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Title: Does the use of a learning platform support approaches to personalised learning in the classroom?

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I hereby declare that this thesis has not been and will not be, submitted in whole or in part to another University for the award of any other degree.

Signature:...

Abstract

Much of the research literature relating to the use of virtual learning environments (VLEs) to support teaching and learning focuses on their use in higher and further education. This thesis makes a contribution to the study of such environments in relation to secondary schools in the UK. A number of common themes were identified from the literature review that was part of my original critical analytical study and which is updated here. The themes included assessment, differentiation, collaboration and flexible learning practices. These were investigated in one school, over the course of one year, during the introduction of a local authority approved virtual learning environment. I had assumed that the use of the technology would have a transformational effect on teacher practice. In reality for most of the time the technology was used to reaffirm an existing classroom way of doing things.

The conceptual framework that guides the investigation was based on action research, influenced by social constructionism and critical theory. It employs aspects of a second-generation model of activity theory to explore the tensions that may arise in a classroom when technology is introduced. A phased approach was adopted towards the collection of data, given the complexities of both classroom practice and the technology employed. This ranged from the use of questionnaires and technical data from the VLE when it was initially introduced, to interviews and classroom observations as teachers became more confident in its use, through to the design of an intervention that enabled a more in depth exploration of what was happening.

This research revealed that where the use of the technology was most effective in supporting approaches to personalised learning, a number of key components were combined. I have proposed that where teachers have the technical skills to use a VLE, linked to an understanding of the theories and models associated with online learning and where they structure their teaching outside the confines of the traditional lesson format, then online technologies support personalised learning.

Does the use of a learning platform support approaches to personalised learning in the classroom?

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ACRONYMS

AFL	Assessment for Learning
AT	Activity Theory
BECTA	British Educational Training Agency
BESA	British Educational Suppliers Association
BETT	British Educational Training & Technology Show
BPRA	Best Practice Research Award
CAS	Critical Analytical Study
CHAT	Cultural Historical Activity Theory
CLC	Collaborative Learning Community
CMC	Computer Mediated Communication
CMS	Content Management Systems
DCSF	Department for Children Schools and Families
DfES	Department for Education and Skills
D&T	Design & Technology
GCSE	General Certificate of Secondary Education
ICT	Information Communication Technology
IT	Information Technology
ILS	Integrated Learning System
IWB	Interactive Whiteboard
INSET	In-service Training
JISC	Joint Information Systems Committee
LCMS	Learning Content Management System

LMS	Learning Management System
LSP	Learning Schools Programme
MLE	Managed Learning Environment
MVLE	Managed Virtual Learning Environment
NAACE	National Association of Advisors for Computers in Education
NPQH	National Professional Qualification for Headship
NCSL	National College for School Leaders
NQT	Newly Qualified Teacher
NOF	New Opportunities Fund
NUT	National Union of Teachers
OFSTED	Office for Standards in Education
OU	Open University
PLE	Personal Learning Environment
SEN	Special Educational Needs
SLT	Senior Leadership Team
SSAT	Specialist Schools and Academies Trust
TTA	Teacher Training Agency
VLE	Virtual Learning Environment
VR	Virtual Reality
WALT	We are learning to
WILF	What I am looking for

Chapter 1

THE INVESTIGATION

1.1 Introduction

In 2004 Prime Minister Blair revealed his mission to make health and education services more accountable to the public through a policy of personalisation (Casciani 2004) and education secretary Miliband began to describe what this would mean for schools (ATL 2009). One year later the Department for Education and Skills (DfES) published its e-strategy, focusing on technology to promote this agenda (DfES 2005b). Schools in England were set a target to provide a personalised online learning space for every pupil by the year 2008. Learning platforms were identified as the key application for this at both a primary (DfES 2005d) and secondary (DfES 2005a) level. The British Educational Computer Training Agency (BECTA), tasked with supporting technology for learning, laid down the criteria for selecting platforms (BECTA 2007g) and published official guidance to support their development (BECTA 2009e).

Six years after the launch of the policy, those small numbers of national research reports that have been published suggested that expectations were not being matched by classroom practice. In 2009 the Office for Standards in Education (OFSTED) described platform development as akin to a cottage industry, being led by a few early adopters or enthusiastic teachers in a minority of schools (OFSTED 2009a). The evaluation of the impact of the technology on teaching and learning was regarded as underdeveloped. Similar research findings were published by the British Educational Suppliers Association (BESA 2009), the Specialist Schools and Academies Trust (SSAT) (Broadfield 2009) and BECTA (Ball 2010).

This thesis explores the implementation of a learning platform in one secondary school in England in the academic year 2008-09.

1.2 RESEARCH QUESTIONS

My personal experience of the use of a learning platform or virtual learning environment (VLE) originally focused on the forum or message board tool that is one feature of the technology. The critical analytical study (CAS) that preceded this thesis dealt with the use of discussion forums in the classroom and reviewed the research that linked these to pupil achievement (Fanning 2008e). I had previously used forums in my own classroom teaching with secondary school pupils and been involved in a small scale research study that explored this (Fanning 2004b).

The CAS has contributed to this thesis in a number of ways. It raised my awareness of the impact that my own practice and beliefs might have on my research narrative. Much of the literature reviewed in the CAS was predicated on the belief that technology could have a positive or beneficial impact on learning. Selwyn has highlighted the problems caused by a narrative that prejudged learning outcomes and called for a more 'pessimistic' approach to such technologies (Selwyn 2011b). The CAS also revealed that the majority of the research literature into the application of a forum to support learning and hence VLE use, related to students in post-16 part or full-time education. There were few attempts to analyse what integrated use of a forum within a platform might look like or what the outcomes of such use might be.

While researching this literature I became increasingly interested in aspects of personalised learning and the claims that were being made regarding the ways in which technology could support this in education (DCSF 2001; Sampson,Karagiannidis and Kinshuk 2002; TeacherNet 2004). The main question explored in this thesis is:

1) Does the use of a learning platform in the secondary school classroom support approaches to personalised learning?

The focus is on the practice of teachers and the use of a platform in a blended way, combing traditional classroom methods with a technological solution, in a face-to-face setting (Driscoll 2002; Allan 2007).

The research period coincided with the introduction of a local authority approved learning platform into the research school and it was a fairly easy task to identify participants. As a senior teacher in the school I found this to be one of the benefits of insider research and the phases of this process will be described in a later chapter (Coghlan 2007). What did prove challenging was constructing a conceptual framework that would relate classroom practice to theory where technology had been used to support learning.

The learning platform provider that the school worked with already had its own planning and development template for the introduction of its services. This included linking platform use to priorities within the school development plan, identifying teacher-champions or early adopters who would promote platform use and subsequently providing training for them. The local authority developed its own training support programme. Six subject leaders volunteered to take part in the school implementation and much of my research in the year ahead focused, although not exclusively, on teaching within their subject areas.

Secondary questions began to emerge as the research progressed. I became increasingly aware of the differences between classroom practices in different subject areas and curious to discover why this was so. A subsequent research question is:

2) Does teacher understanding of personalisation influence the way the technology is used?

What shapes pedagogic practice? Is there evidence that learning becomes more personalised in the ways in which it is envisaged by the policy documents? I had not intended to focus on the practice of an individual teacher or subject area, but moved towards this approach. The development of an intervention with one teacher in a Year 10 History class offered the opportunity

to explore in greater depth what was actually happening in the classroom in relation to learning platform use. Whilst the vagaries of school life resulted in this only being partly completed, the results have added much to this study and led to a further question:

3) What skills do teachers require to use the platform to support their teaching?

Is there a level of competence in the use of the technology that is essential to enable the teacher to use the learning platform in the classroom? Are those skills simply technical ones that will allow the platform to function? What level of programming and design skills might teachers require to create an effective learning experience? Does an understanding of the pedagogic skills relating to e-learning have an impact on outcomes?

As I continued to update the initial literature review from the CAS the theme of learning outside the classroom assumed some importance and a subsequent question became:

4) Is there evidence that anytime-anywhere learning begins to take place and does this blur the boundaries between learning in and out of school?

1.3 STRUCTURE OF THE THESIS

There are nine chapters in this thesis. Chapter 2 describes the context within which the research is set. Chapter 3 identifies key aspects of the personalised learning agenda, mapping these to the application of the learning platform and using this as a basis upon which to research what was happening in the classroom. The methodology and data analysis that underpins all of this is described in Chapter 4. The range of evidence that was collected included quantitative data from questionnaires and learning platform statistics, along with qualitative data from interviews and classroom observations. The conceptual framework that guides the investigation was based on action research (Kemmis 1993), influenced by social constructionism (Rodwell 1998; Ukpokodu 2008)

and critical theory (Baskerville and Wood-Harper 1996). It employs aspects of a second generation model of activity theory (Holzman 2006) to explore the tensions that may arise in a classroom when technology is introduced. Chapter 5 is the first stage of analysis and it explores teacher understanding of personalised learning, along with practices and perceptions relating to platform use. In Chapter 6 the themes that were identified in a previous chapter are examined in turn and linked to the main research questions.

At the start of this study there was very little available research into the use of learning platforms in the secondary school classroom. Much of what existed came from further and higher education, focused on students in post-compulsory education, using the technology to support aspects of distance learning. This continues to be the case, although some school based national studies, mainly sponsored by BECTA, emerged during the research period (BECTA 2009b, 2010a) as well as a European Schoolnet research report on the use of learning platforms in Denmark, the UK and Spain (Schoolnet 2010). As a result and in order to research in greater depth what happens when the technology is used in a classroom setting an intervention in classroom teaching was designed and Chapter 7 describes and explores this.

Chapter 8 discusses the evidence from this school-based research in relation to the original questions and also draws upon existing research. Chapter 9, the reviews the conclusions reached in this thesis and the implications for future research, as well as my own personal reflections.

Chapter 2

Context

The circumstances in which teachers work, school cultures, teacher beliefs, as well as the personal and professional history of the researcher within that context, have had an impact on the conduct of this research and its outcomes (Pajares 1992; Chin 1994; Cohen, Manion and Morrison 2007). This chapter explores these contexts. This includes the local and national frameworks within which online environments are used and the concept of the knowledge society or economy. It explores the terminology associated with these environments and how these are linked to concepts such as flexible learning. It revisits the learning and e-learning theories that were discussed in the CAS and considers the perceived neutrality of the technology (Fanning 2008e). It provides a justification for this area of research and locates its data collection and knowledge building within the context of one secondary school.

2.1 Learning Platforms

There are a range of terms that have been used to describe web based learning environments. There is little agreement on which term should be used and where the boundaries between technologies lie (Weller 2007). These terms include Course or Content Management Systems (CMS), Learning Content Management Systems (LCMS), Learning Management Systems (LMS), Managed Learning Environments (MLE), Personal Learning Environments (PLE) and Virtual Learning Environments (VLE) (BECTA 2002, 2004a; Cook 2007; Gillespie, Boulton, Haramiak and Williamson 2007). This list is by no means comprehensive. Conceptually the use of different terms suggests different approaches to online learning, although the applications present in one system may also be a feature of another.

- **Course Management System (CMS)**

A CMS, or LCMS as they are often labelled in education, is a resource-based system. Its purpose is to manage a range of resources that are available

digitally. In terms of the context in which they are used there is an assumption that such resources will be course or subject based; that they will be of an appropriate size for learners to access; that the material will be reused; that material is learning based and not simply for the administrative purposes of the institution. The implication for educators is that such material can be made available in targeted chunks to individuals or groups of students and provided as needed (Weller 2007).

- **Learning Management System (LMS)**

LMS are most commonly found in higher education and based around products such as WebCT and Blackboard (Almpanis 2009). Paulsen defines an LMS in the following way:

> Learning Management System is a broad term that is used for a wide range of systems that organize and provide access to online learning services for students, teachers, and administrators. These services usually include access control, provision of learning content, communication tools, and organizations of user groups (Paulsen 2002).

Study Direct (Sussex 2011) at the University of Sussex is a typical example of an LMS that controls access via usernames and passwords, provides content in the form of files in a variety of digital formats, has email and forum applications integrated into it and is organised according to subject areas. There is an implication in the use of the term LMS that student learning is directly managed. Educators who view constructivist teaching as an important feature of e-learning may raise objections to this (Weller 2007).

- **Managed Learning Environment (MLE)**

In higher and further education an MLE is taken to include all systems that contribute to student learning, and includes both administrative systems such as student records as well as those that focus on learning. The Joint Information

Systems Committee (JISC) defines an MLE as 'the whole range of information systems and processes of a college that contribute directly, or indirectly, to learning and the management of that learning (Everett 2012).'

- **Virtual Learning Environment (VLE)**

JISC provides a simple definition of a VLE as 'a collection of integrated tools enabling the management of online learning, providing a delivery mechanism, student tracking, assessment and access to resources (JISC 2012a).' Whilst a VLE can be linked to other systems, for example within schools a VLE may 'talk' to the school information management system to retrieve student data, a VLE is usually a specific piece of software. The focus within a VLE is upon the interaction between tutor and student. Stiles describes a VLE as being 'designed to act as a focus for students' learning activities and their management and facilitation, along with the provision of content and resources required to help make the activities successful (JISC 2012b).'

- **Personal Learning Environment (PLE)**

The term PLE is a new one. It refers not to one product but to a concept based on social networking (Wilson 2007). In one of the few BECTA research papers that explored this, Downes, a senior researcher at the National Research Council of Canada, declared that social networking had a central role to play in transforming education (BECTA 2007a). He stated that course content should be subservient to discussion and that the community is the primary unit of learning. He argued that pupils would create their own online content with separate network services, rather than being channelled through a VLE or learning platform. Downes borrows heavily from the work of Garrison and Anderson at Athebascau University (Garrison and Anderson 2003). He makes no reference to the role of the teacher. Even in a personal learning space, Garrison and Anderson view the role of the teacher as key to deep learning on the part of the student.

The use of these terms can lack clarity with different authors using different acronyms for the same products. Whereas Paulsen describes the WebCT and Blackboard products as LMS, Austin and Anderson have described them as VLEs, supporting the training of student teachers in Northern Ireland (Paulsen 2002; Austin and Anderson 2008). Paulsen equates a VLE with an LMS, although conceding that the former may focus less on the management of learning.

Different terms are also popular in different countries and at different educational levels. In the United Sates, Australia and some European countries VLEs tend to be referred to as Learning Management Systems (LMS). In France such systems are referred to as *espaces numeriques de travail* (Schoolnet 2010). In England the term VLE, at a school level, may be used in conjunction with the term Learning Platform. It should be noted that many of the platform providers that supply their services to schools also include integration with schools information management systems as a feature.

Observations about pedagogy and the Internet view the net as promoting learning that is either instructivist, it's about content and information, or constructivist, it's about developing cognitive learning and knowledge through collaboration (Weller 2007). A CMS whose purpose is to deliver digital resources that support learning is not the same as a VLE used to enable blogging or forum discussions. The intentions and outcomes underlying both systems are very different. If there is confusion in the naming and defining of such systems, that confusion may be reflected in their implementation in the classroom.

The term learning platform is a generic one that was used by the Department for Children Schools and Families (DCSF) to describe a range of integrated web based services. These could include web pages, email, forums, blogs, wikis, online social areas, as well as assessment, management and tracking tools (JISC 2007). Through out this thesis the terms platform, learning platform and VLE are used to refer to the same product. Although the appearance and

functionality of platforms can vary considerably, within England and Wales they had to meet technical requirements laid down by BECTA, the government sponsored training agency. These requirements are described in Chapter 3.

Although VLEs are used extensively in further and higher education, there is no common product in use. Similarly there is no one provider of online services that covers all schools in England and Wales, although Scotland took a different approach to provision with a nationwide system called Glow, supplied by Research Machines. Observers suggest that in England the Moodle open source platform is currently used in the highest percentage of schools (Kenny 2008).

There are no pre- existing theories regarding platforms that this work aims to prove. Since they are likely to be the first online environments that teachers and pupils have encountered there is a great degree of uncertainty associated with their use (Ball 2010). There are two dominant models of use in post-16 education: distance learning, where students have little or no face-to-face contact with teachers and peers and blended learning, where the technology is integrated into courses whose main system of delivery is the group lecture or face-to-face tutorial. In the latter scenario the technology is mainly used as a file sharing and message service and this has also been described as the most common use to which platforms are put at a school level (OFSTED 2009a).

2.2 Blended Learning

Although blended learning has been used to describe a way of teaching with technology in the face-to-face classroom (Bonk and Graham 2006; MacDonald 2006; Allen, Seaman and Garrett 2007) the term remains rather ill-defined. Whitelock & Jelfs propose three definitions (Oliver and Trigwell 2005):

- It is the integration of traditional face-to-face learning with a web-based online approach;

- It is a combination of the media and tools used in an e-learning environment (although the term e-learning itself has a myriad of definitions);

- It is a combination of a number of pedagogic approaches that is not determined by the technology that is used for learning.

For the purposes of this thesis the term blended has been used in the context of a programme of study that combines a face-to-face classroom component with use of a learning platform to support learning both in and outside of the physical classroom.

2.3 Theories of E-Learning

Good pedagogical practice has a theory of learning at its core. Technology is rarely designed for education and as a result there are really no models of e-learning, only adaptations of existing models of learning (Peachey 2004). Those existing traditional models include behaviourism and constructivism (Pritchard 2009), whilst emerging ones encompass learning styles (Reid 2005), learning-about-learning (Burnett 2001), multiple intelligences (Gardiner 1993) and brain training (OECD 2007).

The study of the psychology of learning dates to the second half of the 19th century and was concerned with behaviour. Learning was defined as a change in behaviour as a result of practice or experience and was something that could clearly be observed. In terms of classroom practice it is associated with teacher led learning, standardised routines, rote learning and the use of rewards and punishments. Some educational commentators claim that this is the dominant style of pedagogy in institutional learning (Cuban 1986; Cuthell 2005). In the early part of the 20th century a second branch of educational psychology emerged, that of constructivism. It taught that knowledge was constructed by individual learners and was concerned with understanding the mental processes involved in this. Piaget was one of the early proponents of constructivism. He perceived the child as the lone learner, striving to make sense of the world around them (Pritchard 2009). Social constructivist theory

emphasises the interplay between the learner and others. Vygotsky was the main advocate of this branch of constructivism. Both Piaget and Vygotsky have had a major influence in the training of teachers (Pollard 2008). When questioned about their knowledge of learning theories, the majority of staff in the research school was familiar with Piaget and Vygotsky. Most were aware of learning-to-learn, multiple intelligences and brain based theories through whole school in-service training (INSET) that had taken place in 2008.

Aspects of these theories have been adapted for the application of technology in an education setting. The behaviourist model is closely associated with the development of Integrated Learning Systems (ILS) in UK schools. Such systems were based on drill and practice, with students being presented with multiple choice questions that resulted in a reward when the correct answer was selected (Underwood and Brown 1997). There are clearer links however between social constructivism and the development of models of e-learning.

For many theorists it is the interaction between student-and-teacher and student-and-student in the online environment that enhances learning (Mayes and de Freitas 2004). Pask's theory that learning occurs through conversations about a subject which in turn helps to make knowledge explicit has an obvious application to learning within a VLE (Allen, Seaman and Garrett 2007). Seymour Papert's constructionist theories have been applied in Mathematics through the programming language Logo and in English with the use of the simulation Sim City.

From the mid 1990s onwards as interest in virtual communities (Abbott 2001) in higher education increases we begin to see the emergence of e-theories that build on these and other theories of learning. Wenger described communities of practice, developing what he and Lave had first written about in 1991, where learning is socially situated and mediated through a community and this theory has been adopted to explain interaction in an online community (Wenger 2007). Social constructivist theories, where the context in which learning occurs and the social contexts that learners bring to their learning, have in turn led to communal constructivist theories as a result of the growth of online learning communities. In a communal constructivist model students and teachers are not

simply engaged in developing their own information but actively involved in creating knowledge that will benefit other students (Holmes, Tangney, FitzGibbon, Savage and Mehan 2001; Leask and Younie 2007).

Gilly Salmon had originally worked for the OU Business School, which was one of the first universities in the UK to employ a VLE in course delivery in 1988. As illustrated in the CAS, Salmon subsequently developed a 5-step model of teaching and learning with a VLE. In Salmon's five-stage model (see Figure 1) individual access and the ability of students to use the technology are the first step to involvement and achievement. The second step involves students creating an identity online and finding others with whom to interact; online socialisation is a critical element of the e-learning process in this model. In step three students are giving and sharing information relevant to the course to each other. Collaborative interaction amongst students is central to step four. The fifth step in Salmon's model involves students looking for benefits from the system and using resources from outside of it to deepen their learning. Through out all of this the tutor/teacher/lecturer fulfils the role of moderator or e-moderator, acting as a facilitator of student learning.
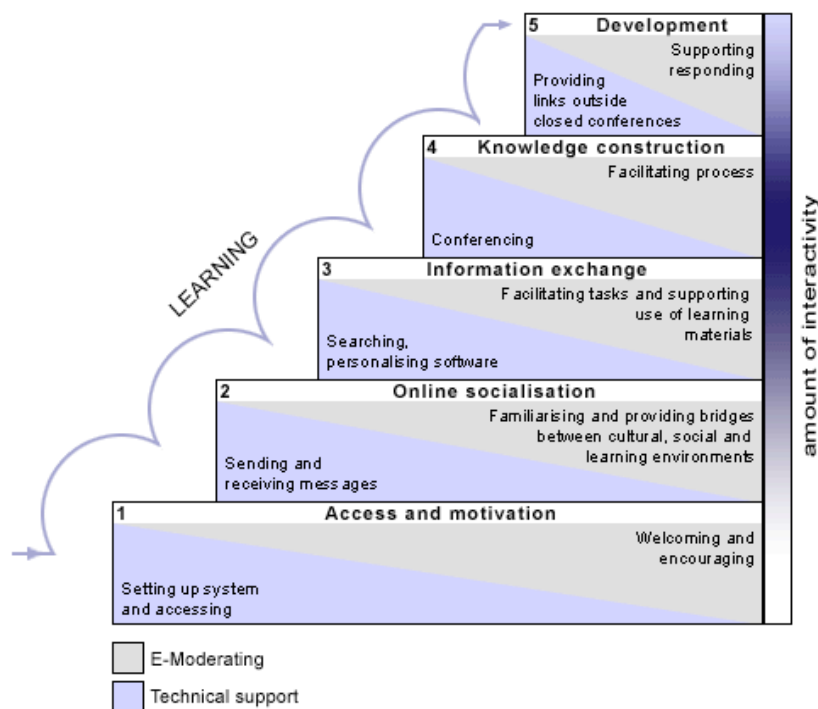
Figure 1. Salmon's 5 Step Model for e-Learning (Salmon 2004).

In Diane Laurillard's model (see Figure 2) of online teaching the conversation and interaction between teacher, student and learning environment are the key aspects to effective learning (Laurillard 2006). Teacher and student discuss a concept or a theory or a task. The teacher reflects on what the student is doing and adapts the conversation. The student then adapts their actions in the light of teacher feedback and reflects upon their understanding until this matches that of the teacher. Laurillard has used the conversational model to evaluate how different media support learning.
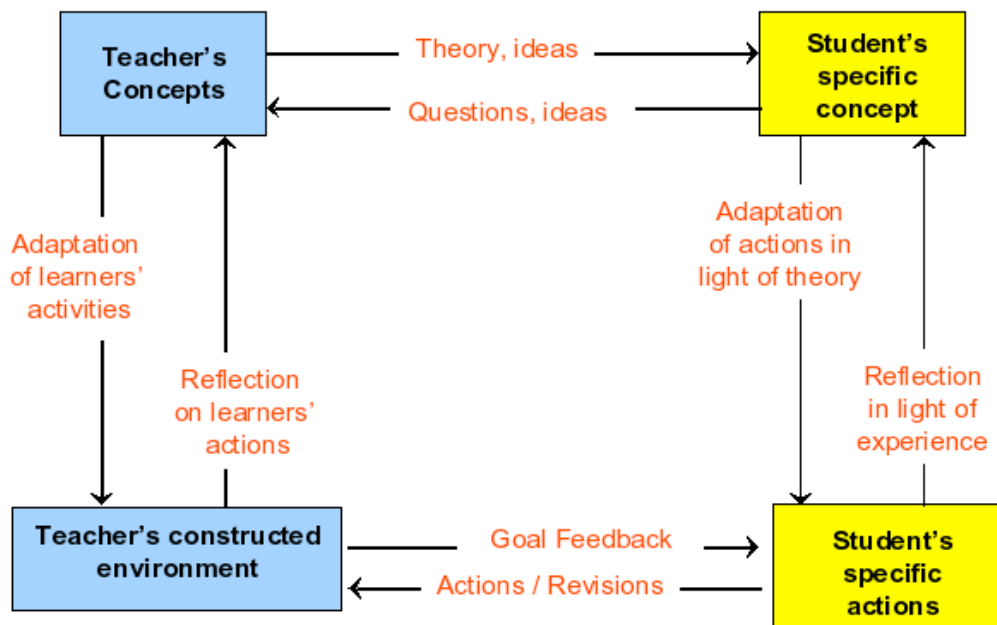
Figure 2. Laurillard's Conversational Model (Laurillard 2012).

Laurillard's model has been critiqued as an inappropriate one for general University teaching in that it is better suited to small-scale delivery, with the expert academic inducting students into a research community within their own academic discipline (Wise and Quealy 2006). It is teacher focused, learning is teacher directed and most educational media do not support a conversational approach (McKillop 1998).

Salmon's model has proved the most influential at a secondary school level. It has been used by the National College for School Leaders (NCSL) (NCSL 2004) to introduce school managers and teachers to VLE use, although some criticism of the model has emerged. It does not easily transfer to other contexts

(she developed it with experience of an Open University distance learning course). It ignores the variety of learning approaches that are possible within computer mediated communication (CMC) and the range of learning theories that are available (Moule 2007).

There are common threads linking these theories of learning: community, collaboration and discussion.

The role of the moderator/e-moderator is one that is disputed. For Garrison and Anderson the moderator is not a facilitator but, as in the face-to-face classroom, is the central figure in the learning experience of the student and the key to developing deep learning in online discussions (Garrison and Anderson 2003). Best practice has yet to emerge and a single best practice model may be unlikely given the range of teaching styles, the potential ways technology can be implemented and the ways in which that technology itself is changing (Meredith and Newton 2003).

There is support in the literature for the view that new technologies are transformational (Graves 2001; Garrison and Anderson 2002) and will move education from a traditional, behaviourist, subject-focused model towards a constructivist, student-centred one (Twining, Broadie, Cook, Ford, Morris, Twiner and Underwood 2006), although the focus on exam results as a way of measuring school performance may mean that a change in pedagogy or a willingness to experiment is unlikely (Green and Hannon 2007).

2.4 Neutrality

Feenberg describes two theories associated with the application of technology, an instrumental and a substantive theory of technology (Feenberg 2002). An instrumental view regards technologies as subservient to the situations or circumstances in which they are used. For example, much of the recent education literature views learning technologies as tools, to be used and shaped by the teacher (Gillespie, Boulton, Haramiak and Williamson 2007; Austin and Anderson 2008). A substantive theory of technology argues that technology is in itself a new social or cultural system and that it thereby changes the very contexts in which it is used. Heidegger regarded technology

as something existential and not just a tool or technique that was independent (Heidegger 1977). For Bowers, there is an ontological assumption regarding the way in which the computer processes and presents data or information that lies at the heart of arguments about neutrality:

> As a symbol-processing technology, the computer selects and amplifies certain aspects of language; ironically, the form of knowledge that is encoded in the form of language suited to this technology represents the positivism of the 19th century (Bowers 1988:p.33).

For Feenberg it is in the very design of the technology and the control of this that lays issues relating to neutrality.

> The design of technology is thus an ontological decision fraught with political consequences. The exclusion of the vast majority from participation in this decision is profoundly undemocratic (Feenberg 2002:p.5).

The different applications within a VLE are commonly referred to by platform providers and trainers as tools (Gillespie, Boulton, Haramiak and Williamson 2007; Weller 2007; Luckin, Clark, Graber, Logan, Mee and Oliver 2009; Kaur 2012; Napier 2012). The assumptions behind these descriptions are that tools are neutral and that it's only when placed in the hands of educators that change results. Hunt (BECTA 2004a) claims that BECTA tends to treat platforms merely as tools and associates change to the educational setting in which they are used.

2.5 Justification for this research

The Sussex School of Education describes the purpose of the Professional Doctorate in Education as giving professionals the opportunity:

> To work at doctoral level on problems that are of direct relevance to their own professional interests and institutional concerns…it is likely that the thesis will contribute to professional understanding in the area of the participant's speciality (Sussex Institute 2008).

For some authors a key element in the doctorate is the impact it has on professional practice (Townsend 2002), although others find little evidence that it benefits educational practice at large (Park 2005). I have pursued this research project for personal and professional reasons.

My personal and professional interest pre-dates school based learning platforms by a number of years. In 1997 the Labour Party sponsored Stevenson Report found that Information Communication Technology (ICT) provision in schools had little impact on learning (Kelly 2000). The Labour administration implemented the New Opportunities Fund (NOF) programme of training, which focused on the use of ICT for teaching, rather than on the development of technical skills in computer applications. Training was provided through a range of providers, including the Open University (OU) Learning Schools Programme (LSP)(Leach 2003). The use of a virtual learning environment was a central component of the OU programme of study. The Teacher Training Agency (TTA) described this aspect as a technology ahead of its time (TTA 2002). An OFSTED review of NOF stated that this element of the training was the one which many secondary school teachers found most frustrating (OFSTED 2004b). I was employed as a trainer by the OU on this programme. A VLE called First Class was used to establish a number of different curriculum communities where teachers could collaborate and share learning resources. I moderated the national history forum for England and also taught, as an associate lecturer, on the subsequent Teachers and ICT degree level course. This was aimed at teachers who had completed NOF training and was regarded as an extension of the LSP. It made use of a VLE as a resource bank for learning materials and as a communication tool for course participants and tutorial work. Learners also had an online social area where they could post messages and conduct an asynchronous conversation over a period of time.

These experiences introduced me to the work of Gilly Salmon (Salmon 1999, 2005a) and the ways that her model of e-learning has been applied to classroom research into the use of VLEs (Witherington 2004; Riley 2005; Smith 2005a). In 2004 I completed a classroom based research project under the Best Practice Research Award Scholarship (BPRA) programme from the DfES and used Salmon's model as the conceptual framework for the research study (Fanning 2004b). The study explored the use of a VLE called think.com, designed by the Oracle Corporation and targeted at students aged 9-14. This work raised my awareness of the ways in which user interfaces, the design of a VLE and the objects within it may alter learning and research outcomes (Cobb, Neale and Reynolds 1998; Hall, Woods and Aylett 2006; Conole, Thorpe, Weller, Wilson, Nixon and Grace 2007).

2.6 The Knowledge Economy

I completed an MEd degree qualification in Technology Enhanced Learning at Stirling University (2006) and used the WebCT VLE during this course. This experience raised my awareness of the work of Andy Hargreaves (Hargreaves 2003), who has been influential at a policy level through his work with the SSAT. His central argument is that as society rapidly changes, a traditional industrial model of teaching and learning – the-teacher-director-instructing rows of eager-to-learn pupils – no longer meets the needs of the 'knowledge economy'. He said that:

> We live in a knowledge economy, a knowledge society. Knowledge economies are stimulated and driven by creativity and ingenuity. Knowledge society schools have to create these qualities, otherwise their people and their nations will be left behind (Hargreaves 2002).

The knowledge economy argument states that the old 19th century structures of organising labour and manufacturing are dead or dying. The new economy of the 21st century will be an economy where knowledge is capital. Success in that economy relies upon outwitting and 'out-inventing' the competition. If national economies want to compete globally they need a labour force skilled in

the new technologies. By inference, school structures are also out-dated, linked to an old industrial model (Hargreaves 2003). Cox buys into this narrative when he says that:

> The red brick classroom of our parents age is from an age of manufacturing and its organisation reflects this – this is the new age of knowledge (Cox 1997).

The underlying assumption in Hargreaves writing is that a key element in education is the preparation of pupils for a life of employment beyond school and that whilst the nature of employment has changed, the nature of teaching and learning within a formal system of education has not. He identifies networked learning as a key quality of learning in his new society:

> Teaching for the knowledge society involves cultivating special capacities, not just any kind of learning in young people. These include developing deep cognitive learning, creativity and ingenuity among pupils; drawing on research, working in networks and teams and pursuing continuous professional learning as teachers; and promoting problem-solving, risk-taking, trust in fellow professionals (whether they are close to you, or always agree with you or not), ability to cope with change and commitment to continuous improvement as organizations (Hargreaves 2002).

The themes that run through such statements are not research or evidence based and yet they fuel policy statements. Jones (Jones 2003) credited New Labour with the idea of the knowledge economy. Yet when Blair referenced education, education, education in his Ruskin College speech in 1996, many national governments were already using just such an idea to justify investment in technology in education (Daanen and Facer 2007). School change, based on these beliefs, is a constant theme running through government and BECTA literature. The 2020 Vision Report (DfES 2006b) described preparing pupils for this knowledge-based economy; it's the collaborative, team skills that industry needs to compete in global markets and it's ICTs that will enhance collaboration and creative learning. An Investigation of Personalised Learning Approaches

used by Schools (Sebba, Brown, Steward, Galton and James 2007) concluded that teachers had to give up control, become more involved in discussion with pupils and use technology to facilitate collaboration with peers (in the same school and in other schools). Constructivist, student-centred learning can better meet the demands of the contemporary workplace and society, which wants self-directedness, lifelong learning, communication and collaboration skills (Somekh, Underwood, Convery, Dillon, Jarvis, Lewin, Mavers, Saxon, Sing, Steadman, Twinning and Woodrow 2007).

