do.

Using the level of attainment descriptors, identified within the National Curriculum Programme of Study for Geography and History (DfEE, 1999), teachers were able in their assessment practice to find evidence of pupils achieving and evidencing a variety

of different components from the programme of study within children's individual posts and interactions. To illustrate this finding, we can use the level descriptors to highlight how one pupil's post provided a notable amount of evidence for Level 5 attainment in this specific subject (Figure 10).

Level 5: "Pupils show increasing depth of factual knowledge and understanding of aspects of the history of Britain".

Level 5: "They describe events, people and changes".

"That school [in local area] opened in 1894…A lot of schools were opening around that time. I found out on a website that the government in them days only said that we should have schools in 1870 and they only started paying for schools in 1891. I think that's why a lot of old schools in [city] were opened after then because people couldn't afford to pay for the children to go to them…I'm so glad we go to school because I would hate to be working at my age doing some horrible job!"

Level 5: "They describe and make links between events and changes and give reasons for, and results of, these events and changes".

Level 5: "They select and organise information to produce structured work, making appropriate use of fates and terms".
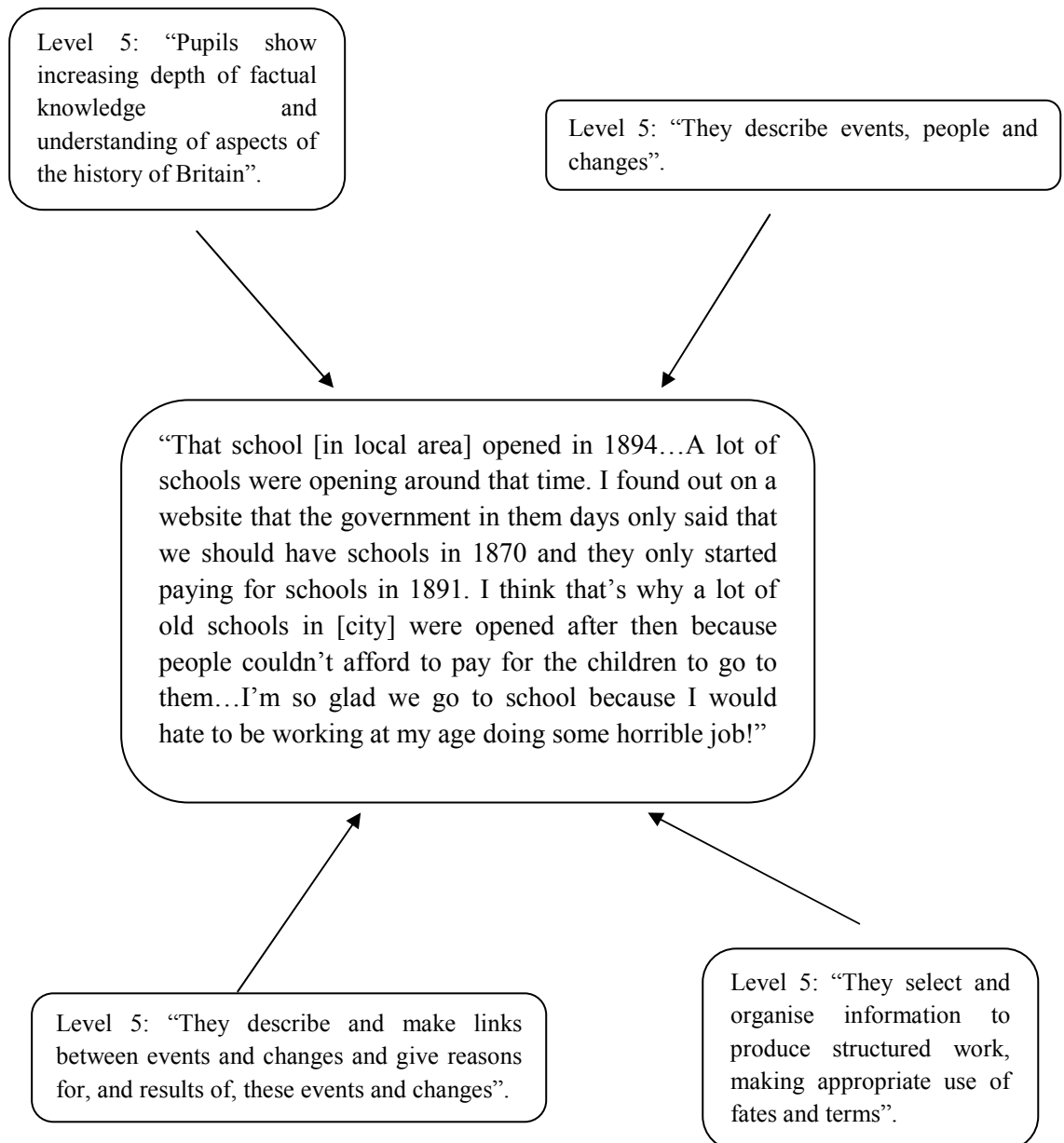
FIGURE 10: EXAMPLE OF HOW PUPIL POSTS CAN INFORM A LEVEL OF ATTAINMENT JUDGEMENT

The use of the forum did therefore provide, as one teacher commented on their questionnaire form, "more opportunity for pupils to show what they know and can do so that teachers have a greater chance of assessing them at a higher level." This however poses the question as to whether or not an online discussion board actually *enhances* attainment or merely *provides* more evidence of it. Taking into consideration the fact that one underachieving child made approximately two attainment levels progress in the space of just two units of work, it is possible to argue the case that a forum can't possibly result in bringing such massive achievement gains. Indeed, in respect to this individual child, who happened to be dyspraxic, his rise in attainment could rest on the fact that the traditional method of recording and presenting his learning via handwritten methods hampered his capacity to evidence his actual ability in history. After all, just because a child finds writing up a report in their history books difficult, and ultimately neglects to write as much as other children, this does not necessarily mean that the child's historical skills and knowledge are poor. Perhaps the reason behind the aforementioned higher achievement therefore was indeed the fact that pupils had more opportunity for providing evidence of their ability and thinking, and possibly in a way which better suited their individual learning styles and needs.

It is evident from discussion with the practitioners involved in the study, as a further illustration, that the online forum tended to assist in the assessment of pupils because it was an exact recording of children's discourse and interactions. Ordinarily, when undertaken in the classroom environment, verbal discourse and comments made are hard to record: Recording of children's spoken interactions, for instance, require a lot of adult work both in terms of listening to comments and then writing them down for one

to refer to later during the assessment process. The discussion board however takes the toil and drudgery out of such work, as the children's conversations and evidence of ability are recorded progressively as the thread develops and is always there to refer back to. By having such evidence there to refer to, and indeed to back up any judgements made by teachers, one is clearly more capable of findings evidence of pupils' performance.