Selwyn questions the assumptions behind these statements, particularly the issue of economic need and the qualities and skills required:

> Pointing to the presumed high-skill information economy ignores the fact that most workers will require little more than a 'MacDonald's level' of familiarity with technology, primarily consisting of lower order data-entry and limited problem solving skills (Selwyn and Gorard 2002:p.15).

Underlying much of the political rhetoric in relation to the knowledge economy is a belief that the use of technology will facilitate school improvement.

How technology supports 14-19 Reform (BECTA 2007d) implied that the use of a learning platform used by schools in the London Borough of Lewisham had significantly improved the 5 A-C grades in its schools. The opening page of the BECTA Annual Review 2007 (BECTA 2007b) carried a quote from a Deputy Headteacher who had 'noticed' the benefits of technology in raising achievement, especially that of boys:

> Over the past two years the boys have achieved as well as, if not better than, the girls in this school. It's got to be down significantly to the use of ICT in classrooms right across the curriculum (BECTA 2007b:p.1).

Cuban's studies (Cuban 1986, 2001) of the implementation of technology in the schools of Silicon Valley and his conclusion that teachers were using computers to re-enforce traditional models of teaching strikes a chord, as does the work of

Fink and Stoll exploring the complexity of schools and why change can be illusive (Fink 2000; Stoll and Fink 2003; Stoll, Fink and Earl 2003).

Laurillard is equally vociferous about attempts to link school improvement to technology.

> It is absurd to try and solve the problems of education by giving people access to information as it would be to solve the housing problem by giving people access to bricks (JISC 2002).

At an institutional level the research school has been piloting VLE applications since 2002 (Fanning 2004a). In the school bid to become a specialist technology college in 2003 the use of the technology was written into the planning and development documents. In 2008 the local authority recommended a preferred platform solution (Czone 2009). The development of the learning platform was a clear priority within the school and had been identified as such in the school development plans. The results and recommendations of this research, taking place as it does in the first full year of use of the platform, will inform future planning within the institution.

Walford talks about research taking place where there is a gap in existing knowledge (Walford 2001). Whilst VLEs have a long history and are widely used in further and higher education, at a school level they are still an unknown quantity. This research will inform professional understanding at a local and national level. This project has been publicised within the local authority. As the research has developed I have made presentations at local authority events and representatives from other schools have attended briefings. The research school is represented on the local authority learning platform strategic management board. The findings from the project will impact on secondary school practice across the authority. At a national level the school has provided case studies for the BECTA sponsored Impact 2007, Impact 2009 and Narrowing the Gap research. The research findings from this local study already have a link to a national audience. In 2007, as the research proposal was being

written, I set up a website, aimed at teachers, to share information about the use of learning platforms in the classroom and this has had a significant number of visits in this time (Fanning 2011a). I have used a number of publications and conferences to test some of the findings from my research (Fanning 2007d, 2008a, 2009, 2010b, 2011b).

2.7 Flexible learning

Using technology to support teaching and learning outside the formal classroom, whether it is a school, college or university, has a long history (Bradley 2003; Bernard, Abrami, Lou, Borokhovski, Wade, Wozney, Wallet, Fiset and Huang 2004). Distance learning, supported by postal systems and telegraph, has its origins in the mid to late 19th century in Europe and North America. Given this tradition it is not surprising that the use of online technologies in pre-16 education is more developed in North America than in the UK. The first virtual schools appeared in Alberta, Canada in 1995 and are very much a North American phenomenon. The research literature describes such virtual schools as being built around synchronous or asynchronous web based support for learning (Barbour and Reeves 2009). These virtual schools do not support teaching in the face-to-face classroom, they mainly replace it. The teacher is available online, as are all electronic resources required for the course of lessons. This is not the model suggested by policymakers in the UK when they refer to flexible learning.

In the revised National Curriculum Orders (England and Wales) for 2000 the use of email and the Internet as a means of sharing and exchanging information were cited (LEA 2000). Delivering a policy speech at the BETT Education Computer Show in London in 2002, Estelle Morris, then Minister for Education, described an anywhere-anytime model of teaching and learning, mainly through the provision of education resources, that could only be constructed through the use of Internet based communication technologies (BBC 2002). Her 14-19 Green Paper (2002) proposed, 'Flexible access and delivery through ICT and e-Learning' (FERL 2002).

In 2003 the publication of Towards a Unified eLearning Strategy (DfES 2003), defined e-learning in 5 ways – concurrent learning, cinematic learning,

collaborative learning, communicative learning and consensual learning (Preston and Cuthell 2005). The strategy described collaborative learning through online environments and pupils developing cognitive and social skills of communicating and collaborating, the first time this kind of language begins to be used in policy documents. The use of a VLE was central to the success of this policy. At the same time Professor David Hargreaves, Chairman of BECTA, supported by the Specialist Schools and Academies Trust (SSAT) and the DEMOS think tank (DEMOS 2007) opened up a debate within specialist trust schools with the publication of the pamphlet Education Epidemic : Transforming Secondary Schools (Hargreaves 2003). In this he placed a premium on teacher collaboration and the use of online technologies to create learning networks. Hargreaves speaks of a system where, in order to improve learning, knowledge must be shared between schools. Innovation networks were to be the answer. He compared this approach to the peer-to-peer networks that were developing on the Internet to allow music enthusiasts to share sound files (much of which, he failed to consider, was considered illegal). Innovation networks within education would allow teachers to share good practice in a similar way. He offers to teachers the on-going dream of better teaching and learning through the use of technology and in that respect what he says is part of that constant theme of school improvement in the literature relating to the use of technology in education. In the same year 'ICT and Pedagogy' (Cox 2003) from BECTA described briefly how technology could impact on pedagogy with online discussion and collaboration changing the relationship between teacher and taught. Clearly constructivism is in the air even if it is not mentioned by name. It's difficult to gauge the impact that such publications have although in 2003 Hargreaves work was given centre stage at the SSAT National Conference (SSAT 2007) and in SSAT literature that was sent to schools. Every specialist school received copies of Hargreaves publications. 2003 marks a growing emphasis on online collaboration in the official literature and there is a distinct link between Hargreaves work at BECTA, the DfES and SSAT.

In its review of Progress towards a Unified E-Learning Strategy the DfES sought the views of school leaders, teachers, ICT co-coordinators and network managers through an online questionnaire (DfES 2004). It received 430

responses, including grouped responses from bodies such as professional associations. With around 24000 state schools in England alone there are issues over how representative the survey is. Question 15 in the survey asked:

> In your experience what are the most significant achievements of e-learning? 105(49%) respondents said flexible learning was the most significant achievement of e-Learning e.g. the learner can choose a convenient time to learn, rather than having to adapt to timetables (DfES 2004).

In the 2005 schools Learning Platform guides (DfES 2005a, 2005c) flexible learning simply became the convenience for pupils of being able to access work after school hours, at weekends and on holiday, as well as during absences. It was not, as with the North American model, about replacing the classroom with an online version. It was also seemingly not about deconstructing the present model of schooling by making lessons or teachers available outside the traditional hours of the classroom timetable.

2.8 Teacher Experience of Learning Platforms

Classroom teachers who completed NOF training through a provider such as the OU Learning Schools Programme may have used this technology. Newly qualified teachers (NQTs) who graduated recently may have used a VLE at university (Gillespie, Boulton, Haramiak and Williamson 2007). An understanding of a VLE and the management of network communications is amongst the core skills required of NQTs (DfES 2007). Senior teachers who completed the National Professional Qualification for Headship (NPQH) would also have experience of a VLE and been involved in an online community of practice through the NCSL talk2learn online community. Many classroom teachers however will have had little hands-on experience of this technology.

Individual schools have been responsible for purchasing their own platform, although they could also choose to side with the choice of their Local Authority. In 2006 22% of junior schools and 50% of secondary schools in England and Wales claimed ownership of an online learning environment or VLE (BECTA

2006b). By 2009 this had risen too 42% and 67% respectively (Ball 2010), with further research in 2010 claiming that 93% of secondary schools had a learning platform (BECTA 2010b). These figures represent ownership of a fairly loosely defined technology and do not reflect the ways in which it was being applied.

2.9 The School

The research school was a secondary school of 650 pupils aged 11-16. This research took place in the academic year 2008-09. In 2005 an arson attack resulted in 80% of the school infrastructure being destroyed. Classes were taught in a range of temporary accommodation whilst a new school was built on the site of the old. This new school opened in February 2009. Within the context of the local authority the school is in an area of relatively high deprivation (OFSTED 2010a). The majority of pupils live locally. Attainment on entry in Year 7 is below national expectations. The number of pupils with special educational needs (SEN) is also higher than the national average at almost a quarter of the school population. In 2008 the school was designated a National Challenge School, although A*-C GCSE results in 2009 were 35% (including Maths and English). The school became a Specialist Technology College in September 2003 and was re-designated in 2007 with a school mission statement:

> To provide success and challenge for all through technologically enriched learning that prepares young people for participative and enterprising citizenship in the twenty- first century.

I am a senior teacher at this school. The implication that this has for research is more fully explored in Chapter 4.

2.10 Teacher Profile

There were forty teachers in the research school, plus a leadership team of four senior teachers. In terms of gender there were 21 female and 19 male teachers. The literature relating to the gendered use of technology for learning describes differences in the way in which male and female students use Internet based technologies (Kirkman 1993; Papastergiou and Solomonidou 2005; Volman, Eck, Heemskerk and Kuiper 2005; Wastiau-Schluter 2005). In relation to

teaching staff this has not been considered in this study but it is an area worthy of future research. A few staff had been involved in NOF training through the Open University and had used the First Class VLE although when questioned they had little recollection of that technology apart from a 'fuzzy' recollection of access issues relating to the online environment. Two members of staff had completed a Masters qualification in the previous three years and used a VLE on those courses. Seven members of staff had qualified as teachers within the past three years and had experience of using a VLE at university for accessing course details, files and shared diaries. In interviews the majority said that, although they had used the VLE within their course to support their studies, their teaching courses had made little reference to the use of learning platforms in the classroom or the pedagogy of e-learning. These teachers were independently interviewed by researchers from Nottingham Trent University as part of the BECTA 'Narrowing the Gap' research programme and a similar observation was made (BECTA 2010a).

In the school every teaching room was equipped with a curriculum PC attached to an interactive whiteboard (IWB). In most teaching classrooms there was at least one further networked PC for pupil use. There were three dedicated computer suites in the school, along with a smaller number of mini-suites, equipped with up to 6 PCs for small group work. There was also a learning resource centre for larger group work; equipped with 15 networked PCs. Every member of staff had their own school laptop. The pupil: PC ratio was 3:1, in line with recommended national ratios (BECTA 2010b). Even when quantitative data suggests that computer access is 'satisfactory to good' for a large majority, qualitative data can suggest otherwise. For example, interviews by Nottingham Trent University researchers in 2009 with teachers from the school found that, whilst some felt they were well resourced others said there was a need for more IT facilities (BECTA 2010a).

A questionnaire conducted during the research period asked teachers to rate their ICT technical skills against a bank of 5 statements (See Appendix 3):

- 48% of staff said they felt confident in using most hardware and software

for learning and that they seldom used the classroom support provided by the school network team;

- 30% described themselves as confident in the use of technology most of the time but that they required training in some technologies;

- 15% described themselves as average users who would call ICT support if they required it;

- A very small minority said they did not feel confident some of the time in using technology in the classroom.

When asked to list in order of priority the hardware that they most used to support their teaching a large majority identified the classroom Interactive whiteboard (IWB) as the main technology they used in their day-to-day teaching. In response to the Nottingham researchers teachers said that they had learnt about the functionality of the IWB through self-exploration and that there was a lot of collaboration between staff in terms of support.

The next most used piece of hardware was the classroom printer, with a further range of devices such as scanners, digital cameras and voice recorders being employed on an occasional when-needed basis. When asked to list in order of priority the software or computer applications that they most used to support teaching, SmartNote (the IWB specific application), PowerPoint, web browser and email were identified in that order of popularity. Email was hosted separately on the school servers and was not integrated into the learning platform.

Chapter 3

Core Themes

3.0 Introduction

In my original CAS (Fanning 2008e) I surveyed the available literature, including both research and policy documents, concerned with the use of online environments in the secondary school classroom. I initially drew on literature that I had gathered for previous research studies and articles (Fanning 2004a, 2004b, 2005, 2007a). I examined and in some cases re-visited the work of recognised researchers in this field: Salmon, Preston and Cuthell in the UK (Cuthell 2003; Preston and Cuthell 2005; Salmon 2005a); Garrison and Anderson in Canada (Garrison, Anderson and Archer 2001a; Garrison, Anderson and Archer 2001b; Garrison and Anderson 2003); Hiltz (Harasim, Hiltz, Teles and Turoff 1995; Hiltz 1998), Berge (Berge and Collins 1995; Berge and Clark 2005) and Gunwardena in North America (Gunwardena 1994, 1995; Gunwardena, Lowe and Anderson 1997; Gunwardena, Carabajal and Lowe 2001); Love in Australia (Love and Simpson 2006). This was supplemented by searches of electronic sources from online databases including Eric, Google Scholar, the Open University, DfES, BECTA, Futurelab, Ultralab, NFER, Mirandanet, SchoolsNet and the OECD. A screening of the literature took place with keywords that were more specific to the topic being studied and included *vle/learning platform.*

In this chapter I have updated my analysis of policy statements and official literature relating to both personalised learning and online technologies. By official literature I mean that which has as its source a government department or government funded institution. Documents produced by the DCSF, BECTA, NCSL and SSAT from 2003 onwards have been included. Through this analysis I have identified a number of core themes that have been linked to the use of technology in the classroom: assessment or assessment for learning (AFL), differentiation, collaborative working and flexible learning. This chapter investigates the link between these themes, the concept of personalised learning and the use of learning platforms in relation to classroom practice.

3.1 Personalised Learning

Personalised learning is a contested concept (ASPECT 2006; Brown 2006; Field 2006; Gibbons 2007). The term first emerges in education literature in the United States from the 1980s onwards ((Keamy, Nicholas, Mahar and Herrick 2007). When Prime Minister Blair talked about personalisation to the Labour Party Conference in 2003 however it was a politically inspired agenda that would include all areas of public services and not just education, although he specifically referred to, 'personalised learning for every child in new specialist schools and City Academies (Blair 2003).' It was left to David Miliband, Minister of State for School Standards, to explain what personalisation meant in detail for education. One of his earliest published statements described it in this way:

> Personalised learning does not mean each student learning on their own. It must involve work in classes and groups. But it does mean rigorous determination to ensure that each student's needs are assessed, talents developed, interests spurred and their potential fulfilled. As we have seen, education fails to overcome disadvantage at home for too many young people. Personalised learning will give extra help to those who need it most. It means designing the teaching, curriculum and class organisation of schools to reach as many pupils as possible for as much of the time as possible. It is already common practice in our most successful schools (Miliband 2003).

Personalised learning is not described in terms of system change. Pupils will still be taught in classes and work in groups. Although teachers will have to be more 'rigorous', the assumption being that they were not, in their assessment practices and those traditional aspects of their work. The agenda is focussed on supporting those disadvantaged pupils who were perceived to have been failed by a system where there were only a few successful schools. This story was a construct that New Labour had authored since its election victory in 1997 and one that complemented Blair's belief that good state schools were in the minority (Blair 2010), a situation to be remedied by the Specialist Schools and Academies programme.

In the same article Miliband describes what he calls the five components of personalised learning:

- Assessment for Learning: the starting point for effective teaching is appropriate diagnosis, with pupil and parental input, of pupil strengths and weaknesses;

- Curriculum: personalised learning says that the curriculum and timetable needs to be flexible enough to meet their needs;

- Teaching: personalised learning ensures that for whole classes or in smaller groups the pace of work engages pupils;

- ICT allows every pupil to progress at their own pace, delivering creativity to match the way different pupils learn, and allowing pupils to link study at home with school work in clear and easy ways;

- School Organisation: personalised learning asks schools to work in new ways to tailor learning to individual need.

In 2004, at a North of England Teachers Conference, he would further emphasise the importance of assessment for learning in target setting for pupils to improve their attainment (ATL 2009). This somewhat misrepresents the original work on AfL carried out by Paul Black (Black, Harrison, Lee, Marshall and William 2003, 2004) with its focus on diagnostic assessment and high quality teacher feedback. Less than a year later Miliband would restrict curriculum choice to those aged 14 and above, with little advice on how a flexible timetable could be achieved within the inflexible system of rigid school timetables.

It is taken as a given by Miliband that the use of ICT for learning will improve progress (i.e. attainment), although in practice there were a whole range of ICTs in use in the classroom. This and the linking of home study with school study are common themes in government literature, with little in the way of research

or an evidence base to confirm such statements, especially in relation to those pupils described as disadvantaged. BECTA would spend much of the decade trying to draw a direct link between the use of technology in schools and improvements in learning. At the point at which Miliband made his statement it was also unclear what working in 'new ways' would involve for schools.

Charles Leadbeater dealt with many of these themes in his DEMOS publication, 'Personalisation through participation' (Leadbeater 2004). Whilst it is difficult to prove any direct link between his work and that of government, Miliband did write a foreword for the publication. Leadbeater provides a useful framework for considering the whole agenda when he differentiates between shallow and deep level personalisation. Shallow he describes as better access to services, with some limited say for users. Deep personalisation is a disruptive innovation, where users were in the 'driving seat' and had a far greater role to play in designing solutions. This would include them having more say over the finances of the organisation. They would be co-designers and co-producers of a service and would begin to self-organise.

Leadbeater talks about adopting different 'scripts' for different organisations. It's in his script for education that there begins to emerge some of the key themes that resonate through future literature. He says that at the core of education there should be a common script or common curriculum that all follow, but from this there should be different pathways, routes and choices, with children involved in the decision-making. He describes a move away from the uniformity of education provision. If schools follow his 'script' then learning becomes about choosing how to learn and when and where. Personalised learning would allow and encourage learning to take place outside normal school hours and during holiday times. It would make opportunities to learn available whenever the learner wanted to take them up. The role of ICT was identified as important in allowing provision for virtual learning.

It's difficult to see how some aspects of his deep personalisation programme could be relevant to schools as they appear to describe a market place philosophy, based on consumers and choice. Education has never been based on this model. Schools are constructed around an industrialised model of

practice and organisation, a system that is copied across many different countries and political systems (Hartley 2007, 2009). It's a system based on group organisation (the class) built around a somewhat inflexible working day (the timetable). It's a system that focuses on the teacher and the curriculum is one that is proscribed by central government (Campbell, Neelands, Robison, Mazzoli and Hewston 2006).

Leadbeater's is a useful framework against which models of personalised learning can be evaluated. Do such models represent shallow (maintaining the status quo but improving service delivery) or deep (system change) personalisation? I would argue that the statements from Miliband and his successors, along with documents produced by the DCSF, represent 'surface' change. The work carried out by David Hargreaves on the other hand at the SSAT, throughout the rest of the decade, reflects aspects of deep personalisation. Hargreaves final model of personalised learning was even based around what he called the 'Deeps' (Hargreaves 2008). It is significant that what came to be known as the Tomlinson Review and which bore many of the hallmarks of 'deep' personalisation through its advocacy of system change, was ignored by the Blair government.

In his presentation to the North of England Education Conference in January 2004 Miliband said of personalised learning:

> It can only be developed school by school. It cannot be imposed from above (ATL 2009).

In May he explained in a presentation to Demos, the group that had published the Leadbeater booklet, that:

> Personalised learning is not a return to child-centred theories; it is not about separating pupils to learn on their own; it is not the abandonment of a national curriculum; and it is not a licence to let pupils coast at their own preferred pace of learning. The rationale for personalised learning is clear: it is to raise standards (Keamy, Nicholas, Mahar and Herrick 2007).

This official statement suggests that personalised learning is about teacher led, classroom based, centrally controlled, target driven learning that will improve standards. It's about school improvement. The 2004 DfES pamphlet *A National Conversation about Personalised Learning* (DfES 2004b) categorised personalised learning in the five ways already defined by Miliband in 2003. It focused on assessment for learning (AfL); curriculum entitlement and choice; school organisation; strong partnerships beyond schools; effective teaching and learning strategies. In the 2005 white paper 'Higher standards, better schools for all' Ruth Kelly, Minister of State for Education, repeated the mantra that personalised learning was nothing new, 'our best schools have been doing it for a long time' (HMSO 2005). In 2008 the DCSF published a *Guide to Personalised Learning for Schools* (DCSF 2008) which similarly based its advice on those five components that had previously been identified in 2004 by the DfES (Sebba,Brown,Steward,Galton and James 2007). The use of ICT was incorporated into many of the five. The literature review part of this DCSF guide could find very little research that had evaluated the implementation of any personalised learning agenda. Some North American studies were referred to, as well as work in the UK by Hargreaves, Rudduck, Brown and Leadbetter (Hargreaves 2004; Leadbetter 2004; Rudduck, Brown and Hendy 2006). The guide declared that a wide range of approaches to personalised learning had been adopted in schools and that most teachers saw the agenda as confirming or further developing existing work.

From 2004 onwards, the SSAT, with David Hargreaves playing a key role, began to develop a body of literature illustrating what personalising learning would look like in practice. Hargreaves developed his Nine Gateways Model that included (SSAT 2009a): learning to learn, assessment for learning (AfL), student voice, curriculum choice, school design and organisation, advice and guidance, mentoring and coaching, workforce reform and new technologies. A series of national learning conferences, with school representatives, took place, leading Hargreaves to re-assess his Nine Gateways into what he called 'the Deeps': Deep learning, Deep experience, Deep support and Deep leadership (SSAT 2006). What emerges from Hargreaves work is a model of personalised learning that has much in common with Leadbeater's description of deep

personalisation and which appears to be at odds with those messages coming from the DCSF. Miliband dismissed child-centred theories and yet learning-to-learn is just such a model of learning. He discouraged individual learning and yet one-to-one mentoring and coaching supports this.

It can be difficult to evaluate the impact of these messages at a school level, with little national research having taken place. The BECTA sponsored IMPACT 2007 Report (Underwood, Baguley, Banyard, Coyne, Farrington Flint and Selwood 2007) judged that teachers had taken on board the personalised learning policies and that they did link the use of ICT with them. Teachers saw differentiated content as the most frequent way of providing a personalised learning experience, although the IMPACT researchers said that in classroom observations this was most noticeable by its absence. The BECTA Executive Summary reveals that:

> Personalising learning is understood in different ways by managers, teachers and learners. Our analyses confirm the fractured nature of different stakeholders' understanding of this core educational concept……….we also have evidence that some teachers, while accepting the personalisation agenda, are still operating a controlling model of education (BECTA 2009a:p.4).

To summarise, when first introduced personalised learning was part of a wider political agenda that incorporated other public services and not just education. The actual term remained somewhat ill defined, although some common themes run through the literature. These include assessment, effective teaching and learning, flexible learning and collaboration and the use of technology.

3.2 Learning Platforms

Given the high profile of technology in education and the funding for it, it would have been surprising if personalised learning was not linked closely with the use of technology (Brown 2006).

In 2005 the DfES Harnessing Technology e-strategy and platform advice booklets were published, introducing teachers to the technology and linking it to personalisation. Harnessing Technology (DfES 2005b) stated that traditional

methods of teaching had not achieved 'enough'. It described a pedagogy of collaboration, enhanced by the development of e-learning skills. It emphasised the changing nature of teacher-pupil relationships that could occur when technology was introduced to the classroom. It referred to learning beyond the classroom and peer collaboration; sharing ideas through online networks; developing specially-tailored online communication activities so that students feel able to participate more in discussion; as well as a 'children's workforce able to access online training materials and to participate in web-based discussions with their peers (DfES 2005b:p.58)'. Harnessing Technology is one of the few documents to refer to pedagogy.

The Learning Platforms (DfES 2005a, 2005d) booklets of the same year introduced teachers to the term learning platform. There are Primary and Secondary versions of both publications and they are sub-titled 'Making IT Personal'. The Primary School booklet maps out various reasons for adopting a platform. It will raise pupil achievement, reduce teacher workload and improve communication. The technology 'adds a new dimension to lessons, which they (pupils) find refreshing and motivating' (DfES 2005d). At this point in the development of the technology few schools were actively using these applications and such statements were based on no independent research studies. The claims were supported by examples from two junior schools although there is little contextual analysis of these. Readers (i.e. teachers) are told that:

> The whole process needs to be driven by a different model of learning, aligned more closely to modern methods of teaching in primary schools and of staff management. Such a project needs people who can concentrate purely on these issues and their implementation (DfES 2005d:p.26).

This statement is accredited to a teacher quoted in the document and yet elsewhere readers are warned about the 'danger that a learning platform can dictate methods of curriculum delivery through its underlying model of learning' (DfES 2005d) with no attempt to clarify what that model might be. The use of

language in the document can be emotive, for example the implication that by not adopting the technology teachers or schools will be viewed as not 'modern'. This is not a politically neutral document.

The Secondary School learning platform booklet repeats much of the text and many of the claims from the junior school one and also introduces again the link between skills in technology and employment. 'Daily use of these tools in school will ensure that pupils are better equipped to cope and thrive as they move into the world of work' because learning platform technology is being used in industry, although no evidence is cited to support this (DfES 2005a).

Table 1 provides a summary of the main concepts found in these 2005 documents.

Concept	Focus
Learning Spaces	By 2008 all schools will offer access to e-learning resources in and out of school. All pupils will have a personal online space.
Parental Involvement	The platform can be used to provide information about: school events, pupil work and attendance, achievement and behaviour data.
Anytime, Anywhere learning	Pupils can access work after school, at weekends and on holiday, as well as during absences.
Personalised learning	Teachers can tailor learning to individuals; tracking tools means problems are identified early; data analysis is easier; administrative efficiencies mean support is better targeted.
Better use of teaching time	Teachers can share resources; the administrative burden is reduced; school information management systems (SIMS) integration will streamline behaviour management and reduce workloads. Teachers (and pupils) can more effectively manage their time with materials available online.

Supply teacher effectiveness	Learning loss can be minimised with lesson plans and resources available online.
Collaboration	Pupils and teachers can communicate across school and across schools.
Cross-institutional working and a more flexible curriculum	Transition work can support the move from Year 6 to 7; pupils can take courses offered by other schools.
Supporting an E-portfolio	Pupils store examples of their work allowing the tracking of progress from year to year.
Pupil inclusion	It can offer a more productive learning environment for children who do not thrive in school; pupils who are absent can access work online reducing learning loss.
Preparing pupils for working life	Learning platforms are based on collaborative tools found in the workplace; learning platform use prepares pupils for the world of work.

Table 1. Summary of Concepts.

In 2006 BECTA published its functional requirements of a learning platform. The following were considered mandatory (BECTA 2006f):

- Online assessment;

- Customisation of the web interface to pupil preferences;

- Users should be able to personalise their learning experience;

- Learners should be able to access the platform outside school;

- Learners should be able to create a portfolio;

- Learners should take part in online forums and discussions and have a messaging facility.

3.3 Key Themes

Given the different aspects of personalised learning and the range of beliefs and practices that surround it, this study will focus on a number of key areas. These are common across the official literature relating to both personalised learning and the technology that would support this, namely learning platforms. Those key areas are: assessment or assessment for learning (AfL), differentiation and collaborative learning, as well as flexible learning. What follows is a summary of these terms and how they can feature in classroom practice.

3.3.1 Assessment

School based assessment traditionally takes the form of summative or formative assessment. Within schools summative assessment has usually been used at the end of a course of study to produce a grade that reflects pupil performance (East 2010). From 2004 onwards a programme of formative assessment or Assessment for Learning (AfL) was supported by the DfES (DfES 2004d). The policy documents state that classroom technology can play a major role in supporting formative assessment strategies (DfES 2005b).

Features of AfL include:

- Sharing learning goals with pupils;
- Helping pupils know and recognise the standards to aim for;
- Providing feedback that helps pupils to identify how to improve;
- Both the teacher and pupils reviewing and reflecting on pupils' performance and progress and pupils learning self-assessment techniques to discover areas they need to improve (QCDA 2010).

The BECTA learning platform functional requirements stated that:

> The platform shall be able to deliver at least one type of assessment to users; for example multiple-choice, essay or single-word-answer tests. Once a learner has used an assessment item, the platform shall be able to report which one was used and what the results were. Assessment tools should include self-review and peer review (BECTA 2006:p.9).

Whilst the requirement is for at least one form of assessment, in the examples that are provided BECTA describes tests that are summative in nature. One of the challenges in this research project was to explore whether teachers would use the technology as described or apply other features of the system for the purposes of formative assessment. At the time these requirements were published there were few models of assessment within existing platform use that teachers could use to support development of assessment practices.

3.3.2 Differentiation

In its broadest sense differentiation has been defined by OFSTED as, "the matching of work to the differing capabilities of individuals or groups of learners in order to extend their learning" (Simkin 2010). The main themes in government advice include differentiation by (TTRB 2009):

- **Task**: Incorporating different tasks for pupils of differing abilities;

- **Outcome**: Involving setting open ended tasks which involve allowing pupil responses at different levels;

- **Support**: Involving giving more help and support (possibly by a support assistant) to certain pupils.

In the research school differentiation in face-to-face lessons, according to the school teaching and learning policy (Appendix 6), is achieved through:

- Planned lessons that incorporate a variety of teaching methods to meet the needs of all types of learners and differentiate by support, resource or task;

- Planned three-part lessons derived from the scheme of work that address the individual needs of their students;

The formal lesson observation template used in the school (Appendix 7) required differentiation to be recorded, without which the lesson could not be deemed, using OFSTED lesson descriptors, as satisfactory or better (OFSTED 2010b).

3.3.3 Collaboration

The Harnessing Technology White (DfES 2005b) paper stated that:

> We need a new understanding of the pedagogies appropriate for a 21st century education system. Traditional methods have not achieved enough (DFES 2005a:p.26).

Although the document does not describe what is meant by 'enough', it could be assumed that this was a reference to school improvement. Its solution in terms of pedagogy was, "A collaborative approach to personalised learning activities (DFES 2005b:p.16)."

The commercial platform provider used by the school describes its product as a connected learning community (CLC) and features a number of collaborative projects that user schools can subscribe to (Swann, Shen and Hiltz 2006; UniServity 2010b). The use of technology to support collaborative learning is well documented (Kumar 1996; Barker and Pilkington 2000; Curtis and Lawson 2001; Swann, Shen and Hiltz 2006; LTS 2007; So and Brush 2007). Webquests are well known in schools (Brewer 2004; Haigh 2010). Features of collaborative learning include (Ewing and Miller 2002):

- Pupils working in groups of two or more;

- Each member of the group having a specific task to complete;

- An end product or piece of work for display;

- Assessment that takes place on an individual as well as a group basis;

- Teachers facilitating learning as opposed to learning being totally teacher led.

3.3.4 Flexible learning.

The Harnessing Technology White Paper (DfES 2005b) described flexible learning in the following ways:

- Every learner over 14 will have access to flexible, co-ordinated courses, with the opportunity to learn at home, in work, in college or in other community settings (DfES 2005b:p.54).

- More flexible study: you will have more choice about where, when and how you study, making it easier for you to create your own mix between studying in a place with other learners, learning at work, learning at home, and learning online (DfES 2005b:p.12).

For the purposes of this section flexible learning has been defined as learning for a formal course of study that takes place outside traditional school hours and at a location away from the school site.

As has been described in Chapter 2, there is a large body of literature relating to the use of Internet based technologies to support flexible learning (Collis and Moonen 2001; Lynch 2002; Meredith and Newton 2003; Sefton-Green 2004;

Whalley, Welch and Williamson 2006). The literature reflects the potential for flexible learning in schools (Abbott 2001; Cunningham and Harris 2003; Loveless 2003; DfES 2003b; Leask and Pachler 2005; Hough 2008). In the United States the Virtual School movement is recognised within the formal structure of education provision (Clark 2001; DiPietro, Ferdig, Black and Preston 2008). In the research school this was one area that had been investigated prior to this thesis. In 2007 a flexible learning pilot project, using the Fronter learning platform and involving a small group of eight senior students who were studying an ICT qualification, took place. Students were given the option of not attending timetabled lessons but studying these online, at a time and place of their choosing. At the start of this research project an extended learning programme allowed all senior students in one year group in the school to study a topic via the learning platform outside the formal classroom, but supported by a number of face-to-face lessons. A number of professional education associations have published the findings from this work (Fanning 2007b, 2007d, 2008d).