Inherent within children's attainment in geography and history is the ability to ask questions and find answers. The programmes of study for both geography and history, for example, outline that children need to develop and become competent in both geographical and historical enquiry. Element four of the Key Stage 2 History programme of study, for instance, highlights that, "pupils should be taught how to find out about the events, people and changes studied from an appropriate range of sources of information, including ICT based resources". It goes onto further point out the need for pupils to, "ask and answer questions and to select and record information relevant to the focus on the enquiry" (DfEE, 1999: p. 105). Using the Internet, and indeed an online forum, is arguably a good way of encouraging, achieving and ultimately evidencing such skills. Children in the case study, for example, regularly used the Internet to research information about their Victorian history or River geography topics and used the forum to share their findings. This could therefore be another possible reasons as to why the forum affected children's attainment in such foundation subjects: Children were actively encouraged to research and present information online and, as such, this teaching approach could be seen as a beneficial way of nurturing the development and display of such skills.

The sharing nature of the forum, with many of the pupils researching new information and posting their findings on the discussion board, gave more opportunity for increased assessment evidence in terms of what pupils know about a given subject. This, however, poses the problem insofar as whether or not the children actually wrote the content themselves and whether or not they actually understood it. Indeed, there are possible opportunities for both copying and pasting from websites, and parents or older siblings writing on behalf of the child. This, quite naturally, cannot be therefore moderated as stringently as when a child evidences some skill or knowledge independently within the classroom.

An example of such a discrepancy was evident with one particular student who posted a message deeply rooted in sound geographical awareness and vocabulary and as such evidenced a performance of a Level 5, or 'overachieving', rating. The Year 6 teacher however felt that through personal, face-to-face questioning and discussion with the child in school, a Level 4 judgement was more apt as they could not necessarily apply such knowledge and specialist vocabulary in the classroom environment. The teacher, for example, commented that she was dubious about the authenticity and authorship of this specific child's postings.

This, therefore, poses the danger of online-evidenced skills being not as credit-worthy as classroom, teacher experienced-based evidence and assessment. It also illustrates the argument that a teacher's professional judgement should be at the root of any form of assessment and that online contribution should be a means of *potentially informing*, as opposed to *replacing*, the decision of at what level a child is working at.

ii) Does the use of online discussion forums enhance pupils' attainment in ICT?

The QCDA (Qualifications and Curriculum Development Agency) highlight the importance of ICT within the newly released primary curriculum. Within its statutory guidance is the importance of imbedding four key inclusive cross-curricular elements, ICT being one of them. Within this element, the QCDA have stated that "pupils should be given opportunities to apply and develop their ICT capability through the use of ICT tools to support their learning in all subjects" (QCDA, 2010: Internet). Such ICT capability refers to pupils' skills and knowledge of how aspects of technology work and their ability to transfer this knowledge into real and purposeful situations. The ability to understand and carry out the skills required of an online discussion board were therefore audited as part of this study in an attempt to gauge whether or not encouraging the use of such tools in the primary classroom has a significant impact on a child's ICT capability.

Basic IT skills, such as being able to log onto the Internet or indeed navigate around a web page, are a clear necessity when it comes to imbedding a virtual learning environment into the curriculum. More specific skills, such as being able to insert images or hyperlinks into a forum post are also beneficial: these are skills which pupils need in order to make full use of the opportunities available to them on an online discussion board. The audit therefore questioned children, before and after the introduction of the forum, about their ability to carry out a variety of relevant computer based tasks. Table 13 shows these tasks and presents the findings of children's pre and post responses in both numerical and percentage terms.

n = 52 %s rounded up	Yes – Positive Response		No – Negative Response	
	Pre	Post	Pre	Post
I can open up Internet Explorer	51 (98%)	52 (100%)	1 (2%)	0 (0%)
I know how to move around a website	51 (98%)	52 (100%)	1 (2%)	0 (0%)
I can go to a website if I know the web address	50 (96%)	51 (98%)	2 (4%)	1 (2%)
If I knew the username and password, I would be able to log into a web forum	26 (50%)	52 (100%)	26 (50%)	0 (0%)
I know how to post a new message onto a forum	28 (54%)	52 (100%)	24 (46%)	0 (0%)
I can reply to a message	28 (54%)	52 (100%)	24 (46%)	0 (0%)
I can put an image into a forum message	4 (8%)	43 (83%)	48 (92%)	9 (17%)
I know how to put a web link into a forum message	19 (37%)	48 (92%)	33 (63%)	4 (8%)
I know to put Emoticons into a forum message	3 (6%)	48 (92%)	49 (94%)	4 (8%)
I know how to change the font colour in a forum message	21 (40%)	47 (90%)	31 (60%)	5 (10%)
I know how to change the font size in a forum message	46 (88%)	50 (96%)	6 (12%)	2 (4%)
I can use the bold, italic and underline features	46 (88%)	50 (96%)	6 (12%)	2 (4%)

TABLE 13: RESULTS FROM PUPIL ICT SKILLS AUDIT

After having shown and introduced the children to the notion of an online forum, the pre introduction audit shows that certain features were arguably unknown or inaccessible to many of the pupils. The knowledge of, or ability to use, emoticons for instance was limited amongst most of the participants with only 3% believing themselves capable of using them in a post. The ability to insert and imbed images into online forum messages was also flagged up as an IT skill underdeveloped with the two cohorts. It was clear during the introductory session, as a further illustration, that a notable number of the students were unfamiliar with what an online forum actually was and this is indeed reflected in the percentage results. Most pupils, for example, felt able to do a selection of generic IT skills such as access the Internet, move around a website and use bold, italic and underline features in text. The more forum-related skill statements initially showed however a prevalence of negative responses.

After having used the forum as part of the children's curriculum studies, there is a clear difference in their perceived ability to do many of the tasks. The percentage of pupils being able to insert images into online messages and emails, for example, rose from a mere 8% to 83% of the two cohorts, whereas the ability to actually log onto a web forum rose by 50% of the children to 100%. Overall, the improvement in positive responses rose from 60% agreement rating to an impressive 96% after the use of the online forum. This shows, arguably unsurprisingly, that by introducing some form of IT based tool into everyday teaching, schools are actively encouraging and promoting the development of everyday ICT skills.