3.4 End note

Personalised learning is not a theory of pedagogy or even an integrated and consistent toolkit of teaching methods (Ledda 2007). It was part of a wider political agenda that aimed in some shape or form to make public services in general more responsive to the needs of the user. The work of Leadbeater has strongly influenced the debate (Campbell, Neelands, Robison, Mazzoli and Hewston 2006; Keamy, Nicholas, Mahar and Herrick 2007; Mahar 2007). He differentiated between surface and deep personalisation, where the former was concerned with improving existing services with limited user involvement and the latter was marked by systems change and embedded user interaction. I have argued that surface personalisation is a feature of the policy statements and DCSF publications, whilst the work of Hargreaves, under the auspices of the SSAT, favours a deeper approach. This divergence is reflected in the range of teacher beliefs and assumptions about personalised learning. Learning platforms were introduced by the DCSF as a core technology that would support personalisation in the classroom. A key consideration of future chapters

is the way in which use of the technology would enable or support either of Leadbeater's approaches to personalisation.

Chapter 4
Methodology and Analysis

4.0 Introduction

Crotty suggests that the simplest part of the whole investigative process is designing the research question (Crotty 1998). He describes in an orderly fashion the four elements that ensue from this as:

- Methods (the procedures used to gather data);
- Methodology (the process behind the choice and use of methods);
- Theoretical perspective (the philosophical stance behind the methodology);
- Epistemology (the theory of knowledge).

He deliberately maps out the research process in this particular order, stating that methods in themselves are not neutral but lead to a particular ontological and epistemological stance (Hoepfl 1997; Patton 2002; Mason 2005; Hammersley 2008).

In this chapter I will describe the basic paradigms, the research methods and the manner of data analysis that have been used in this thesis. The implications and impact of these will be described in turn. A second generation model of cultural historical activity theory (CHAT) has been employed to bring coherence to the exploration and evaluation of the complexities of school life and the use of a VLE in the classroom. The justification for applying this in a classroom scenario will be explained. The practicalities and issues surrounding insider research are also considered.

Unlike Crotty I will begin by considering my ontological position. Whilst his 'road map' provides a useful tool for tackling research, it does appear to support a positivist approach to that research. Beginning research with the collection of data as a starting point suggests that from that very data an understanding of the truth will be revealed. Before that data is collected however there is a narrative 'going on' and it's important to uncover this in the first instance.

4.1 A Conceptual Framework

I have described my conceptual framework as being located within action research and influenced by social constructionism and critical theory. I have employed aspects of a second-generation model of activity theory to explore the tensions that may arise in a classroom when technology is introduced.

4.1.1 Action Research approach

There is no one single category of action research but such an approach is marked by a number of features. It is situational, it diagnoses a specific problem in a context and seeks an answer; it is usually collaborative, participatory and self-evaluative (Cohen, Manion and Morrison 2007). It is a commonly applied approach to the study of technology in education (Baskerville and Wood-Harper 2001; Kock and Lau 2001; Royer 2002; Wang and Hannafin 2005).

Action research has been criticised. It can be limited in scale and insular (Bartlett and Burton 2007). It assumes an epistemological position that stresses the importance of context in knowledge making (Robertson 2006). It rejects a positivist position, which requires knowledge to be objective and capable of generalisation. Action research does however bridge a perceived gap between practice and theory (Armstrong and Moore 2004; Opie 2004; Reason and Bradbury 2006). It draws on many ways of knowing, hence the range of data sources used in this thesis. Whilst this study is based in one school, the area of interest is one that has lacked much in the way of longitudinal research into the use of the technology in the classroom. The findings of this research have the potential to shed light on both the theory and practice of learning environment use outside the context of the research school. Chapter 2 showed there was little theorising in this area, with e-learning theories being based on existing theories of learning and dealing with students in post-16 education. Any provisional findings or theory generated by this project can be accepted or rejected by future research (Hodkinson and Hodkinson 2001). My research is

not separated from my professional life and aspects of my practice as a teacher influence the practice of this research (McNiff 2002; Reason and Bradbury 2006). It is naïve to assume that any research can be value free and independent. I would agree with Stenhouse that teachers as insider researchers have the ability to take a cool, objective, professional look at what they do (Stenhouse 1981). It is this transparency and reflection that is critical to the strength of action research and which I have striven to make a feature of this thesis (Kemmis 1993).

4.1.2 Social Constructionism

Social constructionism is a sociological theory of knowledge that became popular in America with the publication of 'The Social Construction of Reality' (Berger and Luckmann 1967). It is based on Piaget's constructivism, the view that learning develops not through transmission but through the reconstruction of knowledge (Ackermann 2001; Burr 2008). Social constructionism emphasis learning and knowledge building through experiential learning and learning with others. Knowledge and social action go together and are situated in a social context (Crotty 1998; Charmaz 2008). The study of language and symbols as tools are important to it. It has been applied to settings in which technology and its artefacts play a mediating role as people interact with them (Ackermann 2001).

Social constructionism as an idea is controversial and has many detractors (Hacking 2000; Holstein and Gubrium 2008). Those who attack it do so on the basis of its subjectivism and relativism; 'truths, meaning, facts and values are now regarded as negotiable'(Scruton 2006). Rorty on the other hand stresses truth is 'what works' and that knowledge is based on social practice (Law 2007).

In attempting to define the term, Burr has written,

> There is no one feature, which could be said to identify a social constructionist position. Instead, we might loosely think of as social constructionism any approach which has at its foundation one or more of the following key assumptions (Burr 2008:p.2).

These features include a critical view of taken-for-granted knowledge, historical and cultural specificity and knowledge sustained by social processes. These approaches have influenced my research in a number of ways. I recognise that objectivity is not possible in a setting where research findings are constructed within a specific social and professional context (Cohen, Manion and Morrison 2007; Smyth and Holian 2008); that such research should be a democratic process, involving teachers and pupils as co researchers rather than research objects; that power relationships need to be explored and uncovered; that the analysis of language and symbolism will be important; and that taking a critical stance toward what is taken for granted is essential. Each of these elements has surfaced to varying degrees in this research and played an important part in developing my understanding of the nature of knowledge.

I am strongly influenced by the understanding that narratives or the stories that people and organisations tell in order to make sense of their reality are an important construct (Patterson and Monroe 1998). They influence practitioner work in the classroom and the interpretation that the researcher brings to this. Very often there are a range of different narratives at play and in conflict with each other. In the classroom this can range from the government promotion of a certain policy, the local education authority and school interpretation of that policy, through to a curriculum team or individual teacher's understanding. Unpicking these different levels of narrative is important.

4.1.3 Critical Theory

As my reading around the topic progressed I became interested in the literature relating to how the use of technology might change human behaviours and be used in a controlling as opposed to a liberating way (Feenberg 1996; Finlayson 2005; Feenberg 2008). I was particularly fascinated by Foucault's 'take' on Bentham's Panopticon (Foucault 1991) and inspired by this to produce a paper on the 'Digital Panopticon' (Fanning 2008a), linking learning platform use in schools to supervision and control as opposed to the more liberal interpretations of technology as a democratic and enabling tool. Action research and critical theory are very often linked in practice as both share a common aim in uncovering such relationships (Reason and Bradbury 2005).

Critical theory is not one theory but a set of theories whose aim is overtly political. It seeks to uncover power relationships and the interests at work in any given situation, in order to emancipate groups and individuals (Cohen,Manion and Morrison 2007). Critical theory has a view of a society that is egalitarian and democratic. Selwyn advocates such an approach in his study of digital technologies in schools.

> A critical analysis is a necessary step towards developing realistic understandings of the current educational technology landscape and, perhaps most importantly, towards realising the undoubted potential of these technologies. (Selwyn 2010:p.ii)

The landscape he describes is one populated by politicians, journalists, researchers, teachers, students, parents and those companies that supply the technology, all of whom influence the ways in which it is applied in a classroom setting. Feenberg, in the introduction to his critical theory of technology says that:

> Modern technology as we know it is no more neutral than medieval cathedrals or the Great Wall of China; it embodies the values of a particular industrial civilisation and especially those of elites that rest their claim to hegemony on technical mastery (Feenberg 2008).

Criticisms of this approach view it as utopian and at odds with the perceived independence of the researcher, but it has the advantage of making 'problematic what is taken for granted in culture' (Nichols and Allen-Brown 2001) and allowing the different layers of a social situation to be peeled away for analysis (Kincheloe and McClaren 2002). The impact on this thesis has been to raise an awareness of the influence, for example, of the commercial VLE provider in setting the agenda for classroom use of the technology. It has also enabled a consideration of issues relating to teacher choice in the application of the technology and the influence of central and local education agencies.

4.1.4 Activity Theory

Given what has been said about the multi-layered dimensions of the use of technology in a social setting, finding a model that would uncover what was happening as the different levels interacted with each other is important. Activity Theory or Cultural Historical Activity Theory (CHAT) as it is increasingly referred to is a model that supports this kind of investigation and has increasingly been applied to both the development of technology for learning and as a framework for investigating the impacts of this (Jonassen and Rohrer-Murphy 1999; Morrison 2003; Kaptelinin and Nardi 2006).

The basic concept of Activity Theory is that knowledge is mediated through tools or artefacts and analysed through an activity (Rizzo 2003). Its origins lie in cultural-historical psychology, developed in Russia in the 1920s and 30s by Vygotsky (Wells 1993). Leontiev, who worked with the latter, was the first to develop a version of activity theory and this has subsequently been developed into a third generation model (Choi and Kang 2010).

Leontiev's first generation model describes activity at an individual level. The relationship between the subject (who is involved in the activity) and object (why the activity is taking place) is mediated through tools as shown in figure 3 (Robertson 2008).
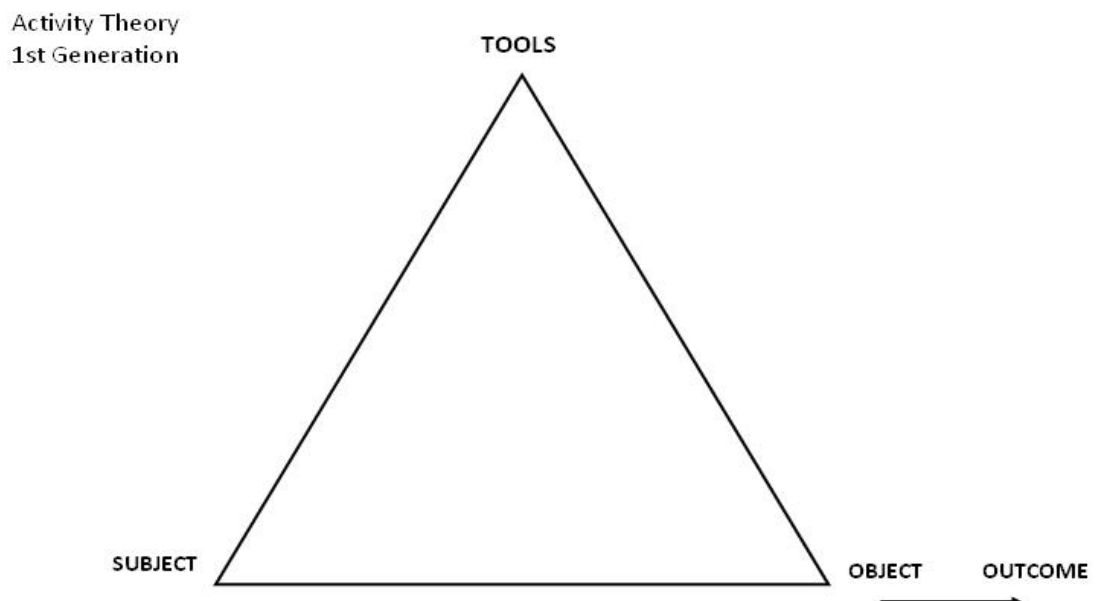

Figure 3. 1st Generation Activity Theory Model (Robertson 2008).

When applied to the classroom situation the subject would be the teacher, the tools would be the learning platform or the specific applications used in a learning opportunity and the object would be the learning objectives as expressed by the teacher.

First generation theory can be too simplistic to allow an in–depth exploration of the complexities of the classroom. For example, in any teaching scenario the member of staff will be influenced by the requirements of the exam board syllabus, the social and academic nature of the class being taught and the range of the teaching materials being used.

In the 1980s Engeström's popularised activity theory through the development of a second-generation model that included the concepts of rules, community and division of labour. It stressed the importance of collective rather than the individual activity of the first generation model (Waite 2005; Karasavvidis 2009) (see Figure 4). His framework has been used and adapted to analyse and understand the complex interactions that occur in the virtual world (Murphy and Manzanares 2007) and the face-to-face classroom when technology is used (Mwanza and Engeström 2005; Robertson 2007; Zevenbergen and Lerman 2007; Al-Hamadi 2008).
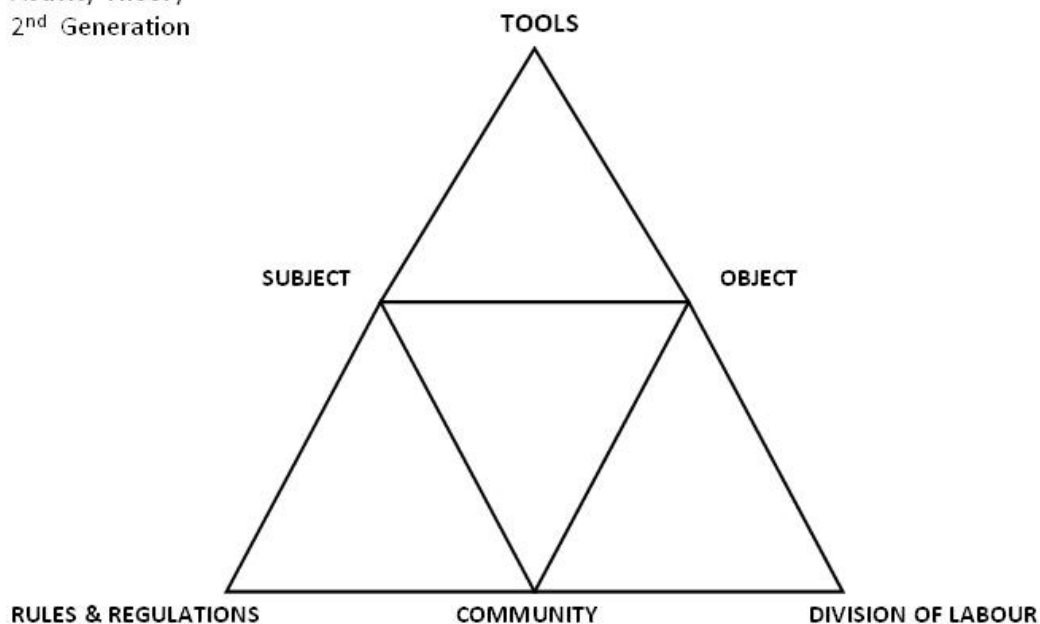

Figure 4. 2nd Generation Activity Theory Model (Robertson 2008).

Mwanza and Engeström (2003) described eight questions to support researchers in the application of activity theory:

- What sort of activity am I interested in (the Activity);
- Why is the activity taking place (the Objective or Objective);
- Who is involved in carrying out the activity (the subject or subjects);
- By what means are the subjects performing the activity (tools);
- Are there any cultural norms, rules or regulations governing the performance of the activity (rules and regulations);
- Who are responsible for what, when carrying out activity and how are those roles organized (division of labour);
- What is the environment in which this activity is being carried out (community);
- What is the desired outcome from carrying out this activity (outcomes).

It is this second generation theory and the questions associated with it that have influenced the framework for this research. CHAT provides a holistic approach to researching the use of technology in the classroom and not the traditional one based on cognitive research (Koszalka and Wu 2004). A key concept of activity theory is the principle of contradictions (Murphy and Riodrigeuz-Manzanares 2008). Contradictions are not simply problems or conflicts that arise, but they are 'structural tensions' within a system of activity and they are 'driving forces for change' (Engeström 2001b). For example, one of the supplementary questions in this research relates to flexible learning and the impact on the teacher. Where a new technology in the shape of the learning platform has been introduced into the classroom, a contradiction in teacher practice may arise when the technology clashes with an older system.

4.1.5 The Nature of Data

The relative value of quantitative and qualitative approaches to research has long been debated (Hoepfl 1997; Bassey 1999; Anderson and Kanuka 2003; Bryman 2004). Cook and Gorard (2007) believe that the division is a false one, imposed by different research camps in higher education. They argue that

building a comprehensive knowledge base requires a blend of both models. Some researchers suggest that this mixed method approach can better help to explain what is happening in the classroom, especially how technology is experienced by those who use it (Cohen 2007; Hitchcock and Hughes 1995). Selwyn adopts a more radical position in his study of education technology in Wales:

> When carrying out research I have tried to be careful to avoid what Rorty describes as *'methodolatry'* and must profess to have had no slavish desire or ideological leaning towards any particular research strategy or paradigm – just a desire to use techniques that result in deeper, richer and more accurate understandings of technology and education (Selwyn 2002a:p.79).

Whether a researcher resorts to *'methodolatry'* (Freeman 2004) or not, the different approaches are not value free:

> The key philosophical assumption upon which all types of qualitative research are based, is the view that reality is constructed by individuals in interaction with their social worlds (Merriam and Simpson 1995:p.79).

Whereas in a quantitative approach:

> The ontological position of the quantitative paradigm is that there is only one truth, an objective reality that exists independent of human perception (Sale, Lohfeld and Brazil 2004:p.44).

I agree with Cogill (Cogill 2008) that the complex nature of classroom interactions can best be uncovered through an enquiry that is qualitative in nature, although in reality there is no simple demarcation line between the two approaches.

In 2004, supported by a DfES Best Practice Research Award, I carried out a study on the impact of one particular VLE in the classroom (Fanning 2004b). In

2005 I completed a research dissertation into the use of an Integrated Learning System (ILS) in the same school (Fanning 2005). Both studies used qualitative and quantitative data, including interviews and lesson observations, alongside data generated by the technology. If both scenarios were to be considered in terms of the story they told, the quantitative data provided a framework for the underlying narrative. The qualitative data, gathered through interaction with the characters in the story, enabled a deeper understanding of what had happened and the rationale behind it. Prior to this research study I conducted a short pilot project to explore the nature of pedagogy within a history classroom, in order to explore different models of teaching. Data was collected through observation, teacher and pupil interviews, as well as a timed study of classroom incidents where these related to directed and group learning. Data from the timed study provided a valuable indicator to what was happening in the classroom. It did not allow for an interpretation or understanding of teacher and pupil beliefs and behaviours. It was only through discussion and interview that the latter could best be explored, although the quantitative data did enable and inform these discussions.

There are clear philosophical differences between these two approaches to research. This present study has adopted a blended or mixed method approach, although the reality is one of degree rather than a balance between the quantitative and qualitative.

4.2 Methods

The aim of my research questions is to investigate what teachers say or think is happening in the classroom, with the story that the breadth of research data tells, in order to approach a better understanding of what is happening. The methods employed are closely linked to the research questions.

- I have used questionnaires to assess teacher understanding and use of classroom technologies and the ways that they may link this to education policy;

- I have used classroom observations of the learning platform to assess ways in which the technology is integrated into lesson delivery and how such use can be linked to the themes within the personalised learning agenda;

- Semi-structured interviews with teachers explored teacher perceptions of this agenda, whilst questionnaire responses, surveys and platform data enabled a comparison between what teachers said they did, what action actually occurred and how skills, or lack of them, impacted on this;

- An examination of platform content supported an understanding of how teacher skills influenced the use of the technology;

- An analysis of platform data helped to explore the flexible use of aspects of the technology outside school hours;

- The use of school documents supported a better understanding of school context, the influence this may have had on teacher beliefs and the difference between policy and practice;

- Interviews with knowledgeable people outside of the school, including the school improvement consultant and a learning platform representative, helped to broaden the context within which this research is applicable (Leask and Kington 2000).

The initial research was proposed by the then Headteacher of the school, at a meeting with Michael Fielding from Sussex University. Both were discussing ways in which the school could support a programme of doctoral and masters research amongst teaching staff. As a result a proportion of the doctoral research programme was sponsored by the school, although this ceased when the original headteacher retired. The process through which data was collected in the school is outlined below in Table 2.

Phase	Process	Timescale	Detail
1	Construction and agreement of the Research Agreement (See Appendix 1).	June 2008	This was based on the BERA guidelines and agreed with the Headteacher and Chair of Governors (BERA 2004).
2	Presentation to all school staff about the research project. The research agreement was explained and a copy provided to all.	July 2008	
3	Staff Questionnaire Personalised Learning (Appendix 3)	September 2008	Completed by 50 teachers.
4	Lesson Observations	From October 2008	One lesson a fortnight/thirty-six in total.
	Lesson Observations involving the Intervention	January / February 2009	One lesson a week over six weeks/six observations in total.
5	Learning Logs	Term 2. November/December 2008.	Completed by 50 pupils.
6	Field notes	From September 2008	The project website was used to post
7	Staff interviews	From January 2009	One hour semi-formal interviews with six subject teams.
	Interviews with history staff, pupils and network team members involved in the Intervention	March 2009	One to one interviews with staff; small group interviews with pupils.
	Interviews with outside experts	July 2009	VLE education representative; local authority education consultant; ICT

			consultant.
8	Staff Questionnaire 2 Learning Platforms (Appendix 2)	January 2009	Completed by 50 teachers.
9	VLE data	From September 2008 onwards	Usage statistics accessed throughout the project
10	February Online / Flexible Learning Project	February and March 2009	A two week online project that took place as the school moved premises.
11	Staff self-evaluation / History intervention	January / February 2009	Self-evaluation forms (See Appendix 4) were completed for every history lesson that was taught by two members of staff – 36 evaluation forms in total.
12	Use of school documents	From September 2008 onwards	School Mission Statement; School Development Plan; Technology Vision Statement; VLE Development Plan.

TABLE 2. Data Collection Process.

As the research progressed there were opportunities to present tentative findings through publications and professional meetings. For example, in February 2009 Futurelab published an article that explored issues relating to flexible learning in the classroom. In January 2011 I made a presentation to teaching professionals at BETT 2011 that presented the learning platform framework that is described in the last chapter of this thesis.

4.2.1 Research Agreement

At the beginning of the research process I regarded it as important to negotiate a research agreement with the school, partly because of the sensitivity of some

of the data that might be collected, partly because of the added rigour and reflection this would bring to the research, but mainly because it was ethically the right thing to do. Some senior teachers felt that this was not necessary because '*we know you*' and '*we know you can be trusted*' and urged me to simply '*get on with your research*'. External research projects had taken place in the school, mainly BECTA sponsored, with pre-prepared agreements from the respective universities (Underwood, Baguley, Banyard, Coyne, Farrington Flint and Selwood 2007; BECTA 2008b; Underwood, Banyard, Betts, Farrington-Flint, Stiller and Yeomans 2009). Neither the school nor local authority had any formal agreement of its own. Mandatory research agreements are not part of the landscape in British schools, as they are in some other parts of the world. The final agreement (See Appendix 1) was based on the BERA revised ethical guidelines (BERA 2004). I also consulted the research ethics checklist from the Sussex Institute at Sussex University (Sussex Institute 2008, 2012), ethical guidance from Barnardo's (based on duty, rights, harm and benefits), the NFER Code of Practice and the British Psychology Institute relating to the conduct of research that involved children and young people (Alderson and Morrow 2004; Smith, Cowie and Blades 2008). Guidance was also available from the NTRP (DfES 2009). The BERA guidelines (BERA 2004) were circulated to all staff and governors. Details of the research were publicised in the school newsletter to parents. During face-to-face interviews and data collection periods both staff and pupils were reminded of these guidelines and their right to withdraw.

4.2.2 Anonymity

The guarantee of anonymity and confidentiality are usually features of this kind of research (Tickle 2002; Coghlan 2007; Altrichter, Feldman, Posch and Somekh 2008). There are some areas of research that would not be possible were anonymity not guaranteed (Mann 2000). It was agreed with the Headteacher that neither staff nor pupils would be identified by name, pseudonyms would be used and that confidentiality of sources would be abided by. Data would remain confidential and secured according to school data access policies and the Data Protection Act 1998. Subject areas may be mentioned by name and comparisons drawn in order to explore the questions

raised by the research. The latter was discussed at a subject leader and middle manager meetings and no objections were raised. It should be recognised that had the research dealt with an area of established practice such agreements might not be so readily forthcoming, as an unfavourable comparison might raise professional and personal issues within school.

Teachers involved in the research intervention within the History Department were aware that, although their names would not be used, it would be fairly obvious to other staff, governors and local authority advisors, who those History teachers were. Pseudonyms have been used throughout the thesis for all staff. All staff were made aware of this and were given a right of reply to the research. A similar situation arose in terms of the identity of the research school. Following convention, the school has not been named, although it should be recognised that it would be fairly easy for any reader, following the references, to locate the school. There was an awareness of the research within the local authority as discussions had taken place with advisers and teachers from a range of secondary schools within the locality. As already described, a separate school website also promoted research into this area of learning platform use and had done so since 2007 (Fanning 2010a) and I had made a number of presentations at local and national events about this work (BETT 2009; SSAT 2009b; BECTA 2009c). The Headteacher had always assumed that the school would be named, certainly at a local level within the authority, as it was only through an understanding of the context in which the research took place that readers would be able to draw judgements. Walford makes a strong case for the identification of research subjects based on this argument (Walford 2005). Following traditional research procedures however all references to the research school by name have been removed from this thesis.

4.2.3 Informed Consent

Although this research is about teachers and teaching practice, in the planning stages I assumed that there would be occasions when pupil involvement might be required, for example in the history intervention that features later in this paper. As a result I did prepare for such involvement and had to consider issues

relating to informed consent, although in the event not a great deal of data from pupil interviews was used. The issue of informed consent is a particularly important one where children and young people are involved (David,Edwards and Alldred 2001; Greene and Hogan 2009). BERA defines voluntary informed consent as:

'The condition in which participants understand and agree to their participation without any duress (BERA 2004:p.6). P6

Those pupils who might be directly involved in the research within the History project were a group of Year 10 pupils, aged 14-15. The research project was explained to them in a class question and answer session. Use of the learning platform in their history lessons was not voluntary. One pupil did ask if involvement in the project and use of the platform would benefit their studies in comparison with another group who were being taught without the use of the technology. This raises an important issue about the negative impact that such research might have on groups who are not part of the project. The professional judgement of teachers was that this would not be the case. The Head of Subject would track student progress in both lessons, based on school targets, to ensure involvement did not harm pupil achievement.

4.2.4 Power Relationships

There is no neutral ground in insider research in school where power is held unequally (Cochran-Smith and Lytle 1990; Alderson and Morrow 2004; Fielding 2004). I am a senior teacher in the school and have taught there since 1993. There is a range of reasons why teachers and pupils might feel compelled to take part in the research project. No member of staff voiced objections to taking part in the research; although on two occasions in interviews teachers said that they '*had to do some quick research on the topic being discussed in order not to be shown up'*. On a previous occasion I had been involved with the senior team of teachers in interviewing individual pupils about their opinions of aspects of school life and triangulating their responses. A number of pupils stated that they could not voice negative opinions when being interviewed by the Headteacher, especially in relation to issues such as school behaviour or quality of learning. It

would be naïve to assume that power relationships did not have an influence on my research. All research is intrusive and especially so in this case where the researcher is part of the social world in which the research is taking place and all participants are social actors in this (Hayward 200; Reason 2000; Lindsay 2002; Gaventa and Cornwall 2006; Smyth and Holian 2008; Punch 2009). Throughout the research process the need to maintain an awareness of this, along with the extent to which my own reflection on research impacts on others in school, was one more priority to be aware of (BERA 2004).

Data Collection and Data Handling

In Chapter 3 I described how I used the relevant official documents to identify the themes that I would be exploring in this research. In advance of any data collection I assembled a list of key words, phrases and terms that I could expect to analyse this data with to uncover common elements. At a professional teacher level and considering that the research was taking place within an institution that I was very familiar with, it was fairly easy to predict some of the terms that teachers might use to describe their professional practice. For example, in relation to assessment the terms summative, formative and AFL were ones that are used regularly. In respect of data that was collected from pupils a level of professional judgement was used to map their statements or evidence to the key themes. For example, when referring to flexible patterns of learning pupils could describe a range of practices ranging from 'working with my mates in the learning resource centre' to 'working on my own in my bedroom on a Friday evening.' Through out this process I was aware that working as a lone researcher can raise issues relating to the rigor applied to such codification. Researchers working as teams develop a shared understanding and practice (Pajares 1992). I am also aware that the story that subject teachers and pupils tell, the voice behind the research, can be lost as qualitative data is quantified.

The complexity of school life and the variety of ways in which the platform and its applications were used meant that data was collected in a variety of ways. This included classroom observations, staff and pupil interviews, school

documents, questionnaires, learning platform statistics, a teacher self-review and pupil learning logs.

4.2.5 Observations

Walford states a preference for observation.

> I do believe that much research would benefit from greater time being spent observing the activities of others and recording these observations in field notes and less time being spent in trying to construct 'hard' data from ephemeral conversations (Walford 2001:p.96).

I had used lesson observations as a means of data collection for two previous research studies (Fanning 2004b, 2005). As with that research, for this thesis, after discussions with teaching staff, I agreed upon an informal as opposed to formal approach to lesson observation. My research instrument was concerned about research with and involving participants and not 'off ' them (Fraser 2008). Formal lesson observations are carried out by senior teachers in school, take place by arrangement and generate a formal recording and feedback process that is part of teacher appraisal. Teachers wanted to be reassured that I would not provide feedback to their line managers on any issues relating to classroom practice, although I also had to clarify that in my role as a senior teacher I could be expected to address any professional issues that might arise during observations. I also preferred an informal approach to lesson observations, as this would allow me to visit classes without prior arrangement, stay for as long as I deemed necessary and also engage teachers and pupils in on the spot discussions about aspects of the technology being used. This had the benefit of immediacy in terms of responses to the use of the technology. These observations were recorded using an existing school lesson observation template (see Appendix 7) and supplemented by field notes. Notes were generally written up after the lesson in order not to interrupt classroom interactions. The lesson template required an observer to analyse a lesson in terms of assessment, differentiation, group work and homework. Employing this template meant that I could make a comparison with formal lesson observations

that had been carried out by other senior teachers, although there is an obvious issue relating to the subjectivity of observers.

4.2.6 Interviews

Semi-structured group interviews were adopted with teaching staff. I am aware that researchers should be concerned about the 'bureaucratic burden' of their research and limit the impact this has on the workload of participants (BERA 2004). Most of the interviews took place after school, as part of an agenda for a normal timetabled subject meeting, with an average of four staff being present in each curriculum area. Questions were made available to staff prior to the interviews. Whilst the aim of the interviews was to explore teacher beliefs and experiences, as already described, one subject leader did admit to having carried out some background research online as a result of the questions being made available beforehand and this had impacted on their understanding of the topic.

> "I thought it (personalised learning) was about students having (a) personalised timetable… With a mixture of in school learning, supplemented by off site college work. What I think it is about now is……..how we look at them as individuals and how they meet their individual targets".
>
> Head of Subject

This in turn influenced the outcome of that particular subject interview as the statement was at the beginning of the interview process with other members of the department present.

I know from previous experience of conducting interviews and from readings and presentations made during the EDd course that there are a range of issues that need to be considered when conducting interviews. Participants are generally biased against being negative and especially where insider research takes place they may tell you what they think you want to hear, rather than reflect on their own experiences (Wood 1998). Part of the reason for this lies in

the lack of equality of relationship between interviewee and interviewer, especially in a school where the researcher is the teacher (Bell 1999; Cohen, Manion and Morrison 2007). Walford is even more cautionary.

> We need to recognise that what is said (in the interview) will be co-constructed in that interview, and will be limited by perception, memory, evasions, self-deception and more on the part of the interviewee and interviewer, but that it can still have value (Walford 2001:p.95).

Staff interviews were recorded and transcripts made available to those who participated. It was agreed that the audio recordings would only be available to the researcher in school and deleted once the research period was completed. The transcripts were coded according to the core themes from the literature and relevant statements identified. For example, assessment and AFL were themes common to all of the policy and agenda documents. In staff interviews all subject areas identified these themes.

Interviews also took place with the school network technician who was responsible for supporting the technical aspects of platform development in school; a local authority IT consultant with responsibility for platform training in schools; as well as a representative from the education support department of the learning platform company.

Chapter 7 describes how pupils were recruited for interviews in relation to the intervention that was planned. As with all interviewees, it was made clear to pupils that participation was voluntary. Since pupils were aged 14 and above, permission was not sought from parents or carers as pupils were deemed old enough to make their own decisions regarding participation. Pupils were issued with a letter (see Appendix 13) that explained the purposes of the research and parents had been informed through a school newsletter that pupil interviews were taking place. As with the staff interviews, pupil ones were recorded and transcripts made available although as with the staff transcripts, no participant requested any changes to be made. My previous experience of pupil research interviews led to my decision to focus on an informal semi-structured approach.

In 2006 I carried out a series of formal, face-to-face, individual interviews with students aged 13/14, in the senior teacher offices in school. I had been given instructions not to deviate from the set questions and students had to select their answers from a scale of 1 to 5, where 1 was strongly agree and 5 was strongly disagree. Data from these interviews was used in a quantitative way to construct a report for the school governing body on student perceptions of learning and behaviour. The format of the interview felt strange and artificial. The results were treated as thought they were '*excavated facts'* and were used to form the core of a report that would recommend structural changes in school (Walford 2001). Students had no opportunity to take part in a conversation that might have brought greater understanding to the questionnaire responses.