There is also the added advantage of encouraging the use of ICT skills in a general, purposeful context. Unlike teaching children how to use an email system, as an

example, and then testing them using some form of simulation programme, pupils in this study were learning how to use online communication tools but were then applying those skills on a regular, meaningful and purposeful basis. The Year 6 teacher found this aspect useful claiming that because of the use of the forum, children were "not only developing their ICT skills" but were realising "the benefits and actual purpose of using IT skills which had been taught in lessons."

Another useful consequence of having imbedded an online forum into the curriculum was that of the opportunities it provided for improving a teacher's ICT planning, teaching and assessment coverage. The case study's school, for example, used a local authority-devised ICT scheme of work in order to teach and assess the necessary coverage of National Curriculum components (Wokingham Local Authority, 2009). Within this programme, there are eight key areas for learning and teachers have a responsibility to make sure that their pupils cover each of these areas in their general ICT lessons. Many teachers within the case study's school commented regularly about the enormous task of making sure that all these objectives and skills, as outlined within such a programme, were covered within a given academic year. Two of these strands are entitled 'Communicating, Collaborating and Publishing' and 'Research' and several comments were made by school staff that the use of an online forum would greatly aid the coverage of many of the objectives outlined within these sections. Indeed both myself and the Year 6 teacher involved in the forum's use found that many of the objectives, such as "To use appropriate forms of communication to solve problems, share information or ideas" were central to the online forum and, as such, were automatically addressed and covered through the use of such a virtual learning environment. Indeed, it could be argued that some of the objectives found within

programmes of ICT study would be near impossible to achieve without using some sort of collaborative, online communication tool.

It is possible to argue therefore that the use of an online discussion board in the primary school not only enhances pupils' ICT capability and skills but it facilitates the actual delivery of the National Curriculum's statutory guidance; thus enhancing and enabling pupil attainment and aptitude in ICT.

CHAPTER SIX: ATTITUDES AND OPINIONS

i) Do online discussion forums have any motivational effect on the learning and perception of a specific subject?

Pupil questionnaire responses and comments made in interviews and informal observations have helped draw some light onto the use of online discussion forums and their effect on primary children's attitudes and opinions. Having based a lot of the project's work around the subjects of history and geography, it has been possible to look into how, or indeed if, imbedding an online forum into a school's curriculum affects a child's thoughts on, and motivation in, such subjects. Results from a pupil questionnaire regarding their geography and history subjects are shown in tables 14 and 15. This data represents the number of positive and negative agreement responses, before and after the forum use, for each of the statements shown.

Pre forum use n = 52	**Positive Response (Yes)**	**Negative Response (No)**
Geography/History is one of my favourite subjects	13 (25%)	39 (75%)
I enjoy learning about Geography/History	18 (35%)	34 (65%)
I am good at Geography/History	15 (29%)	37 (71%)
I enjoy doing my Geography/History homework	5 (10%)	47 (90%)
I learn a lot about Geography/History from my classmates	9 (17%)	43 (83%)
I help my friends with their Geography/History learning	15 (29%)	37 (71%)
Total number of respondents	75 (24%)	237 (76%)

TABLE 14: TOTAL NUMBER OF PUPIL RESPONSES - PRE FORUM USE

Pre forum use n = 52	Positive Response (Yes)	Negative Response (No)
Geography/History is one of my favourite subjects	21 (40%)	31 (60%)
I enjoy learning about Geography/History	29 (56%)	23 (44%)
I am good at Geography/History	24 (46%)	28 (54%)
I enjoy doing my Geography/History homework	32 (62%)	20 (38%)
I learn a lot about Geography/History from my classmates	38 (73%)	14 (27%)
I help my friends with their Geography/History learning	36 (69%)	16 (31%)
Total number of respondents	180 (58%)	132 (42%)

TABLE 15: TOTAL NUMBER OF PUPIL RESPONSES – POST FORUM USE

By looking at this data, it is possible to argue that the use of the online forum affected several aspects of pupils' opinions and perceptions of learning. We can see, for instance, that before its use the personal enjoyment of children's geography and history studies was arguably quite low, with only 18 of the participants stating that they enjoy learning in these foundation subjects. Indeed, this is also evident in the fact that only 13 out of the 52 children involved believed these two curriculum areas as being one of their favourite subjects in school. After using the forum to aid the learning process in these areas however, we see a 21% rise in the level of enjoyment from 18 to 29 children (figure 11) and a 15% rise, from 13 to 21, in the number of children who view geography and history as a favourite aspect of their primary curriculum (figure 12). Although these are not massive gains, it is still quite possible to interpret the forum use as having some form of motivational impact.
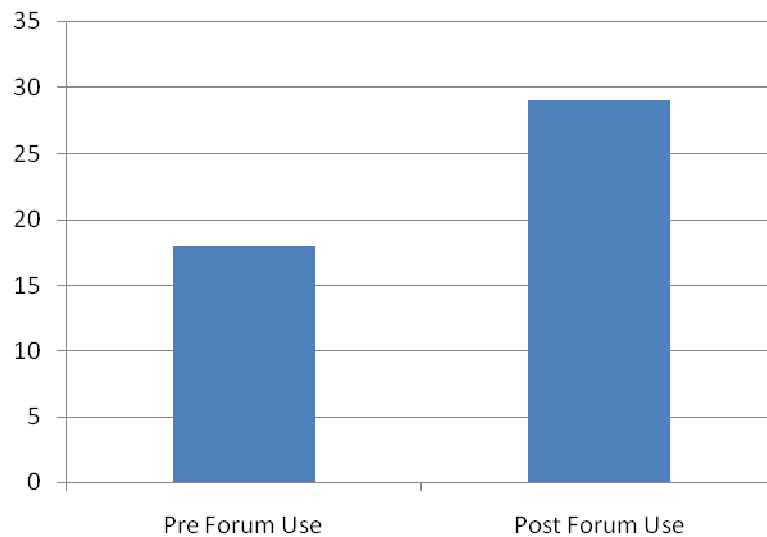
FIGURE 11: COMPARISON OF AGREEMENT RATINGS FOR PUPILS WHO ENJOY LEARNING ABOUT GEOGRAPHY AND HISTORY, PRE AND POST FORUM INTRODUCTION
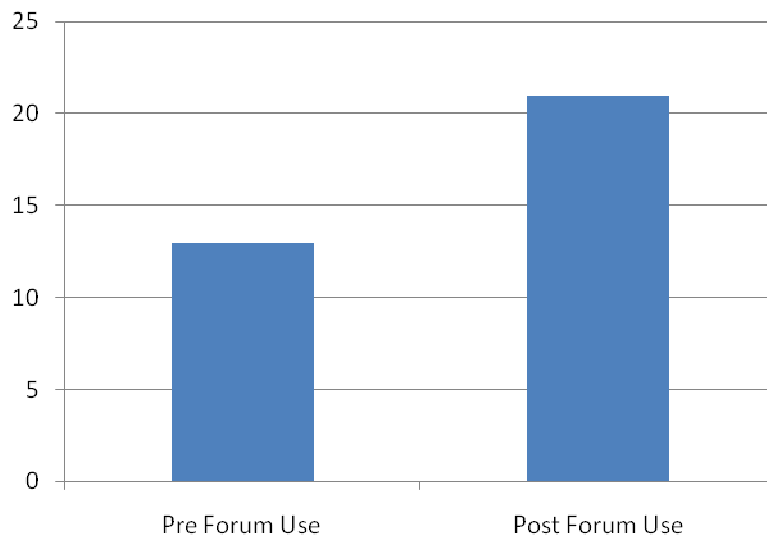
FIGURE 12: COMPARISON OF AGREEMENT RATINGS FOR PUPILS WHO VIEWED GEOGRAPHY AND HISTORY AS ONE OF THEIR FAVOURITE SUBJECTS, PRE AND POST FORUM INTRODUCTION