My semi-structured interviews involved small groups of students (3 maximum). Being an insider has its benefits in that I had extensive knowledge of the pupils, with quick and easy access to them. I already had a good rapport with them and good working relations (Alderson and Morrow 2004). I had originally considered group interviews involving up to six students at a time, but after discussion with other researchers at EDd course tutorials accepted three as the maximum number. Interviews can be a social and political occasion with pupils vying for 'power' and managing such situations to prevent domination by any one pupil is essential, hence the size of the group. It also made transcribing conversations less time consuming. I appreciate that group interviews can be messy, that the body language, the look and the joke are impossible to record, but the interaction between pupils can reveal valuable information (Selwyn 2002a). I chose semi-structured interviews because they are flexible, questions can be tailored to each student and 'rambling' off topic can be encouraged; they give a deeper understanding of values, views and meanings; the provide rich, detailed qualitative data (Bryman 2004). As already mentioned in the introduction to this section, a degree of professional judgement is required in mapping pupil statements about their working practices to the key themes being researched. Pupils rarely use the language of teachers or researchers. Translating and mapping 'pupil-speak' requires a degree of interpretation.

4.2.7 Learning Logs

Ten pupils from each Year group, that is 50 in total, completed a learning log (see Appendix 12) during term 2, from November to December 2008. The logs were completed over a two-week period, matching the two-week timetable of the school. Pupils recorded on a daily basis where they used technology to support their learning in school and also what they used it after school hours. The aim of the log was to build up a picture of the technologies that pupils used, the subject areas they used them in and the purposes to which they put them. This data was cross-referenced to teacher use of technology and feelings of confidence in order to better understand why teachers used some technologies and not others in their classroom practice.

4.2.8 School Documents

As a senior teacher I did not assume that I should have an automatic right of access to any document or indeed a right publish its contents, without prior permission. I consulted a range of school publications, including documents that were produced by the local authority in relation to platform adoption, as well as reports from a strategic management group that had been established by the authority to promote platform use. Permission to access and quote from these documents was obtained from the relevant authority. In most cases all of this documentation is available from the school and authority websites. The documentation was useful in throwing light on the policy process behind platform adoption. The research school had also had an OFSTED inspection in 2007 and this was useful in providing an independent evaluation of technology use across the school. I also had access to independent research interviews and reports that had been carried out by BECTA approved researchers in the school and have used these, with permission, to compare with my own findings.

4.2.9 Questionnaires

The whole staff body completed two questionnaires, one focussing on teacher uses of technology and the other on personalised learning (Appendix 2,

Appendix 3). Questionnaire data was used to inform the questions that were asked in interviews (Gaventa and Cornwall 2006). The design of the questionnaire, use of language, the number of questions and how they are conducted can impact on responses. Teacher questionnaires were piloted with a small group of newly qualified staff before being adapted and circulated. As a result the number of questions in the final questionnaire were reduced and a qualitative scale of responses was used with few simple yes or no answers. Advice from the pilot group suggested that delivering the questionnaire online would reduce the work burden on staff, it could be done anytime anywhere staff had access to a PC and would allow staff time to reflect. In practice this method of delivery had to be changed. The first attempt at running a questionnaire online led to only 7 teaching staff out of 40 completing it. Staff interviews suggested the reasons for this were that teachers felt inundated with school surveys and that they simply deleted email requests before reading them. Time was subsequently set aside, by agreement with the Headteacher, in staff meetings for teachers to complete questionnaires, ensuring a much higher completion rate. Staff were made aware that participation was voluntary, although peer pressure even amongst teachers comes into play and the unwilling will complete. Staff were given the option of not recording their names on the questionnaires and it was explained in the staff meeting how the data would be used and that no names would be recorded but that for the purposes of mining the data for comparison purposes e.g. between views of subject leaders and classroom teachers or senior managers and teachers, it would be important to identify themselves and most did.

4.2.10 Learning Platform statistics

The local authority uses data extracted from the platform to evaluate school use of the technology across the authority. Measurement is based on the overall number of staff and student 'hits' or visits per school, as well as the size of the file storage space that individual schools are using. This is a crude measure at best. Overall hits explain little about who is using the platform, for what purposes or the outcomes of such use. The figure simply reveals that the platform is being accessed. Similarly, the amount of storage space a school

accesses allows no interpretation of use and it would take only a few relatively large file formats to skew the figures in favour of one institution. For the purposes of this research both quantitative and qualitative data was extracted from the platform.

Quantitative data included a break down of who was using the system across the school, by year group, by subject groups and by individuals, including teachers as well as pupils. Qualitative data related to the use of the platform applications for the purposes of learning and mapping elements of these on to the themes identified from the literature review.

4.2.11 Teacher Self-review

I supported a member of teaching staff in the design of a teaching opportunity on the learning platform. There are issues with the use of such an intervention for research purposes but, where other such samples don't exist, this kind of project can be useful in terms of informing future research, theory and practice. In the first instance the nature and purpose of the intervention was described at a subject leaders meeting in the school and volunteers requested. Janet, a history teacher, who was also mentoring a university student at that point, volunteered to be involved and also recruited her Head of Subject, Paul, to the project. Janet had taught in the school for 8 years. She completed her Masters in Education in 2007 at a local university and had used the VLE there to support her studies. In 2008 she had experimented with setting up an online class on the previous school VLE, to support the teaching of GCSE history with a small group of four pupils who were taking the qualification, on an after school basis, as an enhancement to their studies. Janet had an understanding of the applications that could be found on the VLE and some experience of file sharing and forum use. Two classes of twenty-four students each, aged 14-15, were involved in the project, along with the two history teachers. Students attended two one-hour lessons a week at the same time on the timetable. The programme of study would take six weeks to complete and focus on the completion of a unit of coursework. Janet's class would have access to the learning platform during every lesson whereas Paul's class would not. The total

number of pupils involved was 50 and this is recognised as an adequate sample size for statistical analysis (Cohen 2007). I would recognise that significant pupil absence with a sample of this size could have an impact on data and its interpretation, especially qualitative data relating to areas such as pupil behaviour. The intervention was explained to the students. They had no choice in attending lessons and using the platform, but they did have a choice in further participation in the project through student interviews. In the event, only one student chose not to take part in further research interviews. In Paul's class two students asked if they would be placed at a disadvantage by not using the learning platform. Paul addressed such concerns. A comparison of data collected would then be drawn between the two teaching opportunities. A self-evaluation form was created in collaboration with the teachers to measure aspects of the lesson (Appendix 4). Interviews with pupils from the intervention group took place in small groups of three. The intervention is described and analysed in detail in Chapter 8.

4.3 Core Themes and Context

Walford suggests that many research projects based in schools are undertaken 'in a particular location because it provided a convenient site for the researcher' and that in some cases the choice of site was not relevant to the research topic (Walford 2001). Convenience was an element in this research. It seemed fairly obvious at the start of the research process that attempting to 'hold down' full-time employment and complete an professional doctorate would only be possible were research to take place in my place of employment or in at least an area closely linked to it. It is fairly obvious that the small-scale politics of school life have an impact on research. The Headteacher regarded the research, as demonstrating that evidence based practice was a priority in the institution. The choice of research topic was obviously relevant to the school, the local authority, but also to a wider educational audience. Key to undertaking it was my own personal and professional interests and I was under no pressure from the school to pursue this line of enquiry. My position in relation to the research question has already been described at some depth although I need to stress again at this point that I am aware of the dangers of a lack of objectivity

(Kanuha 2000); of the research being seen as a promotional tool for the school; of the importance of maintaining intellectual rigour in all aspects of this project. At no point have I been asked or made to feel that any of the observations or recommendations made in this thesis should be changed.

In the next chapter I begin to explore and analyse teacher understanding of personalised learning, along with perceptions and practices relating to platform use.

CHAPTER 5

Analysis: Teachers, Personalised Learning and the Learning Platform

5.0 Introduction

The implementation of government policy can have the appearance of a fairly straight forward process, from the issue of policy statements by a central education department, through local authority support mechanisms to the execution at a school level (Selwyn 2010). Hayward and Jerome, in their analysis of policy delivery in education, describe a process of '*lossiness*', where for various reasons the original intent of the policy makers is diluted (Hayward and Jerome 2010). In this chapter I will explore teacher understanding of personalised learning, as well as the classroom uses of a learning platform, in the research school. Understanding how teachers arrive at their own definitions and what influences their eventual practice is a complex issue. Explaining the alignment, or lack off, between self-reported data from teachers and that collected through observation or electronic means, can reveal a '*lossiness*' not only between policy makers and schools but also within schools themselves. It was not until the research process was well underway that I began to appreciate just how much teacher understanding and practice could differ between subject areas and how this might be linked to staff roles within the school management structure.

A number of qualitative descriptors are used throughout this thesis. They are based on the OFSTED house style, it being a model that teaching staff have been familiar with (see Table 3):

Proportion	Description
97-100%	Vast/overwhelming majority or almost all.
80-96%	Very large majority; most.
65-79%	Large majority.
51-64%	Most.
35-49%	Minority.
20-34%	Small minority.

4-19%	Very small minority; few.
0-3%	Almost none/very few.

Table 3. OFSTED descriptors (OFSTED 2009c).

5.1 Background

In July 2008 all staff in the research school attended a training session on personalised learning. The event was organised by the local authority School Improvement Service. The package of training was one that would be implemented across schools in the authority and was delivered in two parts. In the first part the focus was on updating staff on aspects of theory related to learning, including multiple intelligences (Gardiner 1993) and right-brain-left-brain theory (OECD 2007). The event did not touch on any aspects of theory relating to e-learning. In the second part presentations were made on assessment for learning, differentiation and collaborative learning. During that same day a learning platform demonstration was made by myself focusing on the adoption of the technology from September of that year. I also described the research that would take place and the research agreement that would be put in place (see Appendix 1). A further programme of optional training sessions over the course of the year, delivered by senior teachers, supported the one-day workshops. According to school records, only a small minority of staff subsequently took part in these voluntary sessions. At the start of the new term all pupils undertook an induction programme in technology lessons that introduced them to the features of the platform.

I could be sure that at the beginning of the research period, from September 2008 onwards, all participants in the project had a basic understanding of the technology and that teaching staff had the opportunity to reflect on issues relating to the personalised learning agenda.

5.2 Teacher Definitions of Personalised Learning

The questionnaire that was conducted at the beginning of the research period in September 2008 asked teachers:

- If they had visited any of the DCSF websites relating to the personalised learning agenda (59% had);

- If they had discussed personalised learning at a departmental meeting (89% had);

- And if they had attended training relating to it (57% had).

Teachers were also asked to assign a level of importance to elements of the personalised learning agenda. The elements that I selected for the purposes of the questionnaire were based on the official documentation.

The results showed that:

- Most staff (54%) identified the provision of differentiated learning resources as the most important element;

- A minority (49%) graded one-to-one support for pupils on a par with pupil access to computers outside the classroom;

- Small group work (46%), assessment strategies (41%) and student access to learning resources (41%) outside the classroom were ranked as the next most important in that order;

- A very small minority regarded parental access to assessment (19%) and to learning resources (11%) as a priority.

One of the mandatory targets within the Harnessing Technology White Paper was parental access to online assessment data by 2010, a priority for policy makers but as the data would suggest, not at this point for classroom practitioners.

During the research period subject leaders were asked to self-assess their departmental progress in implementing AFL strategies for an audit being carried out by the local authority. An audit grid (Appendix 5) was provided that graded AFL practice as *focusing, developing, establishing* and *enhancing*, with descriptors for each level. The majority of subjects considered themselves to be secure in focusing and developing strategies. PE, Science and Design and Technology (D&T) subject areas and Team 7, that group of teachers who collaboratively planned and delivered the Year 7 curriculum, considered themselves to be established and moving towards enhancing such practice. D&T would be one of the subject areas that focused on using the virtual environment to support formative assessment strategies.

School observations undertaken by senior teachers on learning walks through classrooms over the period of one term and focusing on assessment, group work and differentiation, suggested that in each of these areas there was much variation in practice. The judgement of the team was that:

- Assessment tended to be summative in nature;

- That group work mainly involved pupils working in pairs to support each others learning;

- That teachers did not understand how differentiation could be best implemented.

The vast majority of teachers implemented the school policy of displaying differentiated learning objectives and outcomes on their classroom whiteboards (IWB). Objectives were explained to pupils using the phrase '*We are learning to*' (WALT) and outcomes with '*What I'm looking for*' (WILF). Objectives and

outcomes were further broken down into what *'all, most* and *some'* of the teaching group could achieve. Classroom assessment did not appear to reflect these levels of differentiation.

The September questionnaire was followed by semi-structured subject interviews in Terms 3-5 (January – June 2009) during which groups of teachers were invited to respond to the single question 'How do you define personalised learning?'

Amongst the group of four senior leaders / school managers there was little variation. They used the following descriptors:

- It is part of the standards agenda;

- It is about pupil attainment and progress;

- It is about getting grades;

- It is about the government being able to measure progress.

All felt that there had been a change in the agenda since its inception and that in 2004 it would have been possible to talk about personalised learning as a programme that met individual needs and was concerned with pupil centred learning and differentiation, as well as curriculum choice. Whereas it was now concerned with assessment and monitoring and that this was what technology was 'good at'. The position of the management team in relation to personalised learning would appear to match Leadbeater's description of shallow personalisation (Leadbeater 2004).

In curriculum interviews all of the subject areas independently referred to assessment, differentiation, one-to-one support, small group work, pupils as independent learners and flexible learning, by which they meant pupils progressing at their own pace. Mathematics was the only subject area to include parental support and involvement in the discussions. The Head of

Science was the only one to stress that both assessment and 'pupil's meeting their individual targets' were the main features of the political agenda. When this was discussed with him afterwards he said:

> As a Head of Subject I did not want to be 'shown up' in discussions with my department so I did prepare for the interview by researching online. Had I not done this, my contributions would have focussed on differentiation, partly because there has been so much focus on that in school, as well as group work and flexible learning. I was surprised that, after I had done my research, there seemed to be such a focus on assessment, targets and results. That's what we do anyway, don't we?

The BECTA Harnessing Technology Review 2008 study, of which the research school was one of the participating organisations, stated that that there was a range of definitions of personalised learning in schools. The Review also found that there was a difference in understanding and practice between school managers and classroom teachers (BECTA 2008e). In both respects the findings of this chapter match that larger national study.

In the Harnessing Technology Report for 2010 it was stated that one of the most frequently identified activities involving the use of technology that teachers wanted more training on was personalising learning (BECTA 2010b).

5.3 The Learning Platform

96% of schools in the local authority used the same learning platform. An assessment of staff perceptions and use of the platform was carried out at a mid point in this research process through a staff questionnaire.

Most teachers were aware of a number of commercial platforms. From a list of platform providers, the majority recognised the brand names UniServity (95%) and Fronter (84%), the latter being the platform previously used by the Information Technology department in the school. Frog, Kaleidos, First Class, Moodle and other providers were familiar to a minority (10%). Those staff that

had qualified as teachers within the past three to five years were the only group to express an awareness of all of these platform solutions. This included Moodle, although when questioned about their university or college platform they tended to use the branded name for the service rather than the product. For example, Student Central was the name given to the service at Brighton University rather than the platform on which it was hosted.

In school interviews, when asked about the learning platform, some staff responded '*do you mean the school website*'. The terms and metaphors used to describe these products can vary, which in turn can impact on the ways in which users view the technology (Ellaway 2005). In 2008/09, when the school website and platform were integrated in the research school, the platform was described most commonly as 'the school website'. UniServity, the company that supplies the technology, refers to its product as a CLC or collaborative learning community and this acronym had been used in all local authority led training courses.

There can be a blurring of boundaries between some of the individual applications that are used in school to support learning and those found on the platform. For example, whilst the research school host's email on its internal server, this can be accessed independently through any web browser and it was also integrated into the learning platform. When teachers who took part in the Nottingham Trent University research into platform use were asked to list the features of their school platform, the overwhelming majority identified email, but it is unclear whether this was being used in an integrated way within the platform or as a separate application. When asked if they provided learning support to pupils via email within school hours, the vast majority of staff (84%) in the research school said yes. A smaller majority (53%) provided out of school support using email. These figures suggest that there is a culture of using communication technology to support learning both within and outside of school hours. The majority of staff agreed that supporting out of school learning was a key element in learning platform use although they raised issues about staff workload and the nature of school structures, including timetables and the fixed timings of the day.

A very small minority (10%) of staff said they used the platform most of the time to support teaching in lessons. Most (58%) recorded that they did so on an irregular basis, whilst a small minority (32%) said never. When questioned about irregular use most suggested that they might access the platform once or twice a term for specific information or specialist project work. This reflects statistical data from the platform itself that showed a very small minority of staff making regular use of the system. Those who made least use tended to be senior staff, who had few teaching commitments or those teachers who had little pupil access to technology in the lessons they taught unless they made a specific booking for the school computer suites. The most recent BECTA research figures suggested that 67% of secondary schools were making irregular use (Ball 2010) of platforms, although there is very little definition or description of what this irregular use might look like in practice.

74% of teachers felt that platforms were an important technology for personalised learning (although this may reflect school policy rather than a personal belief) or that it would be the most important technology developed in school in this respect. Again this matches national findings. 70% of secondary schools responding to a BECTA research request expressed the view that they were using their platforms for personalised learning activities (BECTA 2010b). Only a small minority (26%) thought that the technology would emerge as just one application amongst many.

As has already been highlighted, one of the difficulties in using the term learning platform is that it is not one technology, but a technology made up of different applications. Teachers were asked to select which feature within the platform they had used most:

- 42% said forums,
- 32% uploading of files,
- 26% the survey tool,
- 21% had used the wiki feature.

The local authority ICT consultant stated that wiki was the most common feature that he had seen being used across the authority and mainly in primary schools. Whilst the vast majority of those respondents to the Nottingham Trent research project knew that all of the above features existed on their school platform, only a minority claimed to have used them.

One common theme that emerges from staff questionnaires is the disruptive nature of the technology in relation to existing working practices. A large majority (68%) thought that preparing a lesson using the platform took more time than a traditional face-to-face lesson. In departmental interviews, a majority of staff felt that lesson preparation using the platform would take more time than traditional planning, but that a longer-term time saving might occur, as resources could be re-used. This again is reflected in the most recent BECTA research (BECTA 2010b).

When asked what was the greatest barrier to platform use 37 % of teaching staff felt that an understanding of the pedagogy of platforms was essential to using them properly, 31% referred to lack of technical skills, whilst 32% said lack of classroom access to computers.

The skills issue is more complex than it may at first appear and the example of the Modern Foreign Languages (MFL) area on the VLE illustrates this. Figure 5.0 is a screenshot of the MFL homepage on the VLE. The subject leader wanted the area to contain links to files that pupils were using in lesson time, to images of a recent pupil visit to Paris, as well as a forum area that could be used to evaluate aspects of pupil literacy in French. The network team had assumed that after providing a basic training session individual teachers would have the necessary programming skills to create their own subject home pages. The subject leader in MFL explained some of the issues:

> I had completed a training session with a member of the network team, but what they had thought of as basic skills seemed quite complex to me. Part of the problem was that having been taught I simply didn't then have the time to put the skills into practice and I soon forgot what to do. The VLE didn't seem that intuitive…….and when it comes to website design I

also felt at a loss as to how to design a page that would look good for pupils…..I think this really should be the role of a technician.

Sandra/Head of MFL

Figure 5 is a copy of the MFL homepage as a school technician finally designed it. Figure 6 is a screenshot of the design interface that the Head of MFL referred to as not 'intuitive'.

Figure 5. Screenshot of MFL Homepage from the VLE.

Figure 6. Screenshot of the VLE design interface.

The information collected from the staff questionnaire was complemented by statistical data from the learning platform.

5.4 Statistical Data

Some limited statistical data is available from the platform, including details of the number of unique log-ins made by staff. By July 2009, the end of the data collection period, 6 (15%) members of staff had not accessed the platform; 2 from English, 1 from PE, 1 from D&T and 2 from Mathematics. Within the English subject area development of the platform remained exclusively with the Head of Department who used the forum and file sharing tools. In that subject

area there was no whole class access to computers and classes had to be booked in advance into the school computer suites. The PE statistic was the result of a member of staff who was on maternity leave. In D&T and Mathematics areas neither subject leaders used the platform. In D&T two newly qualified teachers carried out platform development. Mathematics had been using a separate online commercial service that provided electronically marked self- assessment exercises and revision for pupils and allowed staff to track pupil progress in a more sophisticated way than that of the platform. Most Mathematics teachers were in effect using a VLE, but not the platform in use across the rest of the school.

The average number of unique user log-ins per member of staff per year averaged out at 26, that is over the course of the year most staff had accessed the platform on that number of separate occasions. The modal number of visits was 21 and the median number was 17. The staff average excludes ICT teachers. Greatest use of the system was made by these teachers with 45 'visits' by the NQT over a two week period; 202 visits by the full-time member of staff over a 6 month period and 267 visits by his predecessor in a 5 month period and 1395 visits by the subject leader. This level of access is reflected by the level of student use of the system and the ways in which the platform had been embedded into most Year 10 and 11 ICT lessons.

The Senior Leadership Team (SLT) of four teachers averaged 14 visits. The highest levels of use, apart from ICT, could be found amongst those subject areas and staff who had attended the initial consultancy meeting, reflecting similar research findings from BECTA and OFSTED relating to the use of new technologies by 'early adopters (OFSTED 2009a; Jewitt,Hadjithoma-Garstka,Clark,Banaji and Selwyn 2010).check The history teacher involved in the intervention project had mainly used the platform for teaching of the six-week intervention and beyond that had little accessed the platform.

A minority of staff were responsible for most regular use of system, whilst the majority had accessed the system on an irregular basis and purely for specific teaching and learning projects. The highest levels of use by staff occurred in

February/March, coinciding with the development of a February Online flexible learning project, where every subject area was instructed to create a lesson that pupils could access over the school holiday period. Some levels of use may be 'seasonal' i.e. dependent upon what is being taught within the curriculum e.g. English use increased as forums were developed to support GCSE exam revision. Visits by NQT staff (not including ICT) averaged 43; this is higher than the staff average. It should be taken into account that learning platform training was part of the NQT induction process, including at least one lesson observation involving platform use. *10 (25%)* members of staff had used their accounts after school hours (up to 10.25pm). *2 (5%)* of staff had accessed their accounts at weekends. These findings tend to reflect those from national studies (OFSTED 2009a; Jewitt,Hadjithoma-Garstka,Clark,Banaji and Selwyn 2010)**.** Data from the local authority, based as it is on individual log-ins and storage space used, suggests similar patterns of use.

5.5 End note

There was a close alignment between the self-reported data from staff and what observations, interviews and electronic data suggested. One benefit of insider research is the way in which follow up discussions can take place when data sources don't appear to match or tell the same story. For example, in subject interviews all staff claimed to have used the platform whereas data from the system suggested they had not. In PE this was explained through the ways in which senior pupils had supported the design of online content for the subject as teachers stated they neither 'had the time' nor the technical skills to programme the system

Similarly, a sizeable minority of teachers said that they had not attended training in relation to personalised learning, yet most had been present at the local authority-training day in the previous term. This disparity was discussed with a small number of teachers. They remembered the day as being about assessment for learning and 'brain-training' but did not necessarily identify these with the term personalised learning. This re-enforces the benefits of a mixed method approach to research. It also reflects a common theme in the education press about the imprecise definitions of the policy in the minds of

classroom teachers (Hastings 2004; Field 2006; Gibbons 2007; Freedman 2008). In the next chapter I will examine the core research themes assessment, collaboration, differentiation and flexibility as they relate to classroom practice.

CHAPTER 6

CLASSROOM PRACTICE: assessment, collaboration, differentiation and flexibility.

6.0 Introduction

Through an analysis of policy statements and official literature the key themes that are explored in this thesis were identified. They were assessment, collaboration, differentiation and flexible learning. In this chapter each of these themes is analysed separately in relation to learning platform use in the classroom, although there is some overlap between them as classroom practice is rarely so compartmentalised.

6.1 Assessment

There are a number of assessment tools available to teachers on the learning platform. The *task tool* (see Figure 7), for example, automates the setting of work tasks for students. It can be used with individuals or groups. When work is completed it can be automatically sent to the teacher, who will grade it and post it back to the pupil, with marks then appearing in an online mark book. The use of the task tool for summative assessment purposes was attempted in only one subject area in the school and then abandoned. The teacher explained that he did not have the technical skills required to programme the tool. Most students commented on difficulty in navigating the screen interface associated with this. There was no evidence of other subject areas using this tool.

The *quiz tool* (see Figure 8) enables the design of assessments in a range of formats that includes multiple-choice questions as well as essay style texts. The tool was used by the ICT and Science departments to simulate end of key stage GCSE paper based exams. These could be used in a formative way to identify areas where pupil understanding was weak and in a summative way to mirror what end of course results might look like. There was some evidence of teachers engaging pupils in face-to-face discussions relating to a diagnosis of the results from the tests based on data from the platform, but there was little evidence that this was happening in a regular or systematic way. Teachers in

the ICT area programmed assessments themselves. Science staff had to use support from the school network technician until a member of their team was trained to programme the assessment tool.

Figure 7. Screenshot of the Task Tool design interface from the VLE.

Science, History and English subject areas also made previous exam papers available to pupils to download, complete and submit for marking (see Figure 9). This happened most frequently during the February Online project, which is described in greater detail later in this chapter. A minority of pupils (47%) chose to collect paper-based versions of these past exam papers rather than those in electronic format. A very small minority of pupils (6%) described technical problems downloading and opening files on their home computers as they did not have the necessary software installed.
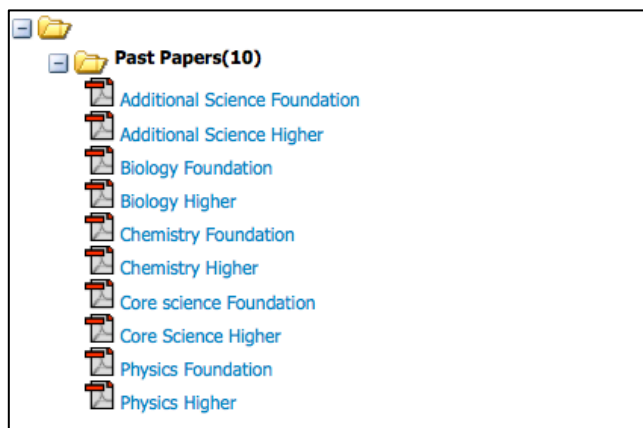
Figure 8. Screenshot of the Quiz Tool.

Figure 9. Screenshot from the Science Department download area.

Assessment was a theme that was raised by all of the subject leaders in interviews and the Head of Science expressed the view that summative testing was what learning platforms did best. As previously described, the senior leadership team supported this view. Where the platform was used for assessment purposes it appeared in the majority of cases to mirror those

summative assessment strategies already in place in the classroom. In the minority of cases where it was used to support formative assessment it was the forum application that was employed, although use varied. Where English and History subject areas had integrated forum use into lessons or to support learning, pupils appeared reluctant to contribute. In English the subject leader established a forum to support assessment for Year 11 exam students. Only a very small minority of students actively visited or contributed to it. The teacher attempted to explore in an online discussion why students thought this might be the case. The following is an extract of responses:

Teacher(TS1_teacher) 27 Jan 2009 16:12
Why are you so reluctant to write anything on the forums?

Pupil1(TS1_pupil1) 05 Feb 2009 14:04
I think some people are just too afraid to show their opinions to everyone else in case they are judged.

Pupil2(TS1_pupil2) 16 Mar 2009 10:44
I don't think that people are scared as such to leave comments i just think that maybe not enough people look on here. I do see what you mean though 20 people viewing the forum and 2 leaving comments.

Pupil3(TS1_pupil3) 24 May 2009 08:44
It's because we don't have many strong views on improving English, it's nothing personal it's just people will only comment on forums if absolutely necessary.

Pupil4(TS1_pupil4) 03 Nov 2009 10:58
Maybe people are scared about being judged...Maybe they are worried about negative feedback they could get...But I'm just wondering, in all honesty, can using the forum actually make a difference?

These statements reflect what can be found in the research literature relating to forum use in higher and further education (Hiltz 1998; Williams 2004; Wu and Hiltz 2004; Salmon 2005a). A key issue may be that where a forum is not linked to formal assessment or where the nature of the assessment is not understood then pupils see little value in using it. Forum training or lack of it may affect outcomes. The public nature of the forum may also be off-putting. Although not within the remit of this paper, this is an area of research that is thin on the ground in relation to the secondary age range. Questionnaire results suggested that there was an assumption amongst a very large majority of teaching staff that pupils instinctively knew about technology and understand how and when to use it, especially in the context of networked technologies since use of social networking sites was endemic amongst pupils. In a pupil survey the vast majority claimed membership of Bebo or Facebook social networking sites. Student confidence in the use of technology was a recurring topic in staff interviews, with little differentiation made between different kinds of technologies. This is a theme in the literature relating to the use of technology by this generation of young people (Tapscot 1998; Green and Hannon 2007; Sheard and Ahmed 2007). The skills involved in social networking however may not be the same as those required for classroom use of technology, even where the tools appear to be similar.

Other examples of forum use for assessment purposes could be found in ICT and Year 7 History subjects. During a three-week unit of work in technology, forum use was built into lessons (see Figure 10), with a basic requirement for pupils to post a message into the lesson forum and respond to at least one other message (see Figure 11). The vast majority of student responses on the ICT forums were either short in nature and/or stating a simple opinion, or social messages with little relevance to the subject matter of the lesson. Whilst the teacher aimed to assess pupil input over the duration of the project through the forum, what he did not have was a model of introducing forum use to pupils or an assessment guide on which to base forum use.

Figure 10. The ICT Subject Area.

Figure 11. An example of postings to the ICT Forum.

The two teachers who taught the Year 7 History lessons delivered these as a three-week project based set of lessons. Both were teaching similar groups in teaching rooms that had sufficient PC access for whole class use. Both had recently graduated as teachers, had used their university VLE to support their courses and had attended a workshop relating to forum use. They had been introduced to Gilly Salmons advice on the planning and moderating of forums. They wanted to use the platform for two main purposes:

- To provide a central area where students could access a range of differentiated resources;

- To use a forum through out the lesson to assess pupil understanding of the learning objectives (formative assessment).

Both teachers met with the network support assistant to 'describe' the lesson. He created a separate area for each class and designed a basic page for teachers to upload lesson resources to. He also established an individual forum for each class. Teachers then uploaded learning resources and the network assistant refined designs (see Figure 12). Both teachers began by reminding their pupils of the school netiquette policy and ran a short training session on forum use, including the importance of threaded discussions.

In evaluating forum use within the lessons one of the teachers described the experience:

> All forum posts were displayed on the IWB. I began to explain that whilst it was great that students had posted, some of the posts were irrelevant and inappropriate. I went on to explain what a threaded discussion was and gave students an example of this and showed them how to continue a discussion ……although it will take time to develop with students the concept of a threaded discussion. I plan to continue to have 'practice' forums in the next few lessons and each time to review learning on the previous forums.   Anne

The teacher had also been equipped with an assessment model, adapted from the work of Brown and Davis (2004), upon which to base judgements about forum use (see Table 4),

Within the history lessons that were observed the majority of students contributed statements relating to the learning in the lesson on the forum. Most students began their postings with a social message to other members of the group. Although most students posted simple statements that fall into the category of surface learning, a minority began to engage in a threaded discussion. This lesson area was used over the next three lessons and input

into the lesson forum encouraged between lessons over that period of time. A minority of students made such an input.

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Figure 12. A screenshot of the Year 7 lesson area.

Low quality (surface learning)	High quality (deep learning)
Asking for simple factual information.	Independent analysis.
Stating an opinion not backed up by explanation.	Reflective thinking.
Going off-task.	Introducing material beyond the teaching units.
Lack of precision.	Reporting a real world observation as an exemplar.
Short responses.	
Sweeping generalisations.	Questions clarifying ambiguous points.
Impractical solutions.	New relevant information.
Claims not backed by evidence.	Opinions backed up by facts.
Questions that have a negative impact on discussions.	Synthesis of given information
Anti-social or personal comments.	Hypothesis where testing would lead to new insights.

Table 4. An Assessment model for Forum use.

Within the history lessons that were observed the majority of students contributed statements relating to the learning in the lesson on the forum. Most students began their postings with a social message to other members of the group. Although most students posted simple statements that fall into the category of surface learning, a minority began to engage in a threaded discussion. This lesson area was used over the next three lessons and input into the lesson forum encouraged between lessons over that period of time. A minority of students made such an input.

The way that Year 7 teaching is organised is different from other curriculum areas in school and it is worth considering here the influence this may have on approaches to online learning.

Team are the group of five teachers who deliver the bulk of the Year 7 curriculum, the aim being to bridge the difference between primary and secondary teaching in reducing the number of teaching staff that pupils encounter. The Head of Team described the team approach as one of collaborative planning, teaching and learning. Learning through cooperative or collaborative group work was emphasised within the curriculum and lesson observations suggested this was the situation. Using the self-assessment framework for AFL, the Head of Team identified AFL as at an established stage. Taking into account the influence of the researcher in providing a model of assessment for online discussions, it is clear that in terms of classroom culture and practice the Team 7 approach to teaching was significantly different from other subject areas within school and was modelled on a more primary approach to planning, with project and group work being the dominant model of teaching and one which lends itself better to formative assessment strategies, as evidenced by the examples of forum use in the Year 7 history lessons.