One of the greatest gains in terms of positive agreement rating was that linked to pupils' enjoyment of homework in these subjects (a point similarly raised by Passey et al., 2004: p. 16), and we can see an impressive rise in the number of children who felt that they enjoyed this aspect of their studies (figure 13). Initially, only 5 children stated that

they enjoyed doing their history and geography homework, yet this increased to 32

participants after the forum's introduction. With a rise of 52%, it is reasonable to say

that using the forum added a notable sense of enjoyment to what is, arguably,

traditionally viewed as a somewhat mundane task.
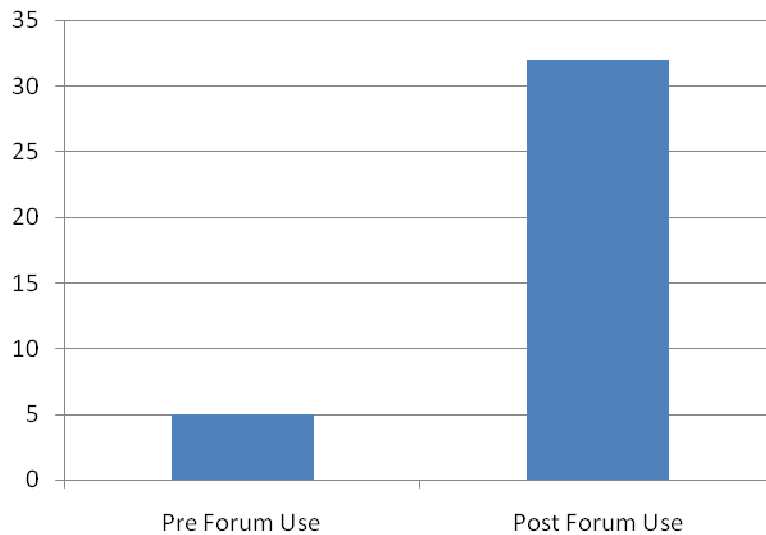
FIGURE 13: COMPARISON OF AGREEMENT RATINGS FOR PUPILS WHO ENJOY DOING THEIR GEOGRAPHY AND HISTORY HOMEWORK – PRE AND POST FORUM INTRODUCTION

Findings mentioned in the literature review have argued the similar finding that online

learning environments can affect pupils' enjoyment of learning activities, and learning

itself (Passey et al., 2004; Berry, 2005; BECTA, 2006; BECTA, 2010). Indeed,

qualitative comments recorded during this case study somehow mirror and resemble the

ones quoted by Berry's Virtual Learning Environment project, with participant

comments such as the ones now listed evidencing the potential benefits of fun and

enjoyment that an online discussion board can offer:

"[The forum] was great! It's really made me like Geography! I
used to find it a really boring subject but now I think it's ace!"

"I really enjoy doing my homework now because it used to be so boring and I didn't want to do it before...It's fun being able to chat online with your mates and get help when you need it...it's cool!"

"It's a great idea for doing homework. It is loads of fun and better than just doing boring writing!"

What needs to be reflected on however is whether or not such findings are a result of a satisfaction or genuine appreciation for the discussion board's use, or whether or not it is a result of the fact that this was a new, innovative and different approach to teaching and learning. One could argue, for example, that children's motivation and enjoyment was only enhanced because of the fact that they were experiencing and using a new tool of technology, and that such a tool could be compared to a new toy or game insofar as the novelty and thrill of its use would only be short lived. Indeed, through personal experience of using a virtual learning environment during my undergraduate course, I know too well of the initial novelty factor relating to different learning methods: I started off, for instance, viewing it [WebCT] as an inspiring vehicle for academic development yet gradually, after four years of its use, saw it as yet another laborious (albeit useful) expectation laid down by the university's managers. Throughout the course of the project, and after further observation and analysis of the pupils' discussions, it similarly became apparent that many children, who initially were religiously posting and contributing, did in fact lose interest as the project extended; thus resulting in an observed fall in the frequency of posts towards the end of the half term in which the forum was used.

Aside from this observation however, the quantitative data represented within the questionnaire data, and indeed the qualitative pupil comments, do go some way to argue that the discussion board did enhance some pupils' enjoyment of not only their studies but of certain tasks such as homework. The important fact to highlight however is that, because of the short duration of the project, it would be useful to further critically explore and compare such impressive enjoyment and motivation gains within a more extended use of a virtual learning platform in the primary classroom context.

The pupils' self-belief and perception of ability in geography and history is evidenced within the findings of this questionnaire as having been improved by the forum's use. A 17% rise of children, from 15 to 24, believed themselves to be good in these curriculum areas after using the online discussion board as part of their studies. Although not a massive gain, it could still be argued that some children's self esteem was increased after the forum was introduced. One of the reasons behind this could rest on the premise that participants, as explored in Chapter 4, evidenced a greater level of social constructivist learning and as such were helping to teach and inform their peers. By doing so they were, arguably, developing the confidence to show others what they know and as such were nurturing a purposeful role as a knowledgeable and important member of a learning community. This argument is further reflected in previously explored results from the *'I can help my friends with their geography / history learning'* statement shown in tables 14 and 15, and also mirrors the research and findings of Nippart and Murphy (2007) and Rourke and Anderson (2002) who make links between collaborative online discourse and students' emotional satisfaction.

ii) How do non-IT specialist primary school teachers feel about online forums; and are they capable of setting up and managing one?