The Design & Technology department attempted a longer six-week programme of study with the forum being used for formative and summative assessment purposes. One of the D&T teachers assumed responsibility for platform development within the department and focused on designing an online departmental area, with file access and news areas. The other integrated forum use into the classroom teaching of a Year 9 class over the course of one term. The class had to produce a design for a sign for the department. Course assessment criteria stated that pupils should create an initial design, consult with users and make improvements. It was a collaborative project with each student taking responsibility for one letter of the design. Byron aimed to use the class forum for collaboration purposes and to support formative assessment during the six-week unit of work. The class was a mixed ability one of 16 pupils. All had access to the Internet from home. All had used the platform in ICT lessons and had therefore acquired certain skills in using it. Each student had their own discussion thread within the class forum, into which his or her designs were scanned by the network assistant and uploaded for discussion and feedback (see Figure 13).

Figure 13. The D&T Forum.

Over the six-week period of the lessons the average number of message posts per pupil was 7 and the average number of views per pupil was 68, that is the number of times a pupil viewed or read another message. The ratio of views to posts was 10:1. This reflects a common pattern in forum use in further and higher education (Williams 2004; Salmon 2005a). A similar situation was observed when a forum was used by the Social Education department with pupils on the schools previous platform (Fanning 2007a). Using the Brown and Davis model, out of a total number of pupil posts of 111, 60 could be categorised as low quality, reflecting surface learning, whereas 51 showed evidence of high quality or deep learning. Of the latter, 27 postings showed a reflection or self-assessment of progress within the project. It should be recognised that judging the quality of an individual posting in a decontextualized

basis can be difficult. Within a sequence of postings an ostensibly surface posting may be important in prompting deeper leaning. In every discussion thread, of which there were 16 in total, the teacher had posted messages that formatively assessed progress and suggested improvement strategies towards the final design. Over the six-week project material and details from the forum were used in face-to-face lessons. The teacher believed that use of the forum had supported both formative and summative assessment and that this had enhanced the finished product. Within D&T, where a culture of group work and formative assessment was the norm, the forum tool was used to provide continued support for this method of assessment.

Assessment using the tools within the platform appears to be used in a way that reflects existing practice within subject areas. The dominance of existing classroom cultures and ways of doing things seems to be an emerging theme. It is also worth noting at this point that in those subject areas where formative assessment was taking place supported by the technology, lessons were not constricted by the formal one-hour lesson or the confines of the school day. In ICT, Team and D&T project based work, lasting a number of weeks, with teacher and pupil input outside school hours were evident.

6.2 Differentiation

As already described in Chapter 3 the school Teaching and Learning Policy defined differentiation, or the planning of lessons to meet the needs of all learners, in terms of: task, support and resource. In practice this could mean providing a range of tasks that matched the learning abilities of different pupils within a lesson; using classroom assistants to provide individual support or arranging pupils with different needs together in groups to support learning; or designing different versions of lesson resources and matching these to pupils. The policy also required learning objectives and outcomes to be explained to pupils at the beginning of each lesson.

Lesson observations suggested that the vast majority of teachers explained learning objectives and outcomes to pupils at the start of each lesson,

displaying these on their classroom interactive whiteboard. In those lessons where the platform was embedded in daily use the objectives and outcomes were also uploaded. ICT and History were the only subject areas to make these available online for every lesson. Some ICT lessons also made objectives available as sound files on the lesson pages; pupils could select the appropriate icon and listen to the lesson objectives being read by the teacher. In most cases the teacher still acted as a mediator between the 'text' and the pupil, displaying and explaining objectives to each class.
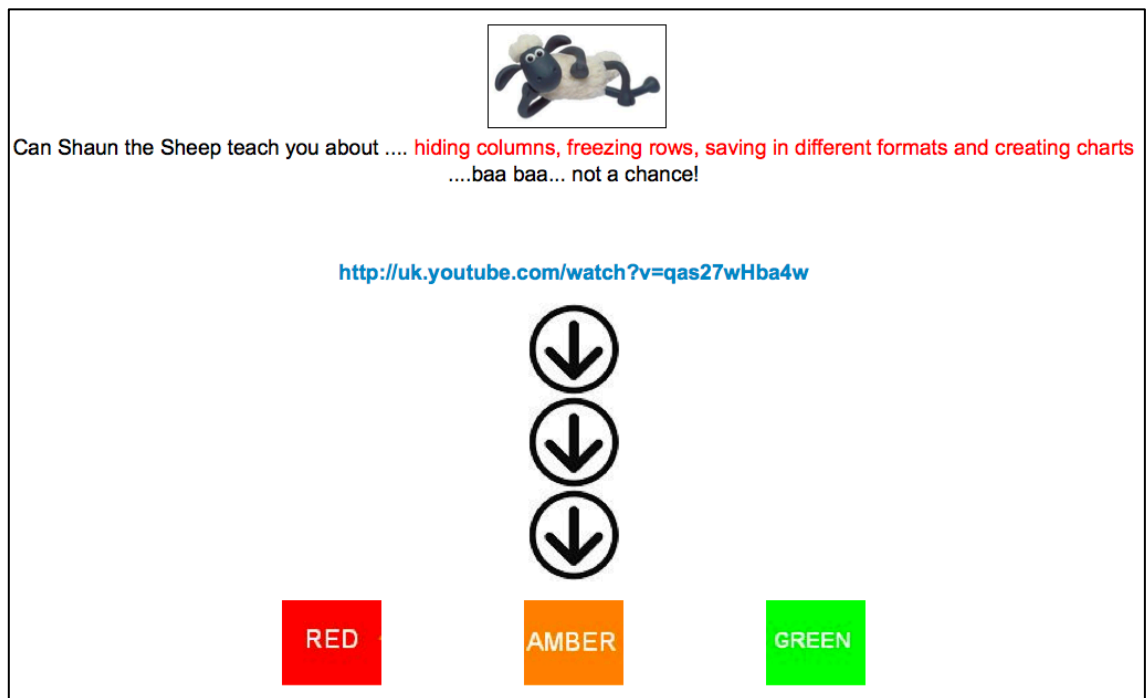
Figure 14. Differentiated ICT Lesson.

The only example of differentiation by task could be found in a series of lessons designed by the ICT and History Departments with Key Stage 4 classes. In the ICT lessons pupils had a choice of completing tasks that had been labelled on-screen as red, amber and green. Matching these to learning objectives, all students had to complete the red task, most pupils the amber and some the green within a lesson (see Figure 14). Observations suggested that the colour coding of the tasks confused some pupils. Whilst the tasks may have been differentiated, the resources within each task area had not. In the observed History lessons pupils of different abilities were assigned specific tasks (see Figure 15). The class teachers commented on the amount of planning time that

was involved in this, the lack of guidance available in relation to the design of activities and the sustainability of this approach. In the vast majority of cases the single task lesson was recreated online where the platform was used.

Figure 15. A task orientated History lesson.

In most subject areas there was some evidence of differentiated resources being available online, although the quantity and nature varied across curriculum areas and was dependent on the topics being taught. In French the teacher had created sound files for specific students to support their

performance in end of term oral exams, although she had to rely on technical support to record these and upload them to the system. In Science, teachers had targeted different students with exam practice material, dependant upon their ability and the exam course they were studying, although there was a reliance here either upon existing classroom resources or commercially purchased ones. In History some resources were levelled according to student ability, although teachers felt they did not have the skills to re-design existing resources according to ability. This was most apparent during the February Online project for which teachers were required to provide resources that could be uploaded to the platform for pupil access. The vast majority of these resources were those that were being used in the classroom for face-to-face teaching where the teacher acted as mediator between the resource and the pupil. There seemed to be an assumption that where a resource had been used in a mediated way in a lesson that pupils would be able to access it online and use it where no mediation was present. Screenshot The local authority IT consultant was asked to comment specifically on differentiation during this project (Fanning 2010c). His comments included:

- Subject x provided the same work for Year 7 and Year 8 classes;

- Subject y provided the same work for Year 8 and Year 9 classes;

- There was little obvious evidence of differentiation between the work that was set and the learning objectives for different age groups.

Written comments from student questionnaires included:

'Why did some subject areas scan pages from textbooks and put them on the platform? They were difficult to read on the screen when they were downloaded and it is a pretty pointless exercise when they could have simply given us the books.'

Where resources had been differentiated, teachers had to rely on the design skills of the network assistant.

Where support was differentiated this was most commonly found in terms of forum use. In the Team 7 and History forums there was evidence of students giving advice to each other and teachers supporting individuals and groups, although the evidence for this was uneven. Support appeared to be given as need arose as opposed to being planned for. The issue of support is explored in depth in the next chapter.

Overall there was some evidence of a range of strategies being employed for the purposes of differentiation on the platform. A small number of teachers experimented with differentiation by resource or task and were reliant on the school network team to provide the technical skills for this. Although most teachers identified differentiated resources as a method they employed in their classrooms, such a provision was more noticeable by its absence online. A lack of technical skills in designing content as well as knowledge of what constituted good design for learning appeared to hamper the use of the platform in terms of differentiation.

6.3 Collaboration

I have used the following model for exploring evidence for collaboration supported by the technology. The features of such a working environment are ones where pupils:

- Frequently work as a team;

- Actively solve meaningful problems;

- Publicly exhibit their learning;

- Reflect on what they are learning and doing;

- Apply quality criteria to their work;

- Take responsibility for and ownership of their learning (Scotland 2007).

There are a number of collaborative learning projects, involving other schools, designed and supported by the platform provider (UniServity 2010b) that can be accessed through the school platform. Individual schools can enrol on these projects as they become available during the academic year. The projects have a focus on formative assessment but had not been used in the research school.

Teachers were initially asked to identify what they considered to be collaborative learning projects involving the platform. There was little evidence of the majority of subjects using the platform for this purpose in a systematic way, although lesson observations often revealed small group work taking place, with pupils supporting each other on an individual basis. Within the school timetable the only subject areas to highlight collaborative work were ICT with a project called 'School of the Future' and D&T with its 'Design a Sign' project. The ICT series of lessons took place in July 2008, at the start of this research and at a time when the learning platform was being introduced to the school. One of the aims of the project was to teach students from across the year groups a range of skills in platform use, including setting up their own home pages, contributing to forums and wikis, uploading and downloading files and accessing media content. Using a range of resources and working in groups, students had to create a design for their own school building, as well as describe what would be taught within the curriculum and map this on to their school timetable. The lessons were taught through the learning platform, with all lesson resources being available from it. Field notes were taken during the three-week project and the following table describes elements of the project (see Table 5).

ICT/School of the Future Project	
Feature (collaboration)	**Evidence**
• Frequently work as a team	A minority of pupils worked individually during the lessons. The vast majority of pupils worked in groups of two. A minority

	of pupils worked in groups of more than three. There were a minority of examples of pupils assigning tasks to different members of their group. There were examples of pupils commenting on each other's work.
• Actively solve meaningful problems	Pupils were aware that a new Headteacher would be joining the school and one 'problem' they advised on was the design of a new timetable. The other activities, designing a new school building, were less relevant as pupils were being taught in a building that was less than 5 months old.
• Publicly exhibit their learning	The vast majority of pupils posted their work on the lesson Wiki for other pupils to view.
• Reflect on what they are learning and doing	There was little evidence on the platform of pupils reflecting on and then changing the work they had publicly exhibited, although within lessons there was evidence that this was happening through lesson discussions.
• Apply quality criteria to their work	There was some evidence of a minority of pupils reviewing and changing their work after feedback.
• Take responsibility for and ownership of their learning	For a majority of lessons direction from the teacher appeared to be minimal, with the teacher acting as consultant or facilitator to groups as they completed work.

Table 5. Summary of Field notes.

The observations from the field notes are consistent with the other evidence presented in this chapter which suggests that the overwhelming examples of learning on the platform are of individual pupil experiences, with pupils accessing online content to enhance their own learning. Where group work took place it was cooperative rather than collaborative in nature. There were examples of aspects of collaborative learning, but not all aspects of the above model were present at any one time. Most teachers seemed to confuse group cooperative work with collaborative practices. There were more examples of collaborative work taking place outside the formal curriculum, based in school but not lesson or classroom based. Examples of the latter include a Student Voice and Transition Project.

The school Student Voice Coordinator facilitated the Student Voice project. It involved using the platform as a collaborative learning environment to support pupils who were planning a face-to-face conference to which other schools would be invited. Each member of the team had specific responsibilities within the project. The forum was used to discuss and share ideas, along with a separate area where completed tasks were exhibited. The Transition Project (see Figure 16) involved a group of Year 7 pupils, who had specific responsibilities within the team, in establishing an area on the platform where Year 6 pupils could explore aspects of secondary school life. The school advanced skills teacher coordinated the project. In each of these projects pupils worked as a team, solving issues that had a direct bearing on the success of each project. Their work was publicly exhibited on the platform and the school website for others to view. Teachers acted as facilitators or coordinators and ensured that pupils reflected on their learning. In each of these projects pupils were either extracted from lessons or worked after school hours to complete the projects.

This evidence suggests that where collaborative learning took place it was delivered either across a number of lessons, through project based work or outside the normal confines of the school timetable. For most teachers who did not have the opportunity to construct learning in this way, because of existing school structures, collaborative learning took the form of small group work,

replicating what was already happening where technology was not being used in lessons.
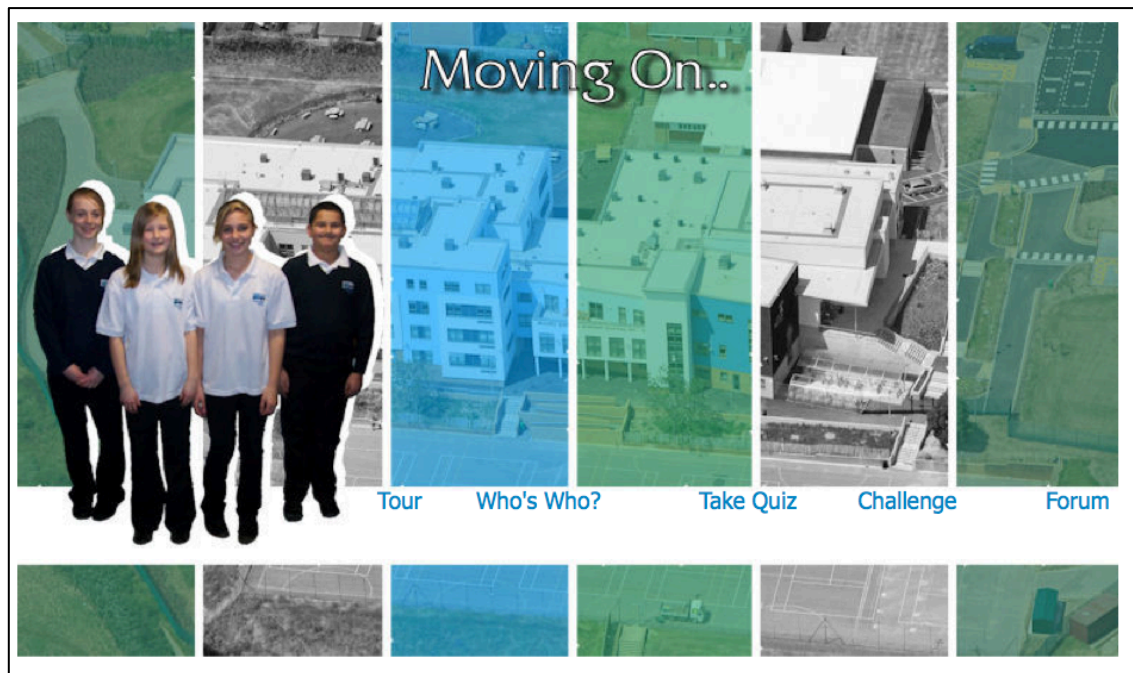
Figure 16. Homepage from the Transition Project.

6.4 Flexible learning

There is an assumption in the official literature that flexible learning simply means outside-school-hours access to learning through the provision of resources. It does not approach a distance-learning model where there may be live interaction between pupil and teacher. Evidence from teacher discussions and subject meetings shows that staff understanding of flexibility mainly related to that of the official literature. The majority of curriculum areas had uploaded files to the learning platform to support this kind of learning. Science staff had worked with the network technician to create a homework area for their subject where pupils could access files. ICT, History and D&T subjects had uploaded all lesson and homework resources to their classroom pages. Lesson observations provided some evidence of pupil access to resources outside school hours:

> I went on to the lesson page in history on Friday evening at about 10.30pm to download a file that I needed for homework.
>
> Tom Year 11

The school organised a flexible learning project in February of 2009, making learning resources available online through the platform for pupils to access off-site, a number of issues began to emerge. 7% of pupils did not have access to a PC at home, whilst a further 4% had a computer but no Internet access. Even where pupils had such Internet provision it could not be assumed that they would have sufficient access to complete schoolwork. Pupils were given the option of collecting paper-based resources for this particular project and 42% students did so, with 58% working online. Reasons for not accessing materials online included the flexibility of working anywhere with paper based materials; the distractions caused by the temptation to visit other websites and not focus on the work in hand; technical issues relating to the reliability of the platform service; as well as competition at home from other members of the household who wished to use the home PC. Clearly the presence of Internet access in the home did not guarantee its availability for schoolwork.

Pupils also raised some issues relating to technical aspects of accessing content, where they would normally have had immediate support from a teacher in the classroom they did not when they encountered problems online. A majority (63%) found the platform easy to use most of the time; 26% said some of the time, with variation between subject areas; whilst 11% had issue with navigation as a result of design. There were examples of teachers working independently without support from the network technician, uploading files in a format that could not then be used by pupils on their home computers. There were also occasions where teachers had uploaded large media files via the school high-speed Internet link or embedded video files in lesson web pages, that could not then be used by pupils who did not have a broadband connection. Approximately 72% of students claimed to have broadband access at home.

In relation to this experience of flexible learning pupil interviews and questionnaires highlighted a number of recurring themes: work was not marked quickly enough by teachers; online support was not available when required; materials had simply been scanned from classroom textbooks and made available online. Teacher feedback focused mainly on the amount of work submitted online and difficulty in marking it in a reasonable time. Teachers also

expressed a concern about working patterns, as pupils requested support for work during evenings and weekends. One member of staff had experimented with a blend of video conferencing and simultaneous work on the platform to support pupil learning. He described this as an experience that was very different from the normal classroom interaction. Parents or carers either 'hovered' in the background or even actively participated in a discussion about the online 'lesson'. Discussions about learning became a 'mix' of academic and social chat.

Message Threads	Out of school access by Pupils & Teacher
Pupil 1	1 pupil at 15.30 (note: the school day ends at 14.15). 1 teacher at 21.33
Pupil 2	1 teacher at 21.40
Pupil 3	Access in school time only
Pupil 4	2 pupils at 15.00
Pupil 5	Access in school time only
Pupil 6	1 pupil at 15.00; 4 pupils after 18.00
Pupil 7	1 teacher at 16.30
Pupil 8	2 pupils after 18.00
Pupil 9	5 by pupils after 18.00
Pupil 10	7 by pupils after 18.00
Pupil 11	Access in school time only
Pupil 12	Access in school time only
Pupil 13	1 by teacher at 21.48
Pupil 14	Access in school time only
Pupil 15	2 by pupils after 18.00 2 by teacher after 18.00
Pupil 16	Access in school time only

Table 6. D&T Forum Access.

There was little evidence of forum use in the February Online project. Most staff had not considered establishing a regular pattern of visiting forum areas out of school hours to check and assess pupil participation. There were some practical examples on the platform of learning being supported online after school hours

through teacher input. For example, in the D&T project described earlier in this chapter the contributions to the lesson forum can be tracked. The following table provides data relating to pupil and teacher access to the D&T class forum over the six-week period of the programme of study (see Table 6).

Whilst these messages are only a minority of those that were posted on the lesson forum, they do reflect evidence of the platform being used after-school hours to support formal learning. They do also illustrate some of the issues surrounding staff working practices using online technologies, where out of school support for such learning occurs on an ad-hoc basis and is reliant upon the good will of the teachers involved.

6.5 End Note

The core research themes identified from the literature review were assessment, differentiation, collaboration and flexible learning. The complexity of what goes on in the classroom linked to the intricacy of the technology, including the multiple variations in practice, have made a study of the themes a challenging one. There has been some opportunistic gathering of data and an overlap between the research themes as platform use has had many different outcomes, despite to all intents being used for the same purpose. My main concern has been issues relating to use of the technology by a minority of staff regularly and by a majority on an irregular basis, which has complicated the collection and assessment of data. Where staff was using the platform they were mainly using one of the tools or applications within the package. There were few examples of teachers using the different parts of the platform in an integrated way (Jewitt,Hadjithoma-Garstka,Clark,Banaji and Selwyn 2010). This situation led to the intervention that is described in Chapter 7.

Chapter 7

The Intervention: integrating the learning platform into a series of lessons.

7.0 Introduction

As my research developed, observations suggested that where teachers had adopted the learning platform most tended to focus only on the use of one application within the technology, rather than take an integrated approach. Some had attended local authority training events where they had been taught technical skills in the development of particular tools, such as wikis or blogs. Indeed the work of Gilly Salmon, which had been promoted by the NCSL, concerned itself mainly with the development of forums. The literature review found no examples of an integrated approach and this individual use very much reflects findings from recent national research (Jewitt, Hadjithoma-Garstka, Clark, Banaji and Selwyn 2010).

I became concerned that my initial data collection methods would not provide sufficient evidence to assess what happens when the respective applications within the platform were used in an integrated way. Having had previous experience of teaching history, I approached staff from the History Department with a proposal to embed use of the platform within units of work that would be taught in Term 3 (January-February 2009) and Term 6 (June-July 2009) of the research period. In this chapter I describe this intervention. As described in chapter 3, I have used a 2nd generation model of activity theory as a framework for collecting and analysing data in relation to this.

7.1 Background

I also wanted to assess the impact that use of the technology might have on classroom practices, comparing a series of lessons taught by the teacher who was using the platform and one teacher who was not. Both the subject teacher and the Head of Department taught Year 10 classes and agreed to such a comparison being made. In Term 3, all Year 10 examination classes would be

studying a topic called 'The Troubles', whilst in Term 6 they would be exploring the impact of 'Evacuation in the 2nd World War'. This kind of comparison study is one of the most popular approaches to the assessment of new technology in teaching and learning (Russell,Bebell and Higgins 2004; Lee and Gaffney 2008).

7.2 Context

In chapter four I described the questions or elements that Mwanza and Engeström (2003) had constructed to support researchers who are investigating an activity system. I have based the following description of the intervention upon these elements: subject, tools, object, outcome, division of labour, community and rules (Murphy and Riodrigeuz-Manzanares 2008).

7.2.1 Subject

The classroom teacher is the subject of this analysis, although I have also included a profile of the pupils. Both are inextricably linked in the process of classroom learning and any change that technology effects on one group will impact on the other.

The Teachers

Paul was the Head of Department and had a teaching career that spanned over thirty years. Janet was an ex-pupil of the school and had been teaching there for just over eight years. In the initial planning relating to the project the issue of informed consent was discussed with them. Although their names have been changed within this chapter, both were aware and in agreement that readers in the local authority would be able to identify them as participants in this research. Both had the right to read this chapter before its final submission and recommend changes.

In a discussion about styles of teaching, Paul described his approach as being behaviourist in nature, with him leading learning 'from the front'. Janet suggested that hers was more collaborative in that she focused on group and project based work within lessons. She had acted as a mentor to PGCE history students over the past five years and said that this had impacted on her teaching style:

> I think that the reason my approaches to teaching and my teaching style and strategies have changed is because of being a mentor. So in the last five years that I have been mentoring trainees they have come in with ideas and ways of doing things that have over time drip-fed into my own practice. I don't think I'd be quite as on-the–ball with new developments in relation to history and pedagogy.
>
> Janet/History Teacher

Paul had not used the learning platform. He said that he was sceptical about the impact of the technology:

> I have been to training courses where they have talked about the potential of technology to improve learning but I have yet to see any actual concrete results.
>
> Paul/Head of History

He would be retiring later in the year and had made the professional judgement that the introduction of the technology into his lessons and the perceived disruption this might cause could not be justified in terms of any potential short-term benefits for learning. Janet had experience of using forums within the previous school platform to support an after-school history class. She was also aware of forum use through coverage in the Journal of Teaching History (Thompson and Cole 2003; Martin, Coffin and North 2007; Martin 2009). Janet had completed a Masters in Education in 2005 and had used her university VLE to access learning resources and track assessment data. She had not however used the integrated applications within the school platform for teaching purposes in a classroom environment.

In the questionnaire responses and interviews relating to personalised learning both teachers were in agreement that the nature of GCSE teaching encouraged an approach to learning that was very structured, that did not encourage risk taking in teaching methods and that strongly emphasised summative assessment opportunities as a way of preparing pupils for end of course exams. In terms of differentiation Paul said he practised this through the physical support that was offered to pupils in class. This equated to him working with pupils on a one-to-one or one-to-small group basis and sometimes requesting support from classroom assistants for specific pupils. Janet identified the use of differentiated resources as her preference, which meant providing different versions of worksheets and written sources for pupils with different needs, as well as structuring tasks in a different way. Both agreed that group work could be a feature of their classroom experience, although as with whole school findings observations suggested that this was paired group work, with elements of collaborative practice. Both identified email as an important technology for supporting out of school learning although neither had made much use of it to initiate work, but rather had responded to pupil requests for support.

The Pupils

Both history classes consisted of twenty pupils, aged 14/15, of mixed gender, with an equal balance between boys and girls. The BERA ethical research guidelines were used to frame student and staff participation (BERA 2004). The issue of the impact that the intervention might have on learning outcomes was discussed. The professional judgement of the teachers was that neither class would be disadvantaged by participation in the project. The project was explained to Janet's class and whilst they had no choice in attending the history lessons in which the platform was being used, they could opt out of taking part in any of the research process including completing questionnaires and taking part in interviews. One girl exercised this right. Parent/carer letters also explained the project and rights of pupils to withdraw from the research.

School data was used to build a profile of each group. In terms of assessment data both classes were broadly similar in their predicted final grades for GCSE History. The vast majority of students in both classes were predicted a Level 2 grade in ICT. School behaviour logs suggested that both classes were similar in terms of behaviour management issues.

Over a two-week period students in both classes maintained a learning diary that described those opportunities where they could use technology in school. The data suggested that each week students had up to seven hours access to the school network and the Internet, out of a twenty-five hour timetable. This access took place mainly in ICT, PE and D&T lessons, all of these being subject areas that had access to their own computer suites. Irregular use was made in English, Mathematics and Science lessons when computer suites had been booked in advance. Compared to the whole school population, where 6% of students said that they did not, all of the students in Janet's history class had access to an Internet enabled computer at home:

- 78% of the class had a broadband connection, slightly more than the school average of 72%;

- 43% had a PC or laptop at home that was for their sole use, compared to 32% for their year group and 30% over the whole school;

- Most had used email to send work to a teacher although hardly any had used email to ask a teacher for help with school work;

- All said they had used the Internet at home mainly to research homework;

- A majority had a social networking account but in discussions pupils said they drew few links between these and platform use in school.

All of the pupils in Janet's class had used the learning platform in ICT lesson time to access learning materials, as well as forums. Since pupils were already using the technology it was not possible to examine the effects of the technology using a pre-post research design.

7.2.2 Tools

The classroom tools that would be used by Paul included a history textbook (Walsh 2004) and a booklet containing copies of the primary and secondary resources upon which a coursework answer would be constructed (See Figure 17 for a representation of the classroom using an Activity Theory framework). His room was also equipped with an interactive whiteboard (IWB).

Figure 17. Activity Theory Model/Paul's Classroom.

As well as these tools, Janet's class had access to a networked computer and the learning platform (see Figure 18 for a representation of the classroom using an Activity Theory framework).

Activity Theory 2nd Generation Janet's Classroom

Tools
Textbook – Pupil source booklet – IWB
Network PC – software applications
VLE – communication applications

Subject
The Teacher

Object
Research/skills
Technical skills

Outcome
Coursework

Rules and Regulations
Classroom
School
Exam board
VLE codes of conduct and frameworks for contributions

Community
Teachers
Pupils
Parents
Online guests

Division of Labour
Classroom teacher
Network assistant
Pupils

Figure 18. Activity Theory Model/Janet's Classroom.

Any whole class use of PCs for Paul's group had to be timetabled by request into one of three specialist computer suites. For the duration of the first unit of work, comprising 15 one-hour lessons spread across six weeks, unique access to a computer suite was provided for Janet's class. Every pupil in her class had personal access to a networked computer. The aim was to make similar provision in Term 6. Figure 19 is a screenshot of the online lesson page within the platform. Table 7 explains the purpose or function of each icon or tool.
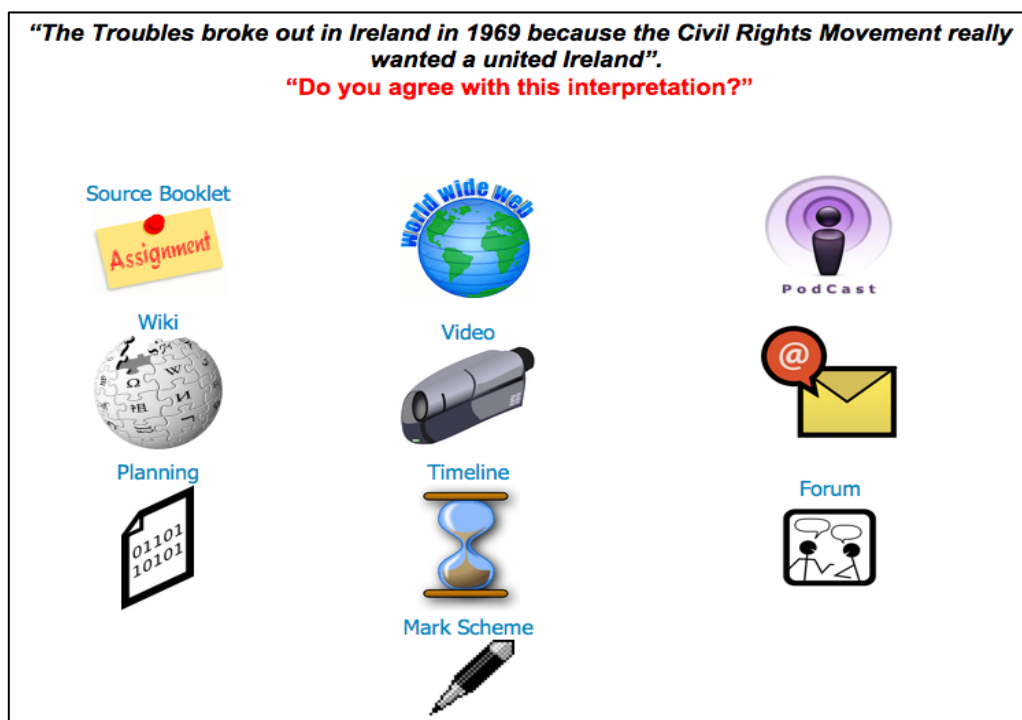
Figure 19. The main lesson screen.

Icon	Resource
Source booklet	A text file containing the main primary sources from which students had to make a selection and evaluation in relation to the coursework questions.
World Wide Web	Links to relevant websites selected by the teacher.
Podcast	An audio recording (religious tension on a 1960s estate).
Wiki	Background information including a history of Ireland that pupils could contribute information to.
Video	Video extracts of BBC news items on current events in Northern Ireland and also links to YouTube videos on the topic of murals.

Planning	A text file containing planning advice for writing the coursework.
Forum	A message board used to engage in an asynchronous conversation with a resident of Londonderry.
Mark Scheme	A text file detailing the mark scheme for the coursework.
Email	School email linked to the platform.
Timeline	A text file / timeline of Irish history.

Table 7. Icon functions.

Differences between the two classrooms can be explored using the headings from the activity theory framework.

7.2.3 Object

The central learning objective for both classrooms was research into primary and secondary historical sources and an assessment of their relevance in relation to a specific examination question. Classroom lessons supported an understanding of the historical context, as well as developing the skills that pupils required to research and write an exam answer in relation to these topics as a coursework submission. The creation of a written paper that would be submitted to the exam board for assessment was the outcome of this activity.

7.2.4 Division of Labour

Development of the VLE project involved a planning team comprising the class history teacher, a network support assistant and myself. The team met fortnightly in Term 2, the term before the first set of lessons were due to be delivered. As lessons progressed pupils also engaged in the planning process as they suggested ways in which the lesson pages could be improved. For example, the timeline was not part of the original design. Paul's planning was a solitary activity.

7.2.5 Community

Community is a multi-layered construct. Teachers associate with other members of their department, other teachers in the same school and other colleagues outside of the institution in which they teach. Individual classrooms have their own community norms, which are in turn part of the centralised school community (Fuller and Clarke 1994; Squire,MaKinster,Barnett,Luehmann and Barab 2003). Parents and carers are part of this wider community. Paul's interaction with parents and other adults would not usually take place in the classroom. Interaction with another adult through the online forum was a formalised part of Janet's lesson planning.