Members of the teaching staff within the case study's school were asked to rate their agreement on four statements relating to the use of online discussion boards and their use in the primary school. These explored not only their opinions relating to their use in the primary curriculum but also practitioners' confidence in setting up and managing one. Alongside these statements, the teachers were also asked to rate their ICT capability and competence out of five, and were also invited to write any comments regarding the project. This data provided some useful evidence in terms of exploring whether or not it is feasible for the government to expect all schools, including primaries, to competently and willingly use virtual learning environments by 2010 (BECTA, 2010). Table 16 highlights the findings from these questionnaires, displaying the average (mean) agreement ratings from the 10 completed forms returned.

Statement	Average (mean) agreement rating *(1 being in total disagreement; 5 being in total agreement)*
Discussion boards enhance teaching and learning	2.7
I would use discussion boards in my own teaching	2.5
I would feel confident setting up an online discussion forum	1.9
I would feel confident supervising and facilitating online discussions	1.6

TABLE 16: AVERAGE (MEAN) AGREEMENT RATINGS FROM STAFF QUESTIONNAIRE

The findings from this questionnaire would argue that primary school teachers are not particularly over enthusiastic when forming opinions about online discussion boards and their use in the primary classroom. Indeed, there was only an average 2.7 agreement rating that discussion boards enhance teaching and learning and a 2.5 average agreement rating that individual teachers would personally use online forums in their own practice. Comments made by some of the school's staff such as, "How on Earth do they expect us to implement something like this, when we have so many other government requirements which need fulfilling?" and "This seems to me to be a hyped up initiative laid down by the local authority" further reflect this data and argue the case raised by BECTA (2008a) insofar as practitioners are often unwilling to take on board new technologies as it somehow criticises or requires the need to alter current teaching practices and roles. It is possible to empathise with such teachers' comments, taking on board the fact that the world of teaching and education has changed rapidly over the past decade: Government initiatives and recommendations have regularly been introduced and implemented, relating to many aspects of the curriculum; the e-strategy, *Harnessing Technology*, being just one of them.

Laying down the expectation that all schools should be using some form of virtual learning environment or online collaboration tool by 2010 does therefore raise certain barriers for some practitioners. Perhaps one of the reasons behind this is the fact that some primary school teachers, who only a few are IT specialist trained, struggle with the ICT skills required to understand and facilitate the delivery of a VLE. The results of the teachers' questionnaire have been analysed to reflect an average agreement rating to the four statements and these have been compared to the individual teacher's perceived

capability rating in ICT. By doing this, we can compare the results from these two

aspects of the questionnaire and correlate the findings (Figure 14).
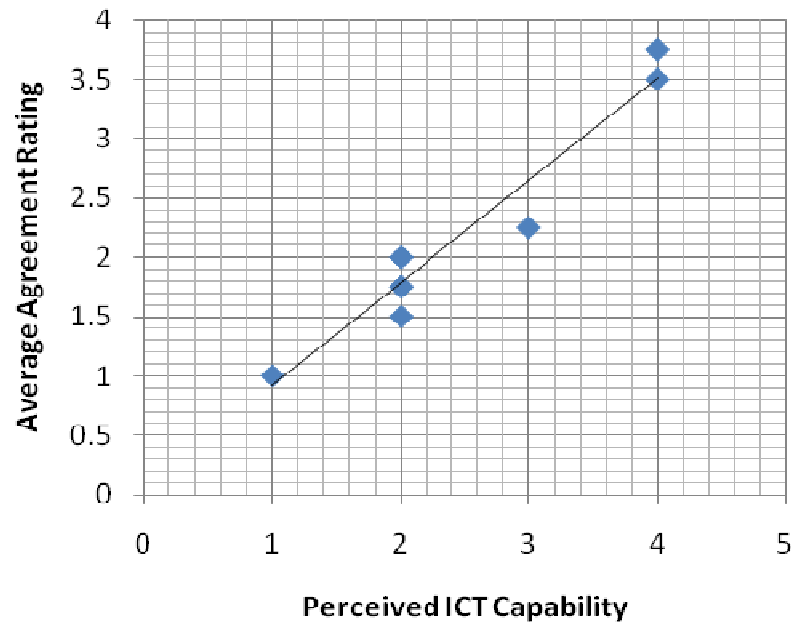
FIGURE 14: CORRELATION OF AVERAGE AGREEMENT RATING AND PERECEIVED ICT CAPABILITY

What this data shows is a reasonably clear correlation between a practitioner's

perceived ability in ICT and their agreement to the statements outlined within the

questionnaire. A teacher who, for example, had an average agreement rating of 2 for the

four statements, also judged their ability in ICT as being 2 out of 5. Similarly, the

teachers who felt more confident in technology use seemed to agree more with the first

two statements regarding the usage of an online forum and the latter two regarding its

implementation; with two teachers who judged themselves to have a four out of five

ICT capility level, having an average 3.625 agreement rating to the statements posed.

This could therefore argue that the arguably negative perception of online discussion

boards, and their use in the primary curriculum, is directly linked to the lack of ICT skills and knowledge of the individual teacher.

The latter two statements in the questionnaire related to the implementation and faciliatation of an online discussion forum in the classroom, and such results shed some light onto the practical implications of introducing such tools into primary schools. There was only, for instance, a 1.9 agreement rating relating to the ability to set up an online forum and an even lower 1.6 agreement rating in respect to the supervision and faciliation of online discourse. This shows that the teachers within the case study's school believed themselves relatively uncapable of carrying out such a venture in their own classrooms and further argues the case that more should be done to enhance the skills of individual teachers (see BECTA, 2010).

The necessary skills of an online tutor have been briefly mentioned within the literature review (Chapter Two) and highlight that teachers need to achieve many things during the course of an online discussion project. These include, but are not limited to, the ability to: plan online learning opportunities and discussions; engage and motivate pupil interaction; ensure that discussions are focussed and appropriate; and encourage the development of pupil interactions insofar as the enrichment of debate and acquisition of knowledge (see Minshull, 2004; Carliner, 2008). The Year 6 teacher, who was not an IT specialist yet rated herself as a reasonably efficient user of technology with a 4 out of 5 rating, made several comments in the quesionnaire and during an informal interview regarding her implementation of the forum. Although she found the setting up and

access of the forum relatively easy, she did find it difficult however with the

pedagogical logistics of online interaction:

> "It was hard to know exactly how to reply to pupils' posts....I didn't seem to know how to encourage the development of discussions or even the involvement of some of the children....Choosing a topic or question for the thread was also difficult as a bad choice often ended up in hardly any interest!"