7.2.6 Rules

Rules are not only the tools that are used to manage the classroom, but they also shape the nature of teaching and learning (Boostrom 1991). Paul and Janet apply the school behaviour code as well as the teaching and learning policy in their classrooms. The latter policy states that lessons must be planned in three parts:

- A starter, during which learning objectives must be displayed and explained to pupils;

- The main part of the lesson, when lesson tasks are completed;

- A plenary, where learning objectives should be revisited and judgements made about the quality of pupil learning.

Paul and Janet also impose their own personal rules, including ways in which pupils enter the room, seating plans relating to who can sit where, through to the physical layout of tables and chairs. There are also external rules that impact on their teaching. Planning discussions began with the requirements of the history syllabus. There were examination board regulations that describe

the nature of support that can be given to pupils in relation to coursework. Where technology was being used in Janet's classroom there was a separate online behaviour code that pupils and staff were expected to follow.

7.3 Data collection

Over the course of the six weeks in Term 3, I took the opportunity to observe pupils and teachers in lessons and engage in informal discussions with both, as well as making on going field notes in relation to areas such as group work, access issues and interactions between pupils and teacher. These observations were used to inform pupil and teacher interviews. Both teachers completed a self-evaluation sheet on a lesson-by-lesson basis rating aspects of their practice such as interventions and group work (See Appendix 4). Data was also available from the learning platform.

7.3.1 Observations

In all of the lessons that were observed the learning objectives and lesson resources, from starter through to plenary, were available on the learning platform at all times. In Paul's class the objectives were displayed on the IWB and hidden from view when other resources were being viewed. Allowing for minor variations in timings, the data from the self-evaluation forms matched the findings from observations.

7.3.2 Self-evaluation

The following table maps the data from the teacher self-evaluation sheets along with that from field notes (See Table 8).

Question	Paul's Class	Janet's Class	Observation
How much time was spent supporting individual students?	On average, across the 15 lessons, the teacher was supporting up to 10	On average, across the 15 lessons, the teacher was supporting up to 5	In Janet's class students were working in groups and offered each

	students at a time with requests for individual support. Requests for individual support were frequent.	students at a time with requests for individual support. Requests for individual support were infrequent.	other support. They used the platform and searched online for an answer first before asking the teacher.
How much time did the teacher directing learning from the front of the classroom spend?	Paul spent up to 20 minutes in each one-hour lesson formally directing learning.	Janet spent up to 10 minutes in each lesson directing learning.	Janet's lesson 'starters' were shorter with material available directly to each student on the platform. There were less whole class interventions by the teacher during Janet's lessons.
Did the use of technology at any point detract from the focus on history?	In Paul's class the IWB was used mainly to view video material. Students were passive recipients of information, although class questions clearly focused on the history.	A number of pupil questions in early lessons were technical questions, for which – at times – the teacher did not have an answer.	Planning was based on the assumption that pupils had used the platform in ICT lessons and therefore would require little training in history, but observations suggested it was being used for different purposes on both subject areas.
Was group working a feature of the lessons?	In Paul's class the focus was on individual student work.	In Janet's class the focus was mainly on group work, with pupils working with a partner.	Despite the emphasis on group work in Janet's class, this work was mainly co-operative in

			nature. Pupils did not perform different tasks or assume different roles within their group to support learning.
To what extent did students go 'off-task' in lessons?	In Paul's class there were a higher number of occasions when he had to intervene with students who were off-task, compared to Janet's.	When students were off-task in Janet's class they tended to be emailing and accessing websites not linked to the lesson.	Janet had considered issues relating to multi-tasking. She was of the opinion that engagement in activities other than what had been set in class meant that pupils were 'off-task'.
How much time is spent on lesson preparation?	Paul spent on average 15 minutes preparing for reach lesson.	On average Janet's lesson preparation time was over double that of Paul's where the technology was being used.	Time saving benefits may only appear in the long term where material and lessons can easily be adapted, re-used and re-designed.
Did the nature of assessment change?	In Paul's class summative assessment was the dominant model, with teacher assessment taking place at the end of each piece of work.	In Janet's class there was more evidence of a balance between formative and summative assessment.	Pupil-teacher discussions in Janet's class appeared to offer more formative assessment opportunities, as did discussions between pupils.

Table 8. Teacher Self-evaluation.

7.3.3 Learning Platform data

Data from the learning platform revealed a substantial difference between those tools that were used by the vast majority of Janet's class and those that were seldom used. All of the class accessed the online source booklet, although a number had also requested paper copies of this as well. In interviews pupils suggested that the pressure of other family members using the home PC and the reassurance of having a paper version of the booklet was a way of ensuring that they had access to the resource when they wanted it. All pupils also used the planning, timeline and mark scheme areas regularly. Only a minority of pupils used the web links, podcast and wiki areas to support their learning. This use was biased towards the more able pupils in the group. There was some confusion over the use of the video area, which was populated with YouTube content that could not be accessed in school due to restrictions placed on this service (see Figure 20). The classroom teacher had assumed that all resources would be available within school. Access to the video area did show that about half of the group used the area regularly after school. The forum area showed a high number of visits with a very low number of actual contributions. On average there were 22 unique user visits per student over the course of the 6 weeks. Assuming that 15 of these were during face-to-face lesson time, the data shows that the course was being accessed at a time outside school hours at time other than lesson time.

Figure 20. Embedded YouTube Content.

A comparison of the digital resources with the traditional paper based ones used in class showed an overwhelming approval rating by staff and students.

> I would agree that no matter how good the quality of paper based materials, they could not compare to the clarity of the on-screen images.
>
> (Head of History)

> I'd never paid as much attention to the booklet as I did to the screen images. I picked out more detail onscreen and asked more questions about it.
>
> (Student)

> There were examples of students applying knowledge from cross-curricular work in English, Media Studies and Technology to the use of on-screen images and the reliability of such evidence.
>
> (Researcher)

In terms of access and engagement there was evidence from lesson observations and pupil interviews that the onscreen resources were more engaging and appeared to offer more opportunities for group discussion amongst students (see Figure 21). Whilst this emerged from observations, student interviews suggested that many still perceived learning, even where the platform was involved, as a 'private' or individual as opposed to a group process.

For staff used to dealing with the design and delivery of face-to-face history lessons this project opened up a debate on the wider skills set that teachers working with online technologies may require, if they are to create effective learning opportunities for students. As the Head of History remarked:

> If teachers do not understand how students access information on a web page then they are at a disadvantage when it comes to designing learning opportunities on their school platform.

Source E

Ian Paisley paraded 500 men from a private Protestant army today. He said "These men are ready to fight and die rather than accept an all-Ireland Republic. They are prepared to defend their province in the same way as Lord Carson and the men of the Ulster Volunteer Force!"

Report from the London New Standard, 6th February 1981.

Source F

EVICTION SCENE. 1767. W.L.

After the Famine many Protestant landlords evicted the Catholic tenants to increase the value of the land.

Source G

The Easter Rising 1916

A Fenian group, the Irish Republican Brotherhood, decided that the war was a good opportunity to stage an armed uprising against the British. Their leader, Patrick Pearse, had been deeply influenced by the Irish Ireland movement and he despised the Irish Party. When Redmond showed his support for the British war effort, the revolutionary Nationalist left the Irish Volunteers and set up their worn rival force. Pears planned to use these men in a rebellion.

Figure 21. An Embedded Digital Resource.

7.3.4 Interviews

A number of small group interviews were held with the students in Janet's class. These were semi-structured, allowing conversations to develop. The following comments were recorded.

- We needed more training in using the website.

- The design was confusing…there were too many icons.

- Our teacher thought we knew how to use the technology but there were some parts that we had not used before.

- I got the impression that our teacher did not really understand how to use some of the tools, for example the forum.

Most students said they would have benefited from greater skills training in the use of the platform. They had all used the technology in ICT lessons, but the nature of history lessons was different. In ICT the lessons had been set out in a linear fashion, with students following a clearly defined learning pathway, whereas the history experience relied more upon students finding their own route through some of the materials. Learning platform experience may change across curriculum areas, with different skills sets required from each area.

Most pupils described using the platform out of school hours:

> I used the platform a lot out of school. It was useful being able to revisit each lesson when I wanted to.   Year 10 pupil (boy)

Janet's class showed a disproportionate use of the platform when compared to other students in the year group. On average the class paid 66 unique visits to the platform. Their year group average was 35, compared to a whole school average of 24. Within the group those students who were predicted A-C pupils showed most access, with on average 74 unique visits, as opposed to 52 for those predicted D-G. There was no significant difference between male and female use.

A resident of Londonderry had been recruited to the project to answer questions about his experience of life in the province in the 1970s. Students were introduced to the forum in their second lesson. The school policy on forum use was discussed. It was explained that questions should be focused on aspects of everyday life in the 1970s. Over the course of the six-week unit of study the forum was underused, with a few students contributing and most visiting, looking and leaving. There were few examples of a threaded discussion being developed and no examples of reference to forum discussions in completed coursework. When this was discussed with staff and students it was clear that few had an understanding of the structure and management of forums. With

hindsight the model of e-moderating, created by Gily Salmon, could have been used to introduce and train participants in forum use (Salmon 2005a). Salmon's five-step model lays out a clear progression through forum use, with the development of threaded discussions and their summary at key points. The role of the teacher/e-moderator is critical to the development of deep as opposed to surface learning. There was an assumption amongst teachers that students were used to 'chatting' online and that this was the same as learning through discussion in a forum.

One of the pupils in Janet's class commented on the ways in which the technology may not 'fit' the traditional classroom way of doing things.

> It took longer to do some things using the platform and this did not fit into the one hour lesson.

This was an important issue surrounding the integration of the platform into classroom teaching. The school day is a formal one of five one-hour lessons. School structures are fairly rigid in terms of responsibilities and working patterns. The technology is based around an asynchronous model of learning through online collaboration. The forum, as already mentioned, highlighted this. Students were not used to a model of learning that required their input over a period of time, in this case six weeks, with learning building and developing as inputs took place over that time. The dominant view was that learning, by and large, was still something that took place in that one-hour slot in the classroom. Most pupils, at some point in the unit of work, said they had difficulty navigating the site. When this was explored further in interviews it appeared that the element of choice was one that pupils had difficulty with, preferring the teacher to direct them to the features that they should use.

7.4 Contradictions

One of the basic concepts of activity theory is the tension or contradictions between activity systems (Engeström 1999; Murphy and Riodrigeuz-

Manzanares 2008), in this case the physical classroom and the online one. It is these contradictions that can generate a change in practice.

Murphy and Riodriguez-Manzanares (2008) have described the use of activity theory to explore a course that was taught partly online and partly in the face-to-face classroom. They identified common areas of practice between the two activity systems. The object of the activity, whether face-to-face or online, was to teach students. The curriculum followed was that of the exam board syllabus. Contradictions included the tension between teacher controls as well the lack of what they called 'visual clues' in the virtual system. In the blended classroom, where the virtual learning environment is an integral part of traditional classroom teaching, identifying the contrast between the physical and the online can be more problematic, although some have emerged from this intervention.

In Paul's class the focus clearly remained on the teaching of history and the skills that pupils required. In Janet's class the objective of some lessons shifted from the history to the teaching of technical skills, such as the use of the forum or wiki. There was no division of labour in Paul's preparation for his lessons. He was solely responsible for this. Janet's planning had to involve the network technician and there was a clear difference between the amounts of teacher time required to plan between both teachers. Janet's teaching extended beyond the boundaries of the normal timetable as she monitored the online lessons outside school hours. As lessons progressed Paul directed learning, but in Janet's class the pupils had the opportunity to provide advice in relation to the design and content of the online lessons. There was a shift in the traditional classroom power balance and a move away from the teacher as the subject of the activity. Those rules relating to the layout and presentation of work were also altered by the use of the forum, where input was not expected to be grammatically correct and where pupils could use a range of emoticons and 'txting' not found in the written word. Paul's class was an enclosed community, but Janet's was extended to the outside world through the online visitor who responded to pupil questions.

Linking the research themes described in chapter one to Mwanza and Engeström's (2003) framework, has aided in the identification of areas of contradiction against which the evidence can be mapped. These themes will be further discussed in chapters eight and nine.

7.5 End note

In studying the everyday practice of teachers the researcher is a hostage to fortune. Whatever agreements have been reached and however much the research focus is relevant to classroom practice, the relentless nature of the school timetable and the busy lives teachers lead can result in plans being derailed. My aim to collect data from one further series of lessons in Term 6 was not possible as teaching of the evacuation topic was moved into the next academic year and the timetables of both history staff were substantially altered. Within the intervention it became more difficult to separate out the different elements of the personalised learning agenda because of the blended and integrated use of the technology in Janet's class. By the end of term 6 a higher number of pupils in Janet's class had submitted their Ireland coursework for grading compared to Paul's class. There appeared to be no significant trends in differences in coursework grades between the two classes. After the intervention work in Term 3, Janet did not use the platform in her classroom teaching during the remainder of the academic year. I accept that it is difficult to draw conclusions from the incomplete nature of this intervention and the limited nature of the sample, but when used with the data and observations from Chapter 6, it does add significantly to an evaluation of the impacts that platform use has on face-to-face teaching.

Chapter 8

Discussion

8.0 Introduction

In this chapter I will discuss each of the research questions in turn, using the activity theory framework to reveal where tensions exist between existing classroom practices and those areas where the technology has been introduced. Although one of the secondary questions, the issue of skills assumed more importance as the research progressed and has been returned to in this chapter. The chapter also investigates more thoroughly the assumptions behind out-of-school-hours flexible learning and shows how use of the technology could lead to more flexibility within the classroom.

8.1 Claims

Where technology has been introduced into the classroom it can be difficult separating out claims made regarding the potential for change as opposed to the actual change that takes place. Policy documents are littered with the use of the word 'potential' in respect to impacts, especially in relation to a perceived notion of school improvement. Research very often strives unsuccessfully to find any clear link between promise and reality in compulsory education, or certainly none of the clear links that suppliers of the technology and politicians would like to see (Selwyn 2010).

A number of claims have been made about the potential for VLEs to support aspects of personalised learning. The literature is targeted at and easily accessible to teachers and school leaders. It includes the original learning platform guides from the DfES (DfES 2005a)**,** case studies from platform providers (UniServity 2005; Frog 2011; Machines 2011) and BECTA publications (BECTA 2008c, 2008g, 2009d).

From within this study it would be fairly easy to selectively choose examples of the use of the learning platform to support approaches to aspects of personalised learning.

For example:

- The use of forums in Design & Technology for formative assessment purposes;

- Elements of group or collaborative work in the history lessons in the intervention;

- The variety of ways in which the ICT Department explored aspects of differentiation;

- Or the ways in which the platform supported flexible learning during the February Online project.

The overall picture is more complex however. The example of the original six subject leaders who volunteered to promote learning platform use illustrates this. By the end of the research period:

- The PE department had an area on the platform that was used exclusively for sharing information and resources. The Head of Subject had accessed the platform regularly, most other teachers irregularly and one teacher not at all. There was a high reliance on older pupils to provide the technical skills required to maintain the area.

- Within the History Department the platform had been used for the six-week unit of work that the intervention was based on. Outside of this period of time the teacher responsible for the project did not use the platform. It is worth noting that in the academic year following this research Janet, the teacher, began to make regular use of the platform in class as history rooms were equipped with wi-fi enabled netbooks that could be used flexibly on any pupil desk. The longer term sustainability of

this would need to be explored as factors such as the budgeting for supporting such projects was, at the time of writing, under review.

- By the end of the research period all KS4 ICT lessons were taught through the platform and from the classroom IWB. Learning objectives were displayed on each lesson web page according to school policy. All lesson resources were uploaded, with some attempts to explore differentiation by resource and evidence of different platform applications, including the forum and wiki, being used. Teachers of ICT had a longer history of experience with VLEs that went beyond the 2008 launch.

- Science used the platform exclusively for summative assessment exercises. An attempt to create a homework area, where tasks could be set for pupils, was abandoned. Teachers identified their own lack of technical skills, the reliance on advice from the network support team and the time involved in using the system for this purpose, as factors involved in this decision.

- Modern Foreign Languages used the system mainly for file sharing and a number of audio files were created for specific pupils within a Year 11 French class to support their individual needs in revising for an oral exam.

- Design & Technology had used the platform for file sharing and organised the forum-based unit of work described in an earlier chapter.

This kind of diversity within one school is reflected in the findings of those small number of national research studies that have taken place (OFSTED 2009a; Ball 2010).

Leadbeater's distinction between shallow and deep level personalisation (Leadbeater 2004) has been used to bring a focus to the narrative. Shallow was defined as being mainly about better access to existing services, whilst deep level represented a disruptive innovation, where users were in the 'driving seat' and had a far greater role to play in designing solutions. The use of an activity

theory framework, with its emphasis upon uncovering tensions and contradictions, has helped to evaluate whether the key patterns identified reflect surface or deep level personalisation.

8.2 The Research Questions

The main research question that prompted this study was:

Does the use of a learning platform in the secondary school classroom support approaches to personalised learning?

This research has focused on those central themes or approaches that are found within the official literature and school practice: assessment, differentiation, collaboration and the kind of flexible learning that may arise from use of the technology. One of the supplementary research questions considered the impact that teacher understanding of these concepts had on use of the technology. The Impact2 study (Underwood, Baguley, Banyard, Coyne, Farrington Flint and Selwood 2007) reported that teachers most commonly described differentiation by resource as the main way in which personalised learning could be supported through teaching. Researchers found there was a gap between what teachers said and what they did, with such differentiation being most noticeable by its absence.

8.3 Teacher Understanding

8.3.1 Differentiation

The formal teaching and learning policy in the school included differentiation by resource:

We expect to see in all lessons evidence that teachers: have planned lessons that incorporate a variety of teaching methods to meet the needs of all types of learners and differentiate by support, **resource** or task. (Appendix 6).

A survey of platform resources showed that the vast majority of these were Microsoft Office based, being created using Word or PowerPoint, although there was a small minority of multi-media audio and video files. The majority of these resources were not differentiated and represented files that had been used in the classroom by the teacher, in many cases displayed on the classroom IWB for exemplification. Where technical support had not been sought and where teachers on their own initiative had uploaded files, there appeared to be an underlying assumption that pupils would have the necessary applications on their home computers to use these files. According to pupils this was not always the case and the network team had to support a solution to these issues. In the case of Word files, for example, these were changed to an .rtf format that could be read by other programmes. This was not a skill or an understanding that teachers would necessarily expect to have. It also appeared that what where a resource had been used in class with the teacher acting as mediator between it and the pupil, that resource was expected to be used by the learner in an unmediated way online.

The teacher survey showed that staff used a small range of mainly Microsoft applications. Observations of teacher use suggested that the majority of staff were proficient in a narrow range of skills in using this software. The issue of skills will be covered in more detail later in this chapter but in relation to creating differentiated content it appeared that:

- Few teachers had the technical skills to create content that would, for example, enhance differentiation through the inclusion of multi-media elements within their resources;

- Where teachers had the skills they commented on time issues relating to the creation of content. This was reflected in the intervention where the time that Janet had taken to prepare lessons was more than doubled in comparison to Paul who was not using the technology;

- Some teachers suggested that such skills were the domain of the network team, that is that anything related to what appeared to be programming was the role of support staff;

- Most teachers also appeared to have little understanding of design issues relating to creating online content, for example how students accessed information on a web page. Teachers had been made aware of the work of Jacob Nielson during school INSET sessions (Nielson 2010). The learning support department had issued some guidelines relating to the use of text and colours on web pages and electronic documents. There was evidence of a minority of staff putting this advice into practice;

- Where the network assistant had the skills to design content he only did so following specific instructions from staff and had little understanding of design issues relating to learning. Technical advice reflected a traditional system of school support based on 'old' technologies and not Web 2.0, although in this respect the use of the term traditional refers to a period of less than ten years, given the fast pace of change in technology.

One unanticipated outcome for teachers was the way in which the platform improved differentiation by support. In the history intervention there was evidence that where the platform was used it enabled the teacher to spend more time in the classroom supporting individuals and groups of students. In the comparison between history classes, the teacher perception was that the use of technology had increased the amount of time being dedicated to those pupils who required more support. This was confirmed by the data although changes in timetable meant that the intervention could not be carried through to its logical conclusion and more research into this tentative observation is required.

When the VLE is introduced as a tool to the traditional activity system of the classroom, there appears to be an emerging tension in teacher practice. In terms of division of labour, for example, teachers would normally design and prepare their own classroom materials. Beyond joint planning with other teachers, no other member of staff would be involved. Using the VLE, support from the network assistant is introduced into this equation, involving meeting

time and a joint understanding of what is required from the system and the resources that are being created. Where a teacher had worked within their conventional routines and not used technician support this had led to problems with online resources. This had, however temporarily, changed the nature of the learning objective as pupils focused on technical solutions rather than the original curriculum objective of the lesson.

The history intervention also revealed the ways in which, even at the level of providing differentiated materials, the power structures of the classroom can be altered through use of the VLE. During the six-week unit of work a dialogue took place between pupils and teacher concerning the resources that had been created. The teacher adapted resources in response to this. Whilst this change may not be obvious to the participants, it does reveal an underlying conflict between traditional classroom systems where the teacher controls and leads and an online one where the leader and the led are involved in a dialogue that changes practice.

These tensions can be seen emerging in other areas of practice.

8.3.2 Collaboration

Differentiation by group work or collaboration, with peer support for learning, is a favoured approach by some educational writers. There are numerous examples of this kind of support in online courses that use forums and wikis. It's an important way in which the NCSL delivers its senior teacher training. At a pre-16 level there is also a longer history of this kind of learning. Webquests are well established (Brewer 2004; Dodge 2007; Haigh 2010) and think.com, the non-commercial VLE from the Oracle corporation, targeted at pupils aged 12-19, has built its development around such a style of working (Oracle 2010). In the research school the Humanities subjects had made use of Webquests and continued to do so throughout the research period.

The platform provider had already established a range of online collaborative projects that schools could subscribe to although these were mainly targeted at the primary age range, where project work over a period of time was more commonly found. One of these projects was accessed by the research school

in the first year of use of the platform, but abandoned. The teacher in charge of the project described why:

> There were two main reasons. Our curriculum did not really allow for a project that would carry on over a number of weeks. I also found it difficult to find the time to moderate pupil responses in forums. They were posting messages during an evening and at week-ends and I could not keep up with this.

A teacher in the school had created a collaborative project based on a study of the Western Front for the platform. History classes, not as a group or collaborative project but on an individual basis, used it. The history teacher explained that within the confines of the timetable, with only three one hour lessons being devoted to this topic, along with the difficulty of arranging computer access over a number of lessons, such a collaborative project was not possible.

In the majority of cases where use of the platform was observed the practice tended to be that of pupils working in either friendship groups, mainly around two pupils, with each producing their own specific piece of work that would be summatively assessed. Collaborative tasks, that is each pupil taking responsibility for a different part of the work, were not in evidence. This style of working reflected very much current practice in classrooms where technology was not being used.

Where collaboration was in evidence it took place outside the confines of the traditional school day and the formal exam curriculum. In the academic year following the data collection period a number of collaborative learning projects took place in the school during extended learning days:

- Projects involved a whole year group of pupils;

- The normal timetable was collapsed with the projects running throughout the day and not limited to the one hour lesson;

- The teacher role was to support and guide learning as project resources and instructions were available through the platform;

- Pupils worked mainly in groups of four, with each member having a specific responsibility for supporting completion of the group task;

- Progress was based on the completion of the group task, with assessments of individual progress relying on teacher observations and pupil self-assessment.

These examples, while lying outside the timescale of the formal data collection period, suggest that teachers need to reframe the way they do things in the light of new technologies (Luckin, Clark, Graber, Logan, Mee and Oliver 2009). The traditional activity systems of the classroom that are teacher led and take place within the formal confines of the timetable conflict with the flexibility that the VLE brings to, in this case, group work. Whilst the learning objectives and outcomes of both systems are the same, the extended learning days projects meant that the rules that governed the project changed. Teachers assumed an advisory role. The community expanded to include outside experts who were available online to take part in discussions with pupils.

Formal school structures, along with the working practices and cultures that they create, are not complemented by a technology whose history of use is based around flexibility and informality. This is also apparent in the area of assessment.

8.3.3 Assessment

- **Summative Assessment**

School cultures and existing ways of doing things are very often cited as reasons why national initiatives do not have the anticipated impacts (Halsall 1998; Fullan 2004; Durrant and Holden 2005). It is difficult to assess the nature of approaches to teaching in one school let alone across one national system, although Crawford describes the most common approach to teaching in secondary schools in the UK as behaviourist (Crawford 2001). That is it focuses

on the acquisition of knowledge and skills, which in turn impacts on the nature of assessment. Where there is evidence of a behaviourist model of pedagogy and where the transmission of existing knowledge is seen as the main purpose of teaching, grading learning takes place through summative assessment, usually an end of course objective test that seeks to provide a statement of a student's capabilities (OECD 2005). Feedback from senior management observations in the research school suggested that the dominant model of classroom assessment was summative.

The majority of assessment practices found on the learning platform emulated those found in the classroom. They could best be described as summative in nature, especially at Key Stage 4 where they were related to an end of course exam:

- The Science Department uploaded questions from past GCSE exam papers for students to download, complete and return for grading;

- Within the ICT Department assessment tasks mimicked end of unit tests;

- At Key Stage 3 most of the February Online project resources and pupil tasks were based on the completion of a piece of work that would be awarded a summative grade.

Those tools on the platform that had been designed for assessment purposes were based around summative assessment. These included multiple-choice assessments, with a mark generated by the system. Where a subjective judgement was required, as is the case in formative assessment, the 'formulae' employed by the technology could not provide for this (Carr 2010) except where those tools that required some form of teacher interaction were employed.

During the research period both the school management team and local authority felt that they had raised the profile of assessment for learning (formative assessment). Each subject area had self-assessed their implementation of AfL strategies. Two full INSET days had been provided, organised by the local authority. The school teaching and learning policy had been re-written to incorporate the AfL strategy. Data from the self-assessment

grids completed by subject leaders suggests why some teachers began to develop formative assessment opportunities using the platform and others did not.

- **Formative Assessment**

By the end of the research period the member of the senior leadership team responsible for AfL in the research school described progress in relation to formative assessment:

> Over the course of the academic year there had been some good progress in relation to formative assessment. Every member of staff was aware of the policy and had attended whole school training. Every curriculum area had assessed its progress towards implementation. Whilst summative assessment was still the dominant practice, there were some good examples of formative assessment taking place in English, Design & Technology and Art as whole departments, with individuals in other subject areas. Overall the issues with progress were in consistency and this was affected by staffing changes too. There was significant in-school variation. Most subject leaders were proactively developing AfL across their departments and reviewing its impact to determine the 'next steps'. We were considered to be at 'developing' stage (using National strategies document) (See Appendix 5).

Margaret/Deputy Headteacher

Three areas for focus begin to emerge from the data that was collected:

- Where existing practice within a subject area already showed evidence of formative assessment in a face-to-face setting it also began to be introduced online;

- Where the researcher worked directly with staff there was greater likelihood that formative assessment practices would be introduced, although not necessarily sustained;

- The early adopters were those who begin to experiment first with the nature of assessment and a majority of these had qualified within the past five years.

Rogers work on the diffusion of innovation has become a standard work in the area of research into what happens when new technologies are introduced (Rogers 2003). His innovation curve describes the introduction of change as a three part process, in which the adoption of a new technology begins slowly with a few innovators and early adopters; is followed by speedy change as the early majority followed by the late majority adopt it; then slows as it reaches maturity, with 'laggards' playing catch up.

Where formative assessment opportunities were being developed they tended to be amongst the early adopters, using platform tools other than those designed for formal assessment. With the support of the Head of Subject, James was the D&T teacher who established the six-week D&T forum project to support this kind of assessment with his Year 9 pupils. As the research period drew to an end other teachers in the subject area had yet to be influenced by his work. James was a newly qualified teacher and it's worth considering why this group should feature so predominantly in VLE use. Their recent use of a similar technology within their teaching courses may be a factor. I would also suggest that being new entrants to the professions and the school they had yet to be fully inducted into the activity systems of the organisation. The use of the technology may not have represented as great a conflict for them as it did to those who had taught for longer and were fully immersed in the cultures and practices of the system.

Those subject areas that perceived themselves as making greatest progress with AfL in a classroom setting were also those who began to explore formative assessment opportunities online. Year 7 pupils were taught as part of team approach to planning and teaching. Most subjects within the Year 7 curriculum were taught by a small number of teachers. The Head of TEAM, as the Year 7 staff were called in school, described the approach to teaching in that area:

> We take a collaborative approach to all lesson planning in TEAM 7. We meet formally on a weekly basis to plan and individual teachers take

responsibility for designing a unit of work that is then delivered by other staff. Pupil learning focuses on cross curricular where we promote AfL and encourage group work.

<div align="right">Michael/Head of TEAM</div>

Andrew and Anne were both Year 7 teachers.

Whether technology is being used or not, in our lesson planning we are used to using the AfL guidance as a model.

<div align="right">Anne</div>

I would describe the approach to teaching and learning in TEAM as collaborative and one that supports on-going assessment. In our lesson plans we build opportunities for individual feedback to pupils as they work their way through a unit of work.

<div align="right">Andrew</div>

Design & Technology also highlighted progress in AfL. The Head of Subject described the approach to teaching in that area as one built on those principles:

It's part of our curriculum requirements that pupils are given on going feedback, from a range of audiences (including other pupils and product users) about their designs and change these accordingly before the final product is produced. The final end of unit grade takes all of this into account.

<div align="right">Samantha/Head of Subject</div>

Formative assessment opportunities were built into the departmental scheme of work. The researcher was allowed access to lesson observations from this area and these also reflected where there was evidence for AfL practices. Where the culture and working practices of a subject area in relation to face-to-face teaching showed evidence of formative assessment, this was also reflected in their use of the learning platform to support this. This would suggest that in relation to these subject areas, where the technology was introduced, it did not disrupt this aspect of teacher practice.

My influence should also be recognised. Janet, the history teacher, had some limited experience of using a learning platform before 2008 to post lesson files. She worked closely with me to establish the GCSE online lessons and identify opportunities for AfL. I suggested that use of the platform might not open up opportunities for formative assessment through the use of online tools, but that it might make available more time in the face-to-face classroom for learning talks with pupils, through which assessment could be supported. Similarly I had introduced Anne and Andrew, the Year 7 teachers, to the Salmon model of e-learning and the Brown & Davis assessment model for assessing surface and deep learning in forum use (Brown and Davis 2004).

These examples of classroom practice using the technology did not mean that formative assessment became embedded or sustained throughout the academic year however. The examples highlighted here, apart from those from the IT Department, mainly represent lone or individual teacher approaches and confirm recent research findings from other organisations (Jewitt, Hadjithoma-Garstka, Clark, Banaji and Selwyn 2010). The tipping point for use by a majority of teachers had not yet been reached by the end of the research year and the story described here follows Rogers model of adoption for new technologies.

Hargreaves and Shirley suggest that personalisation requires structural change and a move to project work, away from the 'ubiquitous short lesson as the unit of learning' (Hargreaves and Shirley 2009). Networking, between pupils, teachers and the wider community, as well as flexible learning, with work increasingly taking place away from school, are themes they promote. David Hargreaves had already suggested such a change:

> Personalisation demands a new, and more rigorous, emphasis on projects as the unit of learning rather than the ubiquitous short lesson (Hargreaves 2006b:p.19).

Flexible learning is dealt with elsewhere in this chapter but the example of formative assessment within D&T highlights many of these issues:

- The D&T lessons were project based;

- They took place over a number of weeks;

- The teacher encouraged, supported and promoted pupil use of the class forum outside school hours and regularly checked and responded to contributions during evenings and weekends.

In most other subject areas learning was dominated by the one-hour lesson. The classroom is the norm (Johnson 2004) and flexible teaching and learning, which very much supports areas of work such as formative assessment, is managed on an ad hoc basis. Staff contracts and working practices don't enable such flexibility. To date, Knowlsey local education authority is the only one nationally to have linked structural change to the use of technology and carried out a whole scale reform of its secondary schools (Vaughan 2010).

When the local authority chose its preferred platform the training package that was supplied by the provider of the technology was one of the elements that was important in the selection process. A programme of CPD events organised by the School Improvement Service supported this. One of the secondary questions that emerged as this research progressed was:

Is there a level of competence in the use of the technology that is essential to enable the teacher to use the learning platform in the classroom?

8.4 Teacher Skills

8.4.1 Prior Knowledge and Experience

When the DCSF e-strategy introduced the requirement of a personalised learning space for every pupil in 2005 only a small minority of schools at that time were using VLE technologies to support learning, although certain groups of teachers may have experienced online learning in a different setting.

In the research school about 10% of teachers had taken part in the NOF training programme but remembered little about its virtual aspects. Those teachers who had qualified in the past five years, 15% of the total, had mainly

used their University VLE as a course administrative tool and had not investigated or experienced its use for classroom teaching. The senior teachers were NPQH qualified but, as with their NQT colleagues, they drew few links between the use of a VLE in a professional online community of practice and its use in schools. A VLE had been in use in the technology department at the research school since 2002 and the purchase of a commercial product was written into the specialist schools bid that the school prepared. Beyond the senior teacher responsible for leading these developments, only a minority of staff had experience of using the technology in a classroom setting and mainly for file sharing and forum purposes.