Alongside these qualitative comments provided through the questionnaire was the

mention of the time commitement required in carrying out such a curriculum

modification. Along with the Year 6 teacher, who said that she found herself

"constantly checking up on the forum at home", I too would also agree that the setting

up and management of the forum and the discussions themselves did take up a lot of

time both within and out of school. The usage statistics of the posts themselves go

someway to back up this argument, with Table 11 in Chapter 4 highlighting that 144

teacher posts were made during the course of the project; an average of 72 per member

of staff. Although such a frequency of contributions is not overly large, it is still

important to highlight the part the teacher plays in regularly reviewing and assessing the

development of the threads. Indeed, similar to the position adopted by Hiltz (1988), the

need to regulary access the pupils' discussions and be "on duty all the time" poses

certain demands on practitioners' "time and energy" (p. 441). Taking this into account,

the staff questioned in this study could actually view online technologies as more of a

burden than an enhancement to the curriculum and, as such, there is a clear barrier here

to the government's aforementioned vision and expectation.

CHAPTER 7: CONCLUSION AND RECOMMENDATIONS

The aim of this case study was to explore the use of online discussion forums in the primary school and shed some light onto whether or not their use in the primary sector not only is feasible but also actually enhances the teaching and learning experiences of both pupils and teachers. It has researched three key areas: the nature of primary aged pupils' discourse and involvement in online discussion; the effect such a learning tool has on pupils' skills and attainment; and the attitudes and opinions of both learners and practitioners regarding such work. By exploring these issues, we have been able to illustrate the potential benefits, pitfalls and effects such projects can have when undertaken within a primary school setting. More importantly, however, there is a notable opportunity within this dissertation's findings to learn from the overall experience; providing myself and the reader the chance to reflect on what worked well and why, and what didn't work well and whether or not something could be done to alter such an outcome. Leafe illustrates such a point, highlighting that:

> Teachers should expect to make mistakes on their first attempts
> at interactive projects using email and the Internet, but should
> also expect to learn from mistakes and gain new skills and
> insights."

> (Leafe, 2000: p. 177)

Using an online discussion forum in the primary school can, in some respects, increase inclusivity and involvement of people involved in its use. In this study, there was a notable increase in the level of pupil involvement in whole-group discourse and

interaction, with all pupils evidencing some form of contribution to the discussion board as opposed to whole-class contributions in the traditional classroom context. The use of the forum was therefore seen to encourage the participation of all children to share knowledge, ask questions and discuss more openly about their learning. Some students involved in the project were of the opinion that the virtual learning environment was less intimidating than face-to-face interaction and allowed greater opportunity for them to share their ideas and pose questions. Teachers also made comments regarding its perceived ability to allow students 'thinking time' before making a contribution or generating questions, thus improving the quality of discourse and opportunity for interaction. The emerging benefit of removing barriers for children with special educational needs also became apparent, with one specific child's parent believing that the use of the discussion board enabled her dyspraxic son to complete learning activities more effectively and competently than traditional written recording methods. There were however issues concerning a 'digital divide' amongst the project's participants; with some children finding the virtual learning experience cold and remote due to their limited access to the Internet. Such an issue, one may argue, shall now hopefully be tackled in the very near future – with the government realising the position such disadvantaged learners are in (DCSF, 2007: p. 78). Indeed, the government's *Home Access* initiative, which aims to provide financial and hardware aid to low-income families, could be seen as an effective means for removing such barriers to learning online (DCMS, 2009).

The nature of how primary aged pupils interact online mirrors many of the findings of users of such technology in higher education. Much of what was posted on the school's online discussion forums, for instance, was sharing in nature, providing information or

knowledge that the writer wished to share with their peers. Often there was evidence of pupils building upon other children's comments and this constituted a more beneficial and advanced form of discussion: Interaction in which children genuinely related to the content matter and build further upon ideas so that fellow pupils could also develop their knowledge and understanding of a topic; thus a joint culture of knowledge building was arguably formed. Evidence of social constructivist learning was clear and there were notable increases in the level of children supporting and answering pupil-initiated questions or queries.

There were however issues concerning the way primary users behaved online and this study found that there were several incidences of students posting irrelevant content which hampered academic discussion and caused the content matter and pedagogical underpinning to be lost. There were also issues of several contributors posting copied and pasted content direct from Internet sources, which resulted in a lack of understanding and interaction with the information and, as such, caused several of the threads to be unwieldy and inaccessible. Pupils' posts were predominantly of a basic level and lacked the display of higher-level thinking or knowledge building as outlined by researchers such as Gunawardena et al. (1998) who have studied online interaction in higher educational settings. Taking this into consideration, it is important to stress the need for practitioners to teach and inform children about a forum's purpose and the rules of 'netiquette'; indeed, this project neglected to firmly instil such understanding into the pupils and, as such, these two issues arose. Mills flags up a pertinent recommendation, believing such pre-project preparation to be paramount if teachers wish their pupils to get the most out of an online learning experience:

> Policies for online discussions need to be clear and well defined and should…encourage students to think harder about the content of a message rather than just replying with very short, superficial comments.

> (Mills, 2006: p. 82)

The findings from this study, relating to the forum's effect on pupil attainment, evidenced a notable increase in the development of children's ability in two National Curriculum foundation subjects. The findings particularly suggested that many children, who tend to perform in line with national expectations, evidenced a higher level of attainment when the discussion board was used. The main debate within these findings, however, was whether or not the forum actually enhanced attainment or merely provided more evidence of it. It is arguably clear to say from this study that pupils' *evidence* of ability and attainment was greatly enhanced because of the online forum; the content within children's posts, for instance, being an excellent source for illustrating what children know and can do. There is also cause to argue the case that by using the Internet to discuss and research subject content online, such learning activities are nurturing many of the skills, such as historical enquiry, identified within the National Curriculum. The main issue regarding these findings rests, however, within the small nature of the study and the fact that only a limited number of pupils were assessed throughout the course of just two half-term units of work. Further, more extensive, research would be highly useful in determining the validity of the emerging trends demonstrated in this data set.

The forum's effect on children's ICT learning and skills was also explored, and it was found that the study's participants evidenced impressive gains in their ability to perform

several Internet and computer-based tasks. Indeed, by using the online discussion board as a learning tool, it was noted that children were naturally developing many skills prescribed by the programme of study for ICT (DfEE, 1999). Pupils, for instance, were applying their skills, knowledge and understanding of technology in a real and purposeful context and, as such, were actively improving their capability and attainment in this curriculum area.

Whilst exploring the motivational impact and enjoyment of the virtual environment used during the project, it was found that pupil attitudes towards particular subjects were increased in some respects. Pupils, for example, viewed their studies in geography and history as more fun and data showed that its implementation had positive effects on both their attitudes towards completing homework and their self-belief in being good at a subject. Such motivational gains are arguably impressive, yet the problem of sustained interest and enjoyment was flagged up as being a potentially emergent issue. It would therefore be useful to recommend a lengthier study into a VLEs use within a primary school, with the intention of exploring whether or not such findings, relating to increased enjoyment and satisfaction, are sustainable and long lasting.

Although this case study has highlighted several potential benefits of using online discussion tools in the primary curriculum, the data concerning teacher opinions and skills does raise a massive barrier in the implementation of such ventures. Teachers within the case study's school, for instance, were predominantly reluctant towards such new technology; both in terms of seeing its potential worth, and imbedding it within their teaching practice. Their knowledge and understanding of setting up, facilitating

and managing an online forum was on the whole limited and, although this may not reflect the general situation within all UK schools, there is a serious barrier here against the government's wish to see all schools adopt some form of virtual learning environment by 2010. In order to tackle this, there is a clear need for more work to be done on raising teachers' subject knowledge in ICT and recent initiatives such as BECTA's (2010) '*21st Century Teacher: Are You Ready to Meet the Challenge?*' may go some way to improve the capacity to implement the government's recommendations.

This case study, which was undertaken during one term, looked at the issue of online discourse using, for the majority of its data collection, 52 pupils and 2 teachers. It based its research on these select participants and much of what has been explored has been centred on the teaching of just two history and geography units of work. Because of these factors, it is extremely important to highlight the limitations of the data presented in this dissertation. As previously mentioned in Chapter 3, the findings from such a small-scale study are by no means presented as fully reliable and valid; case study work of this scale provides more of an insight into potentially emerging trends and issues. There is therefore a clear opportunity for fellow practitioners and researchers reading this dissertation to use my findings and interpret them in a different light to myself, a point by Roizen and Jepson previously cited:

> One important advantage of a study of cases is that the richness of the material facilitates multiple interpretation by allowing the reader to use his own experiences to evaluate the data.
>
> (Roizen and Jepson, 1985: p. 12)

Further, more extensive, research into this area is extremely important if educationalists, and government advisers alike, are to make recommendations about VLE use in primary schools. It would be useful, for instance, to explore the issues covered within this dissertation during a longer period, so that issues such as sustained motivation and potential attainment gains can be more successfully evaluated. Equally there is the argument that such research should be conducted within a large selection of schools so that data and findings can be more successfully rooted in validity and compared. Further analysis of primary aged pupil discourse would also prove useful, with the possibility of applying a more advanced form of discourse analysis such as the one used by Gunawardena et al. (1998).

Having carried out the project, and evaluated and analysed the findings, I would be of the opinion that primary schools can use online discussion boards to enhance certain aspects of the teaching and learning process. The participants, who were in upper Key Stage 2, clearly were capable of using it to support their learning. It is also clear that the findings show some distinct resemblance to research concerning online learning in higher education, such as the poor quality of students' posts, the potential rise in motivation and enjoyment, the issue of a 'digital divide', and the increased involvement of learners. It has however raised new issues, more pertinent to the culture and workings of a primary school. These have included links to the teaching of ICT in the primary curriculum, the possibility of improving teacher assessments, the effect VLEs can have on children with special educational needs, the lack of some teachers' ICT skills and motivation, and the potential improvement of fostering home-school links. As previously mentioned in both the literature review and the findings chapters, such technology does have its pitfalls and although I am concerned with the notion that

online learning should somehow replace much of what is done in classrooms, I firmly believe that the use of online forums and discussion boards can improve certain aspects of the curriculum when blended with traditional school-based learning.

I would therefore never advocate that online learning replaces the warmth and sociability that face-to-face classroom based learning provides; primary schools, after all, are at the heart of a child's social community and to take away such an important aspect of early child development would be disastrous. In this era of modern technology, many children tend to spend far too much time playing computer games or chatting online and some commentators could argue that the use of an online discussion tool only exasperates such an issue. Children need to interact on a non-virtual level in order to become competent communicators and this, in my opinion, is paramount. I do however believe that VLEs are useful tools that, when blended with the classroom based curriculum, can provide many exciting opportunities for increased involvement, increased social constructivist learning, and the added bonus of it being something different, exciting and, as such, motivating.

1. Did you use the forum?

2. Why did you use it?

3. Did you enjoy using the forum? If so, why?

4. Were there any problems with the forum? Was there anything that you didn't like about it?

5. Did using the forum help you in anyway with your school/homework?

6. Do you think that we should carry on using the forum in school?

Geography Questionnaire

I want to find out your thoughts and feeling about your Geography learning. Please answer honestly. Nobody will know who filled in this questionnaire.

Please tell me if you agree with the following sentences

Circle your answer

1= I do not agree at all,

5 = I fully agree

Geography is one of my favourite subjects	1	2	3	4	5
I enjoy learning about geography	1	2	3	4	5
I am good at geography	1	2	3	4	5
I enjoy doing my geography homework	1	2	3	4	5
I learn a lot about geography from my classmates	1	2	3	4	5
I help my friends with their geography learning	1	2	3	4	5

Thank you for being honest!

What did you think about www.superpupil.com?

Nobody will know who has filled in this form, so please be honest. Continue overleaf if necessary.

I think super pupil is fantastic because I used to not really like Geography, but ※ now I love Geography. ___ made lessons really fun on Superpupil.

I thought it was a really good idea doing Super pupil, and letting us speak to our friends on it. I like it ~~when~~ if we get stuck because we can ~~d~~ ask a question, to our friends and ___. And ~~is~~ if someone is stuck I can help them out.

<u>**Geography Questionnaire**</u>

You are going to be asked some questions.

Tick ☑ either the 'Yes' box or the 'No' box.

Be honest. Nobody will know who filled in this form.

1) Geography is one of my favourite subject

       Yes ☐☺   No ☐☹

2) I enjoy learning about Geography

       Yes ☐☺   No ☐☹

3) I am good at Geography

       Yes ☐☺   No ☐☹

4) I enjoy doing my Geography homework

       Yes ☐☺   No ☐☹

5) I learn a lot about Geography from my classmates

       Yes ☐☺   No ☐☹

6) I help my friends with their Geography learning

       Yes ☐☺   No ☐☹

Staff Questionnaire

As you are no doubt aware, I am carrying out a research project with Year Five and Six that involves the use of Internet discussion boards as a learning and teaching tool.