In effect this meant that there was little or no collective understanding in the school of the skills that teachers might require to use a learning platform. When the decision was made by the senior team to sign up to the local authority platform they also committed teachers to a training programme that was outside of their control. The platform provider described its product as a collaborative learning community and the skills they would promote were those associated with the collaborative learning tools that could be found on the platform. The School Improvement Service worked closely with the platform provider and their training programme focused on forum and wiki tools. There was no analysis of existing teacher skills, since the product was new to the school and proficiency in the use of one platform did not necessarily equate to use of the new product because of different design features.

8.4.2 Skills Training

In Step 1 of Salmon's 5-step model of e-learning the skills of learners in using the system was critical to progressing through any of the remaining levels. Teachers found themselves very much in the role of learners as use of the new platform was implemented.

Prior to the launch of the platform in the school in September 2008 teacher training had included:

- A presentation by myself that focused on pedagogic uses of the technology;

- A training session led by the platform provider for those subject leaders who had volunteered to implement specific projects using the platform. This training was skills based and included:

  - Creating a web page on the platform;
  - Adding content to that web page;
  - Creating a forum;
  - Creating a wiki.

The platform provider also promoted a series of pre-existing collaborative learning communities that teachers could participate in with their teaching groups. A member of the network team had separately been trained as a platform administrator, focusing purely on the technical aspects of the technology.

During much of this initial training existing school metaphors were used to describe features of the platform. Groups (i.e. users) became classes and web areas became classrooms. While this may help to introduce teachers to a new technology it does give an impression that online teaching and learning is comparable to the classroom. Such a construct, deliberately or otherwise, 'hides' the differences between the systems. For example, the rules that govern a learning conversation in the classroom are very different to those of the online community or the kind of discussions that take place in an online discussion board.

There was an expectation that lead teachers would train other member of their department, supported by the school network team, to programme subject areas. Whilst the teacher survey had shown that most staff felt confident in the use of school based technologies and would call on network support when required, in practice this meant that staff were confident in the use of a narrow range of hardware and software. Where specialist programming was required

teachers would rely upon members of the network team, relinquishing to a certain extent their control over the teaching environment. The assumption that lead teachers could 'pass on' those programming skills required to establish learning areas was not backed up by observations.

As has already been stressed the term learning platform covers a broad range of applications. A feeling of expertise in the use of one area does not mean that a teacher is skilled in using all applications or in using them in an integrated way. The Head of Subject in English felt proficient in establishing forums for use in class and saw this feature of the platform as an important element in her teaching. Beyond this she had to rely on support from the school network technician to programme class pages and upload files. The subject leader in PE developed an area where he could upload files for pupil access but mainly relied upon pupil expertise to support this and used no other feature of the platform. Over the course of the year that minority of staff who used the platform regularly were mainly from that group of recently qualified teachers who had used a VLE in higher and further education. Beyond initial support from the platform administrator that involved setting up a class area and establishing permissions to access it, this group of teachers independently experimented with the platform and became self-learners in developing the technical skills they required. The majority of teachers who used the platform irregularly relied, as they did with support for the use of most other classroom technologies, on regular assistance from the network team and administrator.

Recently qualified teachers were also those who had worked most frequently with the senior teacher in exploring platform pedagogies. Where platform use had the greatest impact on learning it would appear that this was the case where teachers had mastered technical and pedagogic skills.

8.4.3 Pedagogy and Technical Skills

In the 1990s Fowler and Wheeler made the following observation about teacher use of email in one particular project:

The teachers reported a continuing struggle with the technology. The computers are not easy to use. Many of the teachers encountered difficult problems getting their computer, modem, and software to work smoothly (Berge and Collins 1995:p.88).

Published in 1995 it refers to research that took place amongst high school teachers when the percentage of US schools that had access to online communication was just over 7% and classroom teachers were only in the very early stages of training. Their observation is one that can be found in other contexts. To return to NOF once more, the 2002 TTA Review of this training found that 'the requirement to have reliable technology … has been a complicating factor … as has the fact that individual participants and schools were at very different points of knowledge and understanding of ICT skills and pedagogy (TTA 2002).'

When the Learning Schools Programme was launched as part of the NOF training scheme, the OU was clear that technical skills were not its main priority (Galanouli, Murphy and Gardner 2004). Provision was made for limited training on use of the course VLE, how to log in and make contributions to the course forum, but the emphasis was upon pedagogy and the ways in which technology could enhance or improve teaching and learning.

The skills-knowledge divide is one that can lead to passionate debate in respect to pupil cognition but can be applied equally to teacher learning. Gerver very usefully uses Rasmussen's Skills Rules Knowledge framework to bring some balance to this particular discussion (Gerver 2010). The framework describes three levels of understanding based on behaviours (Rasmussen 1983).

- At the skills based level, once behaviour has been learned it then requires very little conscious activity to carry it out. So for example learning to upload a file to a VLE could be considered a skill that once learned requires little attention.

- Rule-based behaviour involves carrying out a series of instructions without necessarily having to understand the details of a system. Within a learning platform there are certain procedures that teachers need to follow in order to establish, for example, a forum. They don't need to have a comprehensive understanding of other parts of the platform or even of forums. By following a series of set instructions they can establish a forum without any knowledge of forum behaviour.

- Knowledge-based behaviour requires deep as opposed to surface reasoning. 'People are required to know the fundamental principles and laws by which the system is governed (Gerver 2010:p.45).' In terms of forum use, this means understanding principles such as threading, weaving and summarising (Salmon 2005a).

This is a useful framework within which to place the skills debate in relation to platform applications. Whilst one level without the other can be meaningless, the dominance of any one particular level can lead to a very different kind of experience for both pupil and teacher. The framework can help to explain why one teacher's use of a particular application can have very different outcomes compared to a colleague using the same technology. For example, at a technical level those skills required to establish a forum are different from those involved in setting up a blog or a wiki.

At this level it may be unrealistic to expect classroom teachers to learn the kind of online design skills that have traditionally been the responsibility of the school network technician team. In the research school a network assistant was appointed in 2009 to train staff and support platform development. Many staff subsequently relied upon the technician to programme elements of the platform for them, even those who had attended local authority training sessions that dealt mainly with the skills required to programme specific applications. During the February Online project the network assistant was overwhelmed by content provided by teachers. Applying Rasmussen's model, most teaching staff evaded the skills level by relying upon network technician support and even where basic technical skills were learned they appeared to be quickly forgotten.

When Anne and Andrew introduced forum use to their history classroom the application had been set up by the network assistant for them. Anne had been introduced to Salmon's five-step model of e-learning and equipped with Brown's assessment model (Salmon 2005a) and her use of the forum was subsequently different to Andrew's. In Anne's classes there were instances of threaded online discussions emerging with low occurrences of discussions going of task or being simply constructed. Andrew's class without this model of use and following a rules based approach to forum use, mainly used the forum area in a way that reflected social networking use outside school. There were examples of pupils going off task and as Andrew commented, using the forum to socialise and have 'fun'.

Whereas Andrew had no prior knowledge or model upon which to base forum use, Anne's knowledge had equipped her to move beyond a simple skill or rules based approach to the technology. The researcher had an obvious impact here in that the introduction of both the Salmon and Brown models would not have taken place without that input. The differences between the two approaches to classroom use of the forum does begin to illustrate those differences between a purely skill or rules based approach to using the technology and one where pedagogical knowledge is also included in the mix.

8.3.3 Pupil Skills

Andrew had also assumed that because pupils used social networking sites outside school that they would be able to conduct a learning conversation through the platform in class. Whilst not part of the focus of this research it is useful to consider briefly the issue of pupil skills, teacher perceptions and how these in turn might impact on the skill set that those teachers feel they need to develop. There is a large body of literature relating to the computer skills of the net generation, their use of Web 2.0 technologies (Tapscot 1998; Green and Hannon 2007; Sheard and Ahmed 2007) and much debate over the transferability of those skills into the classroom. There was a clear belief amongst teachers in the research school and one that is commonly held by professionals in education that the computer skills of those being taught were superior to those doing the teaching. The assumption that pupils possess these

skills is questionable. Claims that the net generation is proficient in the use of learning technologies may simply not be the case as most of the technologies in use in the classroom have only developed within the past 4-5 years. Evidence from platform use suggested that social networking skills do not necessarily transfer into skills for learning using similar technologies in the classroom. Where focused small group work took place, such as in the D&T lessons and where teachers prior to the introduction of the technology had clearly developed a culture of collaboration, effective learning (deep learning) took place. The use of the technology for collaborative purposes had little to do with the nature of that technology and more to do with the culture of learning within that subject area. In the history intervention, with a larger group of students, where such a way of working was not necessarily embedded, surface learning resulted. In the history forum, where teachers assumed that student online 'chat' skills would result in deep and extended learning conversations, they did not. Students appeared reluctant to engage in conversation. A similar situation was evident in English forums and during the February Online project an extremely small minority of students contributed to forum use. The reasons for low participation rates were not investigated as part of this research, but there was an expectation amongst staff that these net generation pupils would take to forums like ducks to water because of their outside exposure to these applications. Where learning was deemed to be most effective, those teachers had a clear pedagogical vision and adapted the technology to this.

Within the traditional classroom, where technology was not being used, the objective of the 'lesson', within the activity theory framework, remained focused on curriculum or subject based learning. Where the platform was used there were instances where the learning or transference of technical skills replaced this. The focus became not the 'teaching' of the requirements of the syllabus, but the teaching of how to use a wiki, how to contribute to a forum or how to download a file. Teachers had to rely on support from outside their normal community of practice and relinquish the role of classroom expert. Sometimes that classroom expert, as with the PE experience, could be the pupil teaching other pupils. The skills that made teachers 'powerful' within one activity system did not readily transfer to the medium of the forum or the wiki.

8.5 Flexible Learning

It's in the practice of flexible learning that tensions or contradictions between the face-to-face and virtual activity systems might be expected to reveal themselves. The rules and regulations that govern distance as opposed to physical teaching are different, even if only at a synchronous or asynchronous level.

I have already referred to the DfES review of *Progress towards a Unified E-Learning Strategy* in Chapter 3. The views of school leaders, teachers, ICT co-coordinators and network managers were canvassed through an online questionnaire (DfESa 2004).

> In your experience what are the most significant achievements of e-learning? 105 (49%) respondents said flexible learning was the most significant achievement of e-Learning e.g. the learner can choose a convenient time to learn, rather than having to adapt to timetables (DfESa 2004:p.44).

What is not clear from the national survey is what is meant by learning, e-learning or indeed teaching and the role of the teacher, although those who replied had some common understanding that whatever it was it would take place outside the confines of the normal school timetable and away from the school itself.

In the research school, prior to 2008, a number of small-scale projects had taken place in relation to off-site learning. These projects included a six-week forum project, organised through the school PHSE department, targeted at students in Year 10 and dealing with the subject of 'Sexualities in the Classroom'. That project was linked to topics that were being taught in the classroom and was supported by ex-students who acted as trained e-moderators. The SSAT has explored flexible learning within secondary school supported by student age mentors who provided online support for GCSE revision purposes. The ICT Department had also offered a small group of Year 11 students the opportunity to study a unit of curriculum work online, outside school hours, with the option of not attending those formal lessons in school.

These projects highlight the small-scale fractured nature of flexible learning and have been illustrated by me in other publications and conferences (Fanning 2010c, 2010d, 2011b).

The school system is one where face-to-face learning in the classroom is the norm. Parents and carers expect this and feel comfortable, safe and secure in the knowledge that their children are physically present in school, being monitored by another adult. It is also a system that teachers have trained for and a lack of comprehension relating to formal education being delivered at a time and place away from school is understandable. It should also be recognised that for registration and attendance purposes, according to advice received from the local authority, pupils must be physically present in school for registration purposes. Those pupils who will have most experience of virtual learning are those who have been excluded from the mainstream. A minority of pupils in the research school were non-attenders and were being educated through the local authority virtual school as part of a statutory arrangement set up. A small minority of pupils who were absent due to illness also accessed learning resources through the learning platform. In both of these cases online support replaced and did not supplement or enhance existing face-to-face learning.

Where outside school hours support for learning had taken place in the research school it was mainly through email. Email logs showed that this was simplistic in nature, with staff and students exchanging files. Only one member of staff had attempted to use the platform task tool to set and receive homework and as has been explained this was abandoned due to what they felt was the technical complexity of that tool.

There were some examples of the English department attempting to use a forum to support GCSE revision, but with little student input. The D&T forum, facilitated by James, the class teacher, was the only example of forum use that had been integrated into a series of face-to-face lessons and then used to support out of school learning. As the tracking of contributions to the forum showed both teacher and pupils had become accustomed to contributing to discussions during evenings and weekends. The forum was used to actively

support learning and not simply as a file-sharing service. During the February Online project most subject areas had forums. These were little used by students with the exception of Year 9 History, where there were some good examples of threaded discussions. Students had to 'write a letter from the trenches' and post it into the lesson forum for comment by other students. In most of these examples however teachers had not established any pattern of visiting and assessing forum use throughout the period that pupils were working.

During the research period the only other major example of flexible learning was the February Online project, where face to face learning in the weeks prior to the project was then supported online during that period when pupils could not attend school. Despite the short-term nature of the project some findings began to emerge that have a wider implication for schools that follow this route.

Whilst the objective of the February Online project was to support learning, teacher input to that process was limited to making available resource files and in that respect there was little difference between platform and email use. The majority of teachers supplied learning resources as Word, PowerPoint or PDF files. Paper-based resources tended to be either exam papers or commercially purchased worksheets and these were given to the network technician to convert to a digital format and upload on to the system. Where files had previously been used in the classroom, with the teacher acting as mediator between the resource and the learner, no such support was considered to be necessary to enable a pupil access to those files. An underlying assumption seemed to be that if a resource had been used in a classroom it would be suitable for supporting learning outside the classroom if made available online.

There was no consistent approach to the design of on-screen lessons. For example, in the Science lesson pupils had simply to following 'instructions' and 'tasks' in linear order to complete the lesson. The Business Studies lesson was based upon a collaborative model of learning in which the main communication features within the platform were used in an integrated way. Many staff commented on the sheer bulk of pupil work that was produced and effectively

assessing it. Providing rapid support within current work practices was difficult, as many pupils preferred this during an evening or weekend. Students wanted online support out of school hours and a speedy response to e-mail and forum posts. There is an expectation that if teachers want to deliver an out-of-hours programme of study then they teach as normal and in their own time support flexible learning. School systems don't support flexible learning.

Sometimes in research an incident occurs, either once or a limited number of times, that may provide a unique insight and is worthy of further research. That critical incident in relation to flexible learning can be seen in the use of live conferencing to support pupil learning. This was used with the platform on a number of occasions during February Online and reveals how certain approaches to flexible learning might change the teacher/pupil relationship. During one-to-one sessions, discussions about learning became a 'mix' of academic and social chat. The example below is a transcript of an opening discussion with a Year 11 pupil that took place during an evening support session.

The conversation began, not in a formal way as most classroom discussions would, but with some social chat. Formal English was not used, spelling was varied and emoticons, symbols used to display an emotion, were in evidence (See Table 9). *Jordann'x* is the pupil and *februaryonline* was the teacher.

Jordann'x - says:	*went to see a specialist about my teeth*
februaryonline@school.org says:	*Ok* *Teeth ok?* *where they should be etc ?* ☺
Jordann'x - says:	*yes yes there fine*
februaryonline@school.org says:	*need to go back or is that last visit ?*
Jordann'x - says:	*go back when im 17*

februaryonline@school.org says:	wowo you'll be real old then ☺
Jordann'x - says:	*yep*
februaryonline@school.org says:	*so how is the work going?*
Jordann'x – says	*i have done itc and maths but i dont understand some of the others*
februaryonline@school.org says:	*ok*
Jordann'x - says:	*do you have the paper copies?*
februaryonline@school.org says:	*just checkin yr 11 area*
Jordann'x - says:	*d.t, science core, double science and soc.ed I wanted help on*

Table 9. Forum Transcript.

The teacher had to provide both technical advice as well as support for the subject specific learning. The pupil wanted advice in converting files to a readable format as well as support for his academic studies. As the online conversation progressed, members of the pupil's family appeared from time to time in the background and participated in the conversation.

In a number of different ways this incident reveals much about the differences and conflicts that can arise between classroom and virtual teaching, in a scenario where the teacher-pupil relationship is based on the historic one of the classroom. Applying the activity theory framework to this incident:

Object or Objective: As has been illustrated throughout this chapter, the object or objective of the online support fluidly moved from a focus on the academic activity, to problem solving at a technical level, to a social discussion. In the physical classroom the focus would have remained on the academic targets.

Division of Labour: The teacher had to involve support from the school technical team in setting up the videoconference, although the incident still required a high level of technical skill and knowledge on the part of the teacher. In the classroom there would have been no such division of labour, with the teacher in charge of his own planning.

Community: The physical classroom is a sealed and controlled environment, where visitors enter at the request of or in agreement with the teacher. In this online scenario members of the pupil's family appeared on the fringes of the lesson and interacted with the teacher.

Tools: The video conferencing application was not part of the learning platform but was used in conjunction with it. In the physical classroom the written text dominates learning. Introducing new texts can require longer term planning and development. Virtual tools can be more flexible and speedily offer a solution to perceived needs and problems. Whilst this thesis has focused on the use of applications or tools from within the walled garden of the VLE, the practice can be more fluid and even anarchic, with a vast range of web-based services to choose from.

Whilst it may appear however that different activity systems are at play, in a blended learning situation, it is in fact the physical classroom that is dominant.

Rules and Regulations: In the literature relating to online learning there is an emphasis upon the changed nature of the student-teacher relationship. The teacher role, it is argued, becomes one of facilitator rather than director of learning (Hiltz 1998; Lehmann 2004; Lin 2010). The traditional paradigm of classroom teaching has been described as a transmission model of learning. The teacher is a director of learning and a knowledge provider. The assumptions behind this style of pedagogy are that learners are passive recipients (Ruben 1999). Whilst it's not possible to say that is a universal style of teaching, Crawford has contended that in British schools it was the dominant mode of practice (Crawford 2001). The term facilitator in respect of teaching predates virtual learning by many years but has become the dominant term to describe the role of the online teacher. As it has been described colloquially, it's the shift from 'sage on the stage to guide on the side' (Mazzolini and Maddison

2003). The features of this role are that it is student centred, it's collaborative, learning between and amongst students assumes a greater importance and the social process is seen as a key part of the learning process. In the video-conferencing scenario, where that teacher-pupil role is an extension of the face-to-face classroom one, with all of the hierarchies of power that are involved, there is no evidence that learners are able or willing to do without teachers. The teacher remains the focus for learning. It would be interesting to explore this issue of power relationships over a period of time where online learning has become more common or even embedded in everyday use at a school level.

My initial assumptions about any change that would occur as a result of use of the technology in the classroom were premised on the belief that the learning platform had been designed to facilitate a collaborative, community based, constructivist approach. As Friedman has said, "I believe that capabilities create intentions (Friedman 2007:p.536)". I will address the issue of technological determinism and neutrality in the next chapter.

8.6 End note

What separates this research from others in this field of interest is its focus on the use of a VLE in the secondary school classroom in a blended way. The technology has not been used to supplant face-to-face teaching. The virtual and the physical co-exist. An activity theory framework has been used to explore the tensions that arise in this scenario and evaluate issues relating to surface or deep personalisation. One of the strengths of such a framework is the way in which it can flexibly adapt to the changing nature and use of technologies.

If better or improved access to existing services is an indicator of shallow personalisation, in terms of the teacher and the classroom this has shown itself in a number of ways:

- Pupils in the history intervention talked about an improvement in the quality of the primary sources that were made available online and the benefits of access to these wherever they had use of an Internet enabled computer;

- In those subject areas where resources had been uploaded to the platform, teachers felt that they might benefit in the future from creating this kind of resource bank, although the majority commented on the amount of time it took to create this;

- The comparison between the two history classes suggested that VLE use had improved the amount of time a teacher could devote to individual pupil support, although given the limited nature of the intervention more research in this area of practice would need to be forthcoming before any firm conclusions could be reached;

- In the IT classes resources had been differentiated online and a range of multi-media files used to improve pupil access to these;

- Teachers felt that the group based extended learning projects referred to benefited from being centrally resourced on the platform;

- Forum work in D&T suggested that formative assessment had been improved as a result of online conversations.

These are tentative observations. They must be tempered by issues that were raised in relation to staff skills, understanding of pedagogy in an online environment and time constraints in teacher planning. What these examples do not illustrate is system change. Most of these activities were taking place within the structure of the traditional classroom.

If deep personalisation is evaluated in terms of system change, where that change could be interpreted in a range of ways, from structural changes to the school day or the timetable, through to teachers adopting a different approach to pedagogy, then the following should be considered:

- The February Online project involved a change in teaching patterns as staff monitored and responded to pupil input during evenings and week-ends;

- The forum work in D&T was based around an asynchronous approach to learning, with contributions being made and responded too over a series of weeks rather than within the limitations of the one hour lesson;

- Use of the forums also required teachers to develop a new skillset in moderating online discussions;

- Teacher control of the online environment had to contend with the involvement of members of the outside community, who were not knowledgeable in terms of the culture and practices of the school classroom;

- Lesson objectives became more fluid as factors outside the main focus of the lesson had to be dealt with, such as instructing pupils in the use of a specific application.

Leadbeater (2004) talked about 'users' being 'in the driving seat'. It's worthwhile considering if pupils as users of the system were perceived to be more in charge. If a major facet of activity theory is about the uncovering of contradictions then a good indicator of this within the teacher led system would be pupil power, or pupil voice as Hargreaves terms it. There is some indication of this within the examples that have been discussed in this chapter:

- Input into forums and online discussions between pupils took place at a time when they were directly outside of teacher control, although the school had a clear policy relating to appropriate use of the forums;

- During the February Online project pupils chose to work at a time and place of their own choosing;

- Although the extended learning projects were based around a clear objective that involved the physical production of a project, pupils could choose the ways in which they worked with each other and where that work took place;

- Within the history intervention pupils had some element of choice in relation to the tools and resources they could use to complete their assignments;

- They also had some impact on the redesign of course content as they provided feedback to the teacher about the quality of resources.

This hardly puts pupils in the 'driving seat' but provides some indication of future tensions where use of the learning platform is developed.

Chapter 9

Conclusions

9.0 Introduction

The aim of this research was to evaluate whether the use of technology, in the shape of a virtual learning environment or learning platform, could support approaches to personalised learning in the secondary school classroom, along with the factors that were associated with this. Those factors included teacher understanding of personalisation, skills in the use of the technology and the emergence of flexible learning.

In this chapter I will:

- Review my analysis of learning platform use;

- Assess the theoretical implications arising from this research;

- Explore issues relating to further research into the technology;

- State my claim to significant new knowledge;

- Give an account of my reflections on this study.

In 2000 I attended a National Union of Teachers (NUT) professional development conference called 'Leading from the Light'. The theme of the conference was the use of technology in the classroom. I recorded the following statement that was made by Charles DesForges, one of the conference speakers. He was at that point professor of education at the University of Exeter:

> Of the good reviews of ICT in education, 90 per cent were rhetorical, 9 per cent were concerned with management of ICT, and one per cent were empirical.

The importance of evidence based practice was a theme that DesForges would return to on future occasions (DesForges 2004).

The 2005 Learning Platform guides published by the DfES were not based on wide scale practice, evidence or research. They set out a series of rhetorical positions in relation to the ways in which the technology might be applied in primary and secondary education (DfES 2005a, 2005c). The 2008-09 academic year was the first one in which a local authority approved learning platform was introduced in the research school. This thesis represents research into emerging or developing, rather than embedded, practice. It is set against a backdrop of potential outcomes expected by the local authority, platform provider and school.

9.1 An analysis of learning platform use.

9.1.1 Does the use of the platform support approaches to personalised learning?

Where the platform supported classroom teaching the following findings emerged.

The assessment tool on the platform was used mainly for summative purposes. Such use was found more commonly at Key Stage 4 than Key Stage 3. At Key Stage 4 this tended to emulate end of Key Stage/GCSE style assessment tests. Past exam papers were also uploaded to the system and available for students to download, complete and upload back to the teacher for marking. Where there was evidence of formative assessment the application most used was the forum. Formative assessment was present most commonly at Key Stage 3. Where there was evidence of formative assessment it tended to be found in project or cross-curricular work that extended beyond one lesson and into a series of lessons, over a number of weeks. Those departments that rated their implementation of AfL highly were more likely to be the ones where online formative assessment opportunities could be found.

Where resources had been uploaded to the system the vast majority were not differentiated. Only one department, ICT, had experimented with differentiation by task. History was also one of the few departments to explore the provision of differentiated resources and those series of lessons were taught by one of the technology teachers. Where differentiated resources had been created for a

flexible learning project teachers had to rely upon technology support staff to design those resources. Where the platform had been used in lesson time there was evidence that this had an impact on one-to-one and one-to-small group support as it allowed teacher time to be more effectively targeted.

No use had been made of the collaborative projects that were available through the platform provider. Where collaboration took place it was in the form of group work, with pupils mainly working in pairs to support each other's learning as opposed to completing a task that had been broken down into individual responsibilities. It was only in the year after the research data collection had taken place that a number of major cross-curricular collaborative projects began to be delivered.

Where support was provided for anytime-anywhere learning, that support was mainly available through email, which in the research school had not been integrated into the learning platform. Where curriculum work had been set up on a project basis, over more than one lesson, there was evidence of staff using the forum tool to support out of school learning. During the flexible learning project most work for pupils had been set up on a self-supported-study basis, with only a minority of staff being available to provide synchronous or asynchronous support.

Where staff were using the platform most tended to focus on the application of one tool, for example the forum or the wiki. There were few examples of subject areas using platform applications in an integrated way, except in those areas where staff had worked closely with the researcher and the school support team. Where staff had attended training provided by the local authority this had focused on one particular platform tool and this was subsequently emulated in classroom practice.

9.1.2 Does teacher understanding of personalisation influence the way the technology is used?

Where there was a departmental culture, a 'way of doing things' or a belief in aspects of the personalised learning agenda then this was reflected in the ways in which the technology was being used.

Formative assessment opportunities on the platform were most obvious in Design & Technology lessons and that subject area had rated self-assessed its implementation of AfL as very good. Collaborative working was described by D&T teachers as a key component of their face-to-face teaching and was evident in the Year 9 project described in this study. Year 7 Team teachers described collaborative planning, teaching and learning as essential features of the teacher and pupil experience and this was also reflected in the online lessons taught by those teachers. The Head of Team described features of AfL as being embedded in the practices of the Team and again this was reflected in the online lessons that were taught by teachers. The Head of Science believed that summative assessment and the tracking of pupil progress were key elements of personalised learning and this was reflected in the dominance of summative assessment opportunities on the platform in this subject area. In History the teacher's belief in collaborative working practices led to the design of an area to support the teaching of her Key Stage 4 class that incorporated tools such as the forum and the wiki. Other members of the department, who adopted what could be described as a more behaviourist approach to teaching, mainly used the platform to provide access to resources that had been used in their lessons.

The use of the platform reflected the culture of the department and the beliefs of individual teachers, suggesting that pedagogical beliefs influence the use of the technology rather than technical skills (Ertmer 2005). The ICT subject area was the only one to experiment widely with the full range of tools and web designs to support learning, suggesting that where skill's and pedagogic understanding complemented each other use of the technology developed beyond replicating existing practice.

9.1.3 What skills do teachers and pupils require?

In the school survey (see Appendix 2) 35 % of teachers said that lack of skills was a barrier to platform adoption. Whilst the majority was able to describe the different components of the school-learning platform, data from the system showed that only a small range of applications or tools were being used. No training needs analysis had been carried out prior to the introduction of the technology. The training package provided by the platform provider was based on the skills necessary to set up a web page, populate it with content and establish tools such as a wiki and forum. The local authority supported this package of training, although it was assumed that each school would have its own platform administrator who would be taught a higher level of technical skills relating to areas such as access rights. Throughout the research period only a minority of staff showed competence in these technical skills, whilst a majority relied upon support from the network assistant to programme the platform.

Where an application was being used by a member of staff, irrespective of whether they had set this up themselves or relied upon technician support, in most instances they were not aware of any model of pedagogic practice upon which to base their teaching with the application. For example, established practice in the use of forums describes the emergence of threaded conversations and the skills required to weave and summarise. Some staff were influenced by the researcher who raised an awareness of models of use and assessment and where this was absent use of the forums reflected simple surface learning.

Whilst the platform provider and local authority drew a distinction between the technical skills of teaching and non-teaching staff, the reality is that working practices are not so easily defined. In the research school the network manager stated that:

> Teachers need to take some responsibility for being able to allocate passwords that students have forgotten, create files in a format that can be accessed by those who do not have the applications we use in school and set up group and individual permissions to use particular features

within the platform. Those areas are the ones that pupils most commonly complain about and the ones that disrupt lessons most as we try to provide immediate support where the platform is being used.

The staff questionnaire (see Appendix 2) conducted for this research suggested that the majority of teachers felt confident in the use of school technologies, without seeking technical support. The technologies they were using however required fairly basic computing skills, whereas the intricacies of the platform required a more detailed technical knowledge of specific applications and their programming. Some teaching staff resisted training in these areas, stating that this was a responsibility of the network support team. For Bowers (Bowers 1988) and Feenberg (Feenberg 2002) control over the technical aspects of technology are important. It's about empowerment and not leaving the technology in the hands of a technical elite who understands little about the culture of schools and the processes involved in learning.

In her 5-step model (see Figure 1) Salmon describes technical support for e-learning as including setting up the system and supporting student access, sending and receiving messages, personalising software and conferencing as some of the key skills of the e-moderator or online teacher. Later in this chapter in Figure 23 I have described a range of technical skills that teachers require in order to use a school-based platform. These include creating and managing forum, wiki and blog applications, although the contextual nature of the technology means that schools need to identity their own skills base. To these I would add an understanding of web design and the ways in which online environments can be programmed to enhance pupil learning. Jakob Nielson has carried out a great deal of research into the ways in which young people read web pages and access the information on them (Nielsen 2001; Nielson and Loranger 2006). His work his highly relevant to any teacher designing content for a learning platform.

Technical skills, that is programming skills, also need to be combined with what I would call the management skills required to lead or moderate learning within a specific application. As Salmon illustrates in her e-learning model in relation to forum use and has been shown in Chapter 6 in the Team 7 history lessons,

online teachers need skills that include summarising online discussions, weaving between discussion threads and encouraging the participation of lurkers or those who do not contribute (Salmon 2005a).

The local acquisition of such skills may assume an even greater importance given the British government's plans to remove the ICT skills test as a requirement for achieving Qualified Teacher Status (TDA 2012).

As was highlighted in Chapter 8, there is an assumption amongst professionals that since the current generation of pupils have been born and brought up with Internet technologies, they somehow understand how to use those technologies in a way that teachers, and certainty an older generation of teachers, do not (Green and Hannon 2007; Sheard and Ahmed 2007; Tapscott 2009). In the research school all pupils had received training in use of the technical aspects of the platform in ICT lesson time. This included logging on, uploading and downloading files, taking surveys and contributing to forums, wikis and blogs. A school learning platform code of practice (see Appendix 14) was used to instruct them in appropriate use of the communication tools and school sanctions that would be imposed for those failing to follow guidelines. What was not explained to pupils were the ways in which use of the platform might change classroom teaching and learning. Nor indeed, bar a few exceptions where I intervened, did pupils have an understanding of either the practices associated with collaborative learning or how to make their own contribution to these. The relatively few pupils who took part in the forum that was established for the history intervention, as described in Chapter 7, appeared to lack not the technical the skills but rather the learning skills required of that environment. The forum use by Team 7 teachers, described in Chapter 6, appeared to show a difference in participation patterns between those pupils who had been instructed in the use of forum discussions for learning and those who had not. In order to use VLE applications effectively, pupils require not only instruction in the technical skills required to access and use the system but also skills in learning to learn online. It's in this respect that Salmon's model emphasises the role of the e-moderator or online teacher as facilitator, supporting pupil interaction with not only the learning materials but with each other.

9.1.4 Is there evidence that flexible learning begins to take place and does this begin to blur the boundaries between learning in and out of school?

If flexible learning means access to learning resources that had been used in the classroom, to support learning, at a time and place outside the normal school day, then there was evidence that this was already happening, through the use of email or within department specific online services. For example the Mathematics Department used a service called MyMaths to set homework, as did MFL with a product called Linguascope.

Through the learning platform:

- In GCSE History there was evidence that pupils accessed classroom materials out of school hours, although these students tended be from the group of high achievers. Support was not synchronous and tended to be limited to making available what had been taught in lesson time;

- ICT lessons and access to them reflected much the same practice as in History;

- The D&T forum used to support Year 9 lessons was accessed by the member of staff on an evening and week-end basis;

- Forums to support GCSE revision in English had been set up by the Head of Subject but were used by a small minority of pupils;

- The extended learning project called February Online relied mainly on the provision of resources that had been uploaded to the platform, although video conferencing outside the system was also used to provide live instruction.

Learning outside school relied upon files that had been uploaded to the system by the teacher. Learning opportunities during the February Online project were predominantly task orientated and provided in a linear, chronological order for pupil completion. Where the platform was used to support learning outside

school hours it was mainly about accessing content with little pupil-teacher interaction.