Before completing this questionnaire, please visit our project at www.superpupil.com

The project is being carried out as part of my Masters dissertation, so any information collected in this questionnaire may be used. Anonymity will be upheld in all parts of the research and write-up processes.

Having looked at our discussion forum, please rate your agreement with the following statements (1=total disagreement, 5=full agreement). Please circle your response.

Discussion boards enhance teaching and learning.	1	2	3	4	5
I would use discussion boards in my own teaching.	1	2	3	4	5
I feel confident setting up an online discussion forum.	1	2	3	4	5
I feel confident supervising and facilitating online discussions.	1	2	3	4	5

On a scale of 1 to 5, please rate your Internet and IT ability.

1   2   3   4   5

(1=poor ability, 5=highly competent)

If you have any further comments to make about the project, please write these overleaf and continue on a separate sheet if necessary.

<u>Using Internet Forums and Message Boards</u>

You will be shows a forum on the interactive whiteboard.

The class teacher will go through the questionnaire before you start and will explain any words or phrases that you may not understand.

Are you able to do these things by <u>yourself</u>?

Tick ☑ either the 'Yes' box or the 'No' box.

Be honest. Nobody will know who filled in this form.

1) I can open up Internet Explorer
   Yes ☐☺ No ☐☹

2) I know how to move around a website
   Yes ☐☺ No ☐☹

3) I can go to a website if I know the web address
   Yes ☐☺ No ☐☹

4) If I knew the username and password, I would be able to log into a web forum
   Yes ☐☺ No ☐☹

5) I know how to post a new message onto a forum
   Yes ☐☺ No ☐☹

6) I can reply to a message

Yes ☐☺ No ☐☹

7) I can put an image into a forum message
Yes ☐☺ No ☐☹

8) I know how to put a web link into a forum message
Yes ☐☺ No ☐☹

9) I know how to put Emoticons into a forum message
Yes ☐☺ No ☐☹

10) I know how to change the font colour in a forum message
Yes ☐☺ No ☐☹

11) I know how to change the font size in a forum message
Yes ☐☺ No ☐☹

12) I can use the bold, italic and underline features
Yes ☐☺ No ☐☹

Thank you for answering honestly

	Underachieved	Achieved	Overachieved
Pupil 1	√		
Pupil 2	√		
Pupil 3			√
Pupil 4			√
Pupil 5		√	
Pupil 6			√
Pupil 7		√	
Pupil 8		√	
Pupil 9		√	
Pupil 10		√	
Pupil 11		√	
Pupil 12			√
Pupil 13		√	
Pupil 14		√	
Pupil 15		√	
Pupil 16	√		
Pupil 17		√	
Pupil 18		√	
Pupil 19		√	
Pupil 20		√	
Pupil 21		√	
Pupil 22		√	
Pupil 23		√	
Pupil 24		√	
Pupil 25		√	
Pupil 26		√	
Pupil 27		√	
Pupil 28			√
Pupil 29	√		

ASSESSMENT DATA – YEAR 5 – HISTORY UNIT 11
(NO FORUM USE)

	Underachieved	Achieved	Overachieved
Pupil 1	√		
Pupil 2		√	
Pupil 3			√
Pupil 4		√	
Pupil 5			√
Pupil 6			√
Pupil 7		√	
Pupil 8		√	
Pupil 9		√	
Pupil 10			√
Pupil 11		√	
Pupil 12			√
Pupil 13		√	
Pupil 14		√	
Pupil 15			√
Pupil 16	√		
Pupil 17		√	
Pupil 18		√	
Pupil 19		√	
Pupil 20			√
Pupil 21			√
Pupil 22		√	
Pupil 23		√	
Pupil 24		√	
Pupil 25		√	
Pupil 26		√	
Pupil 27		√	
Pupil 28			√
Pupil 29			√

ASSESSMENT DATA – YEAR 5 – HISTORY UNIT 12
(WITH FORUM USE)

	Underachieved	**Achieved**	**Overachieved**
Pupil 1		√	
Pupil 2		√	
Pupil 3	√		
Pupil 4		√	
Pupil 5			√
Pupil 6		√	
Pupil 7		√	
Pupil 8		√	
Pupil 9		√	
Pupil 10		√	
Pupil 11		√	
Pupil 12		√	
Pupil 13	√		
Pupil 14		√	
Pupil 15		√	
Pupil 16		√	
Pupil 17			√
Pupil 18		√	
Pupil 19		√	
Pupil 20		√	
Pupil 21		√	
Pupil 22			√
Pupil 23			√

ASSESSMENT DATA – YEAR 6 – GEOGRAPHY UNIT 15
(NO FORUM USE)

	Underachieved	Achieved	Overachieved
Pupil 1			√
Pupil 2		√	
Pupil 3	√		
Pupil 4		√	
Pupil 5			√
Pupil 6		√	
Pupil 7		√	
Pupil 8		√	
Pupil 9			√
Pupil 10			√
Pupil 11		√	
Pupil 12		√	
Pupil 13		√	
Pupil 14		√	
Pupil 15			√
Pupil 16			√
Pupil 17			√
Pupil 18			√
Pupil 19		√	
Pupil 20		√	
Pupil 21		√	
Pupil 22			√
Pupil 23			√

ASSESSMENT DATA – YEAR 6 – GEOGRAPHY UNIT 14
(WITH FORUM USE)

SCHOOL LOGO

Dear Parents and Guardians,

As part of my MA in Education (by research), I am completing a research project into the effects of Internet forums and online discussion within the primary classroom.

Our Year 5 and Year 6 classes shall be involved in this project and we shall be using an online discussion board as part of our Geography and History studies.

The forum site, available at www.superpupil.com, acts as an interactive forum whereby children can discuss, question and reflect on certain topics covered within the classroom.

I am obliged to inform, because of ethical practice in educational research, that your child's work, opinions and comments may be used to support my studies. Both the children and the school will remain anonymous throughout the entire research process, including the final write up of the case study.

The children shall be informed and their permission shall also be gained before any of such comments or work are used in the research.

If you have any concerns about this, or would like to ask any questions, please contact me at school or email XXX.

Please complete the form overleaf so that a record may be kept of your agreement in this matter.

Thank you for your support,

Your sincerely,

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