Although the evidence base for this is limited, where that inter-action took place, there was some indication that the boundaries between in and out-of-school learning were being blurred. Whereas access to files on the platform tended to re-enforce existing learning and were not based on working with a teacher, forum and video-conferencing relied on teacher support. That support took place in the teacher and pupils own private time and personal space. In the case of the synchronous conferencing that personal space could also be inhabited or visited by other members of the pupil's family, who could engage with the teacher. It could lead to new learning as opposed to repeating what had already been learned in class time.

9.2 The theoretical implications arising from this research.

According to Cuthell an awareness of other theories of learning has not prevented a behaviourist model of teaching and learning being the dominant paradigm in teacher-pupil interactions (Cuthell 2005). For most of last century pedagogy has been instructional in nature (Cuban 1986); it is how teachers were taught as pupils, it is how they were taught to teach. It may be that the focus on exam results as a way of measuring school performance, means that a change in pedagogy or a willingness to experiment is unlikely (Green and Hannon 2007). There is support in the literature for the view that new technologies are transformational (Graves 2001; Garrison and Anderson 2002) and will move education from a traditional, behaviourist, subject-focused model towards a constructivist, student-centred one (Twining, Broadie, Cook, Ford, Morris, Twiner and Underwood 2006). This chasm between learning theory and learning practice may be a barrier to the development of learning platforms in the school classroom. A poll of staff in the research school suggested that a large majority were at least aware of Piaget, Vygotsky and Bloom (DCSF 2007), but almost none acknowledged Salmon, Laurillard or Wenger (Wenger 1999; Meredith and Newton 2003; Salmon 2005a; Laurillard 2006).

This research has highlighted issues with some of the theoretical frameworks that have been used to investigate the application of virtual environments in the setting of mainstream schooling. VLE technologies were initially used manly to support learning where distance was a barrier. When the OU Business School launched its first online course in the UK in 1988 the technology supported and extended the university-without-walls practices and ethos of that institution. The theoretical frameworks that have underpinned such use have been based on adult learners engaged in a flexible course of study, where classroom teaching has been limited or non-existent:

- Laurillard's (Laurillard 2006) conversational theory, borrowing as it does from Vygotsky's zone of proximal development, places the teacher in the role of mediator vis-à-vis the student and the course materials, but again is based on a higher education model of use where the face-to-face role of the tutor-teacher has not been influenced by the kind of power play relationships that exist in the classroom;

- Salmon (Salmon 2005a) describes the online teacher as a facilitator of learning, but this is an online role and not influenced by the ways in which working practices and relationships are formalised in a physical setting.

It is worth noting that as the use of technology to support learning has expanded some commentators have altered their original assessments. There are some significant differences between the 1st and 2nd editions of Dreyfus' On the Internet, published in 2001 and 2009 respectively (Dreyfus 2009). In the latter edition Dreyfus states that:

- Distance education or learning with the Internet has promised a false hope and that is now accepted (that hope was in evidence in the 2001 edition);

- US educators who predicted that the net would solve the ills of the education system now accept they are wrong (in 2001 the potential for technology to support or lead school improvement was strongly held);

- Learning requires a physical, social presence that the net cannot successfully replicate (the importance of social presence was not so heavily stated in 2001).

Salmon (Salmon 2005a) emphasised the importance of socialisation in her model, as in most cases those students engaged in online learning will be unknown to each other. Where the online experience is being blended with classroom teaching however, participants are known to each other. It has been argued that online learning represents a socially neutral experience with none of the social politics that influence classroom. Whilst this is debatable, it is clear that the classroom is not socially neutral and where this is the starting point for learning it will influence online interactions. Salmon focuses on the forum as the key application in online learning, but where a learning platform is being used a range of other tools, such as the wiki, may be central to the learning experience. In terms of the integrated use of a range of applications within a course of study a model of use is not readily available.

These are important issues in regard to the use of learning platforms in the classroom and consistent with the findings of this research. Throughout the research period there was no evidence that pupils were willing to forgo the teacher as the 'significant other' in their learning experience. Pupil interviews consistently highlighted a preference for the immediacy of feedback and detailed discussions that were a feature of the physical classroom. Working practices in the pilot schemes for local authority virtual schools, funded by UK central government, managed by local authorities, focusing entirely on online teaching and targeted at secondary pupils with special needs, suggest the importance of a physical presence in the teaching of that age range (Berridge,Henry,Jackson and Turney 2009). As with mainstream education however there is as yet little research into the model of teaching and learning provided by virtual schools. Local authority budget cuts may influence the services offered by virtual schools before impacts can be measured. These observations and the findings of this thesis signify a need for a model or theory of use that will successfully blend both the physical and the remote online learning experience.

9.3 Issues relating to further use and research into learning platforms

9.3.1 Classroom Use

Just as the 2005 decision to require a personalised learning space for every pupil led to the adoption of learning platforms by schools in England, so may political decision making decide the future development of that technology.

The 2005 e-Strategy is currently under review by the UK coalition government. Whilst it is not possible to predict what value a new administration may place on virtual applications that support learning, it should be noted that the 2010 Education White Paper made no reference to the role of any learning technologies. Budget reductions also herald a change in the long-term use of platforms. In 2010 every school in the local authority in which the research was situated was asked to indicate whether it would voluntarily continue to support the preferred learning platform for the next academic year and agree to a license renewal. 95% did despite costs increasing due to a decrease in central government funding through the Harnessing Technology Fund. Beyond 2012 there is no guarantee that local financial support will be available. This is compounded by the fact that a new platform product has been announced by the provider, with increased costs, some as yet unqualified compatibility between old and new products and no indication of timescales involved in continuing supporting for the existing platform. This is a scenario common to many schools and local authorities across England.

Whilst teachers are aware of the range of applications available to support learning within a platform, for most the experience of using the technology is limited to a narrow range of tools. Learning platforms are and continue to be an undiscovered country for many teachers. Finding a model of use that reveals a way of teaching and learning through the integrated use of platform applications, whilst accommodating the formal teaching structures of secondary education, represents a gap in knowledge and practice whose resolution will be challenging. Especially in a situation where the management and development

of platform use is fragmented, with different schools and different local authorities using different platforms. Even in Scotland, where one platform has been used across every school, issues relating to models of use and development have begun to be voiced (Buie 2010; Seith 2010). A combination of these factors and the changing nature of technology may lead to schools investigating substitutes for learning platform applications. Anderson has already described an alternative in the form of a personalised learning environment that incorporates a range of technologies (Garrison and Anderson 2003; Anderson 2008). In the research school this is a development that is being considered.

9.3.2 Research

The inclusion of a pupil and a parent voice is noticeably absent from most research into VLE use. During the data collection for this project a number of statements were recorded from interviews with Key Stage 4 students. These have been published in a separate article and include the following comments:

- We want to use Facebook, Flickr, MSN and YouTube. You ban these in school and want us to use your learning platform. It is about teacher control and convenience isn't it?

- Why would I want to use a school platform when social networking sites are more exciting?

- Parent access is about me being checked up on and nothing to do with me being responsible for what I do.

- It is not my own personal learning space if I can't control who is able to view it.

(Fanning, Digital Panopticon, 2008)

In Leadbeater's terms, deep personalisation was reflected in users being placed in the 'driving seat'. Within the formal structures and traditional cultures of state education it's difficult to envisage exactly what this means for pupils and schools. In terms of these pupil statements there is little indication that the 'net' generation feels in any way empowered by the implementation of a school VLE.

Indeed a core theme or concern is the way in which the technology is perceived as a monitoring and controlling tool. This is a particular concern given, as stated earlier in this chapter, those aspects of platform practice that can blur the lines between school and home, between the public and the private.

Much of the large scale research into platform use in schools in the UK, limited as this is, has tended to be descriptive as opposed to evaluative. The most recent school based platform research from the Institute of Education (Jewitt, Hadjithoma-Garstka, Clark, Banaji and Selwyn 2010) stated that there were few studies of platform use in schools, but a large body of evidence from higher education, although this had rarely been used to inform school practice. As has been highlighted in this research there is a range of issues relating to the age of the learners, the curriculum area in which the technology is being used and the design of the range of platforms that are used in schools that make this problematic. A more fruitful source may be that growing body of International research that concerns the age range dealt with in this study. It is mainly ignored in UK based studies relating to learning platform use but may help to inform future development here. It includes:

- The Virtual Schools movement in the USA and Canada (Clark 2001; Hassel and Terrell 2004; Russell 2006; DiPietro, Ferdig, Black and Preston 2008);

- The experience of implementing VLEs in a range of European school contexts including the Finnish emphasis upon networked technologies in the classroom (Thomas and Hofmeister 2002; Law,Chow and Kankaanranta 2005), EU funded projects (Marcheggiano, Fichera, Mayer, Roncallo and Ronchi 2000) and the current research into the impact of VLE use at a classroom level across the European Union (Schoolnet 2010);

- Australia and the experience of distance learning (Baskin and Williams 2006) as well as the adoption of platform technologies in the face to face classroom in that country;

- The use of VLEs in secondary education in Northern Ireland (Austin and Anderson 2008) and Ireland (Shortt 2010).

The research literature suggests that activity theory is a popular framework for research in the field of human-computer interaction (Keengwe and Kang 2011). The framework has been applied extensively where online technologies are used in higher and further education (Scanlon and Issroff 2005; Blin and Munro 2008; Murphy and Rodriguez-Manzanares 2008; Rambe 2010). There are a small number of studies involving schoolteachers or school age pupils. For example, the use of calculators by young children (Groves and Dale 2005); school children immersed in a virtual reality (VR) system (Roussou, Oliver and Slater 2007); the impact of IWBs in the teaching of Maths (Zevenbergen and Lerman 2007, 2008); the contradictions inherent in the integration of ICT in a secondary schools (Demiraslan and Usluel 2008) and how teacher use of digital cameras impacts on classroom practice (Feldman and Weiss 2010). One of the main strengths of applying activity theory to an educational setting where technology is being used is that it allows for a holistic, comprehensive examination of systems in terms of their users and the tools that they interact with. It allows an exploration of the complex relationships between teachers, pedagogy and technology (Kervin, Jones and Verenikina 2010).

Where the framework requires further development lies in what I would call a multiple perspectives approach that includes teachers, pupils and parents as co-subjects. In this thesis the subject has been the teacher, who is responsible for creating or designing the learning objective, around which the lesson takes place. Whilst pupils and parents sit within the community that is involved in the activity, both have the potential to impact on other aspects of the framework. In the history intervention pupils could also be regarded as subjects as they influence the tools that are being used, the design of online content and even the object of the activity. Parental involvement is an entirely unknown and almost totally ignored factor in platform use. The original 2005 learning platform guidance highlighted the importance of parental engagement and parent access to pupil work and grades. I found no example of research papers relating to the technology that have taken account of the parent perspective. Similarly I found

only one study that applied activity theory to a study of pupil perspectives (Fåhræus 2004).

Engeström regards joint activity as a unit of analysis, rather than individual activity (Engeström 1999; Daniels, Edwards, Engeström, Gallagher and Ludvigsen 2009). His third generation model of activity theory (see Figure 22) has emerged as a way of analysing what happens when two or more activity systems intersect (Engeström 2001a). Object 3 in this model represents a collaborative or joint understanding of the outcomes from this convergence.
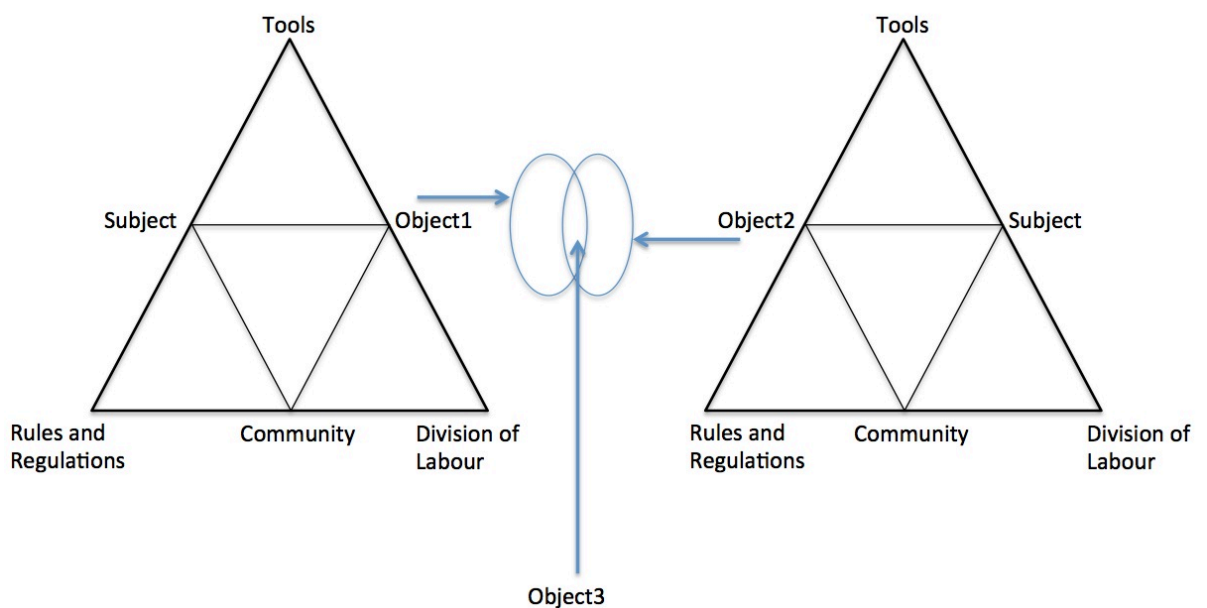
Figure 22. A 3rd Generation Model of Activity Theory (Daniels, Edwards, Engeström, Gallagher and Ludvigsen 2009).

I found only one study that applied a third generation model of activity theory to the secondary or high school age range (Murphy and Manzanares 2008). The study compared two activity systems, the physical classroom and the virtual classroom, and the experience of teachers who had worked in both. Within the activity theory framework Object 3 revealed the contradictions between the two systems. Although such a model requires more development for application in the context of this research, I believe that in its approach a third generation model has the potential to uncover some the fundamental issues relating why change in teacher practice can be so problematic when a new activity system meets a much older one.

9.4 New Knowledge

This thesis has adopted a traditional approach to methodology and data collection methods in its study of technologies that are new to mainstream education. Learning platforms are intricate applications operating within the complex environment of the physical classroom. A study of platforms involves the use of wikis, message boards, email, forums, live chat and a range of features that may differ in design from platform to platform. There is a growing body of research available for each of these individual applications. Within a lesson however these tools might be used independently, as pupils also access email, are involved in face-to-face discussions, post messages to a forum and then return to a paper or book based exercise.

The use of an activity theory framework has helped to uncover some of the tensions and conflicts that arise when both systems are blended and inter-weave with each other. The framework is flexible enough to cope with change, for example when the tools within a platform are supplemented by services found elsewhere on the web, as in the example of the video conferencing incident during the February Online project.

The framework has supported a way of understanding what happens in the classroom when a new technology, in the form of a learning platform, is introduced. In chapter eight I explored and discussed skills, pedagogy and school or classroom structures as separate entities. When these are brought together in an integrated model, what I have called a learning platform development framework, they support an understanding of the factors that can influence change and the kind of change that takes place (see Figure 23). The findings from this thesis suggest that where skills, pedagogy and structures complement each other, then use of the platform reflects aspects of Leadbeater's deep personalisation (Zone 4 on the model). Where one element is absent then the technology will replicate existing practices (Zones 1-3 on the model).

The model does not take into account external factors outside the control of the school that might influence platform development, such as changes in government policy or direction. Neither does it relate to users of the system other than teachers or pupils. In these respects it requires further development. What it does provide is a model for development of platform technologies involving factors that are controlled at an organisational level.
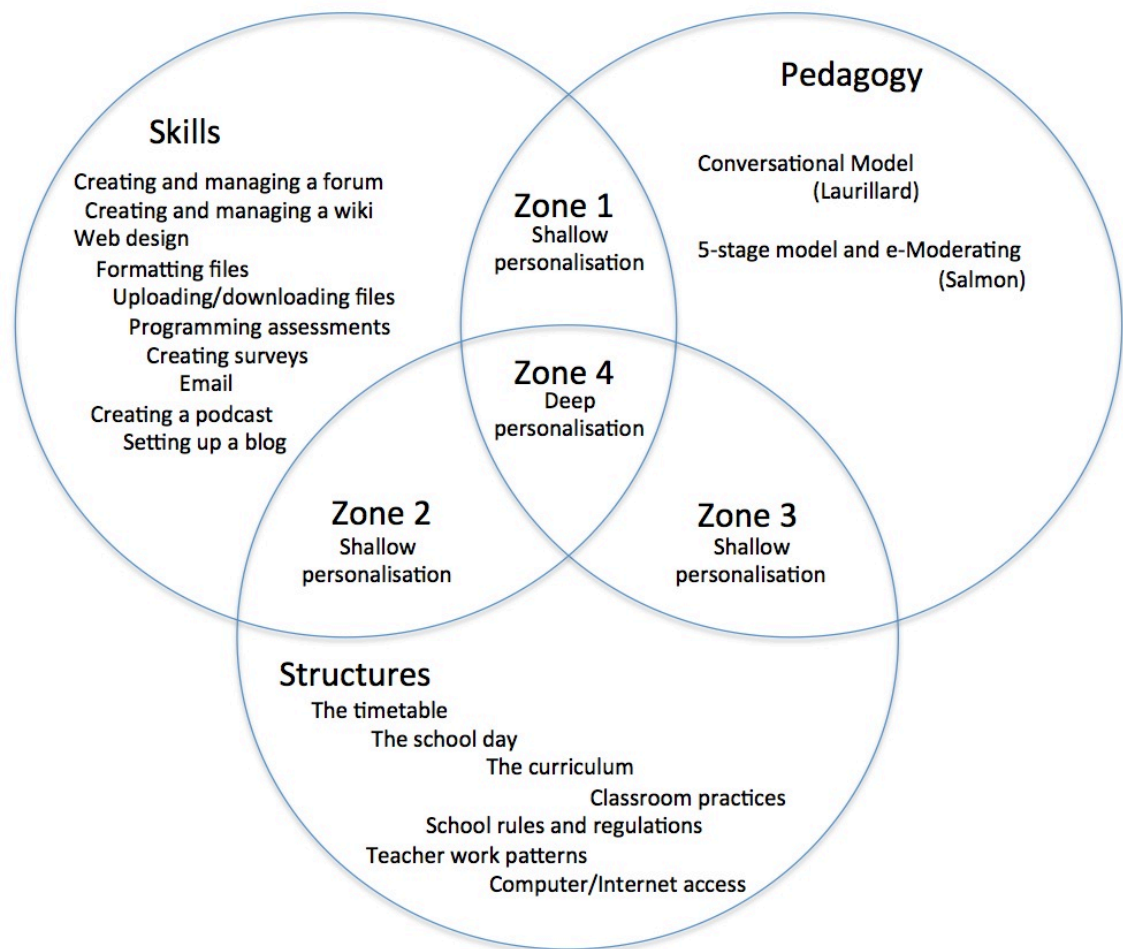

Figure 23. Learning Platform Development Framework.

The skills that are identified are by no means comprehensive. They reflect current use of the system by teachers as evidenced by this thesis and also research findings from a wider group of teachers canvassed by a BECTA sponsored research project (Underwood,Baguley,Banyard,Coyne,Farrington Flint and Selwood 2007). The activity theory framework revealed a tension between school based network technicians and teaching staff in relation to

these skills, with both putting forward the case that programming and design skills were the remit of the other.   For the purposes of this model I would argue that teachers, as the main directors of learning, should develop a range of technical skills in the applications they use within the learning platform. It is only through the acquisition of these skills that they can adapt their own model of pedagogy to online learning opportunities.

A stated earlier in this thesis, it has been argued that e-learning theories tend to be an adaptation of existing theories that relate to face-to-face teaching and learning. Some VLE applications however require a specific understanding of the pedagogical approach that makes best use of their features. For example, whilst the weaknesses of Salmon's model of e-learning have been highlighted, it does represent a way of working with online communities that has been widely used and adapted. Within the proposed framework a teacher understanding of such approaches has been highlighted as essential to effective use of the platform.

Lastly, school structures have been identified as a key element within this model. By structures I mean classroom practices such as the three-part lesson and features such as the timing of lessons, the school timetable and the pattern of teacher work practices.

The model has been suggested by evidence from those subject areas where, as a result of use of the learning platform, aspects of deep personalisation were emerging. For example, in the Team 7 use of forums, described in chapters 6 and 8, Anne the class teacher had the necessary skills to create a forum within the learning platform for the purposes of her lesson. She understood the Salmon model of e-learning and applied its principles of weaving and summarising to her management of the forum. She also developed forum use over a number of lessons during the term rather than limiting use to the one-hour lesson. Evidence of personalised learning could be found through group work, the differentiation of resources and the use of the forum to support formative assessment. Did the use of the platform disrupt traditional patterns of classroom learning? The activity theory framework revealed emerging tensions in relation to teacher workload, as Anne felt a responsibility to check pupil

contributions in her own 'private' time. One of Anne's colleagues delivered the same lesson to his class. Whilst he had the technical skills required to set up a forum and also understood the principles of the Salmon model, he restricted use of the forum to lesson time in school. Applying Leadbeater's concept of personalisation to these scenarios, deep personalisation began to emerge in Anne's use of the learning platform as learning was extended beyond the traditional boundaries of the school day, whereas her colleague used the technology to support an existing model of teaching.

This proposed model is a work in progress and I am aware that the observations and judgements made in regard to the Team 7 lessons are tentative. It requires further investigation in both the research school and further afield, but it does provide a framework within which to both implement and evaluate platform use. While this thesis has mainly focused on the teacher, the model could also be adapted to investigate and evaluate both pupil and parent use of the technology.

Within the research school the model has subsequently been used in the planning of a number of pupil projects. For example, in October 2010 an extended learning project was planned for all Year 9 pupils based around the learning platform (see Figure 24). The learning platform development framework was used to plan the project.

- Skills: training was provided for teachers in relation to web design and creating and managing forums. Teaching staff then designed the technical aspects of the project around their learning objectives.

- Pedagogy: I instructed teachers in the use of the project forum, based on Salmon's 5-step model. Teachers were also had the opportunity to evaluate their roles as directors and/or facilitators of learning within the project.

- Structures: The school timetable for the Year 9 teaching group was collapsed for the day. Pupils worked in their own friendship groups,

agreed on individual tasks that they had to complete for the group project and made decisions about working in and out of school.

Figure 24. Year 9 Extended Learning Project.

In January 2011 all Year 7 pupils took part in an extended learning project based around a topic called 'A Glasgow Murder' (see Figure 25). The planning for this project followed a similar pattern to the Year 9 one. The timescales were different, with the Year 7 project being taught over a period of 4 weeks. The

use of email was integrated into the system and parents were also encouraged to play a key role in the investigate parts of the project.

Figure 25. Year 7 extended learning project.

In December 2011 a consultation process took place in relation to the school vision for technology. A final vision statement was published in January 2012

with the learning platform being viewed as a key technology to support the vision (see Appendix 8).

This thesis and the learning platform development framework (see Figure 23) raise a range of issues for the school in which the research was based. A program of teacher training in technical skills is one obvious outcome, although some resolution needs to be found to the question of the division in skills between the school technical team and teaching staff. The use of AT suggested a tension or contradiction between network support staff and teaching staff perceptions of their roles in relation to the application of technology. Whilst teaching staff were the focus of work with the technology, support staff, who made up 50% of the total school staffing and who provided direct support to students in the classroom, tended to be omitted from training in relation to the VLE.

The framework suggests that school structures need to be adapted for effective use of the technology. The research literature and an evaluation of the data collected for this study suggest that where a learning platform is being used best to support personalised learning, teaching of a particular topic tends to take place over a period of time (asynchronous as opposed to synchronous) and is less teacher centred (i.e. learning becomes more collaborative, focused on the students and learning between them). The formal school lesson plan (see Appendix 9) has been updated (see Appendix 10), along with the Lesson Observation template (see Appendix 11) to highlight aspects of personalised learning. The school Teaching & Learning Policy (Appendix 6) makes no reference to the use or impact of online technologies and VLEs in supporting teaching and learning and has yet to be updated.

The CPD of teaching staff in relation to VLEs focuses mainly on the acquisition of technical skills. The training provided by the local authority has a similar focus.

In relation to flexible learning, the nature of teacher contracts places intense emphasis upon the face-to-face lesson. Where out of school online support

takes place it is reliant on the 'good-will' of the teacher and building in such provision in a formal way may prove challenging.

9.5 My reflections on this study.

If I had known when I began this research what I would say at the end would I have written it? "The game is worth while in so far as we don't know what will be the end", says Foucault (Downing 2008:p.vii). A starting point for me in reflecting upon this study is my initial assumptions about the impact of learning platforms in the classroom. I had assumed that where this technology had been integrated into classroom teaching:

- There would be a shift from a behaviourist to a collaborative model of pedagogy;

- The role of the teacher would change from director to facilitator of learning;

- Formative rather than summative assessment would become dominant.

My assumptions had been based on my experience of using the technology for a variety of distance learning courses with fellow professionals. As my research progressed it began to emerge that the use of the technology does not easily transfer from one context to another. When applied in higher and further education VLE use relies on flexible access, takes place outside the normal tutorial or lecture and is used by students over the age of compulsory education. School use may require it to be applied within the fixed time scale of the timetabled lesson and with pupils aged anywhere between 11 and 16. Education structures, style of teaching and learning aims vary between these different contexts. The asynchronous nature, for example, of the forum struggles to be adapted to a school experience that is built around live face-to-face interaction between teacher and pupil. A theoretical model applied in one setting may not be applicable in another.

Activity theory has provided a useful framework for exploring reasons why changes in working practices and relationships have been elusive where this technology has been used. Two themes have emerged from this, one relating to

what I would call the neutrality of the technology and the other a result of external control of the curriculum, what is taught and how improvement is measured.

- **A neutral technology**

Hunt (BECTA 2004a) makes the case that BECTA has regarded platforms as tools and associated change to the educational setting in which they are used. A central tenet of Heidegger's work, coming as it did long before the adoption of the Internet and web based technologies for learning, is that technology 'begins to alter our existence' (Ebersole 2007; Chandler 2008) and extending this to an education perspective, will change the nature of teaching. For example, one mandatory requirement of platforms is that they have a forum tool, where online discussions can take place. Forum use is built around a pedagogy based on collaboration and the joint building of knowledge and understanding (Salmon 2005a). The learning platform guides published by the DfES in 2005 refer to this new model of learning where platform technology is used (DfES 2005b).

I had assumed that since learning platforms had been designed for a flexible, collaborative approach to learning that this would lead to a change in teacher practices. My overall assessment of the impact of the technology however has been that in the majority of cases and within the timescale of this research existing classroom cultures and practices have been replicated using the technology. Although this research has been limited to one school, in common with other research studies I have found that change has either not taken place or that it has been slow (Hargreaves and Shirley 2009).

Friedman draws a line between technological and historical determinism; he believes that 'capabilities create intentions'.

> If we create an Internet where people can open an online store and have global suppliers, global customers and global competitors, they will open that online store or bank or bookshop………if you can do it, you must do it, otherwise your competitors will (Friedman 2007:p.536).

Friedman says he is not a historical determinist in that there is no guarantee that people will use these technologies. It is the market place that provides the

impetus for change. By and large state education does not operate within a market place and the notion of competition is not present. My original assumptions did not factor in the element of teacher choice. A minority of teachers chose not to use the technology, with a majority applying it on an ad hoc basis to support learning. Where it was used teachers chose mainly to use it as a file sharing service. Whilst use of other technologies in school was compulsory, for example the school information management system, use of the platform was not. Teachers could choose. This may be a deciding factor in some schools where use of the platform has been made a requirement and one reason why at a local level the authority platform support group regarded Headteacher membership of the group as critical to implementation of the platform.

It is also in the area of control and power relationships that this study has begun to alter my understanding of the technology.

- **Control and Power**

Foucault stated that the successful exercise of power is 'proportional to its ability to hide its own mechanisms' (Burr 1995). In Discipline and Punish he described the work of Jeremy Bentham, the 19th century philosopher, who also had an interest in prison reform (Foucault 1991). He created designs for the Panopticon, a prison building made up of many cells arranged around a central observation platform, from which one warden could supervise numerous prisoners at the same time. The inmates did not know when the wardens were present. The system relied upon the former regulating their behaviour in the belief that the watchers were always present (Fanning 2008a). The analogy with learning platform technologies is an obvious one as the tools within the system enable the teacher to gather quantitative data or make observations about pupil access, at whatever time this takes place, pupil use of online resources, as well as participation in and completion of activities or tasks set by the school. A critical analysis of the original learning platform guidance for secondary schools reinforces this focus on using the technology to support teacher observation and control. The technology will allow:

- Pupils to work anywhere they have access to the Internet (and thus be monitored);
- Teachers to check individual pupil progress;
- Parents or guardians to look at schoolwork from home (DfES 2005a).

Hierarchical observation is not limited to the teacher-pupil relationship but can extend to checking the regularity with which parents 'look at schoolwork from home'. Within the local authority the school improvement service has the facility to access data on any school using the same platform and make a qualitative judgment about such use. Heidegger claimed that technology was more than a set of tools but represented a 'cast of mind' (Kalt 2006). During the interviews for this study a small number of staff, all senior teachers, described the personalised learning agenda as one that had become an agenda about school improvement and target setting, within a system dominated by the summative end of course test. When this frame of mind is matched with the technology despite the potential for learning platforms to herald a paradigm shift in teaching and learning, in adopting them schools may end up creating their very own digital Panopticon, with the technology being used to extend the monitoring and control of learning. Learning platform tools may increasingly become used to track, monitor and assess who is teaching and learning what, when and where. For most teachers this may be an unanticipated and unwelcome prospect.

9.6 The Future

Elsewhere in this thesis I have raised the issue of 'lossiness' (Hayward and Jerome 2010) in respect of the implementation of central government policy at a local level. What is unclear is the impact of little or no central government direction in respect to the development of technology in education. There were clear targets in the DfES 2005 e-Strategy (DfES 2005b) for personalised learning spaces for every pupil. Since the election of a coalition government in 2010 that direction or support for developments in learning technologies has become unclear. Politically, little focus has been placed on personalised learning since that election, although in the research school there has still been an emphasis on elements such as differentiation and assessment for learning.

As regards school learning platforms, at the time of writing the Department for Education (DfE) had yet to issue advice regarding their development in England and Wales.

The coalition government also undertook a series of actions in relation to national research. BECTA, the organisation responsible for regulating, supporting and promoting learning platform adoption, was to be abolished by November 2010 (Arthur 2010). BECTA was the single biggest sponsor of large scale, longitudinal research into learning platforms in the UK. In a landscape dominated mainly by individual case studies and those promoted by individual platform suppliers, where large-scale research such as that supported by the Wolverhampton LA is the exception, it is unclear who will fill the gap (Passey 2010). McConnachie proposes that innovations take 10 years to get from idea to mass adoption (McConnachie 2010) and where central government support or funding is not available or has been reduced such longer term research may not be possible, especially in an education system that is dominated by the political cycle of five-year elections. The coalition government also announced new criteria for the awarding of research grants, including proof that such research has a social or economic impact (Hurst and Henderson 2010). Collini has described his experience of applying for a research grant to the Department for Business, Innovation and Skills and being required to explain how his area of research would contribute to the knowledge economy (Collini 2012).

The future development of learning technologies and virtual learning environments in England and Wales may therefore rely more upon local as opposed to national initiatives. The National Curriculum Review Report published in December 2011(DFE 2011) recommended that technology become a foundation subject in schools, allowing them to choose their own means of delivery. At the 2012 British Educational Training and Technology Show (BETT) Michael Gove, Secretary of State for Education, announced his intention to consult on the disapplication of the curriculum programme of study for technology, allowing schools to create their own local and individual curriculums (DFE 2012). As the number of Academy Schools increases, more local control of curriculum and resources will be delegated to schools.

For the school in which this research was based there are also a number of immediate challenges. The local authority negotiated contract with the platform provider ends in 2013 and decisions will have to be made about renewing contracts, adopting an alternative platform or creating their own solution, if any, for online learning.

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APPENDIX 1

RESEARCH AGREEMENT

Dear Member of Staff,

I am currently following an Educational Doctorate (EDd) programme of study and research with Sussex University. I have yet to finalise the specific research questions, but it will involve exploring the use of the learning platform and the impact that this has on aspects of teaching.

This research agreement is based upon the British Educational Research Association 'Ethical Guidelines'. Please take time to read the short booklet as it illustrates the guiding principles behind this research. I have made copies of the booklet available in the staffroom and it can also be found online at:

http://www.bera.ac.uk/publications/guidelines/

I have agreed with the Headteacher that:

- The research and data collection will take place in school from Term 6 2008 to Term 1 2009;

- Participation in the research is entirely voluntary and staff and students have the right to opt out or in;

- The name of the school and individual staff will remain anonymous within the final thesis (but please be aware that it will be fairly easy to discover the name of the school through any web search);

- Data will be collected from the learning platform, field notes, individual and group interviews with staff and students, questionnaires, informal lesson observations and school documentation;

- Data will only be used for the purposes of this research thesis and not shared or distributed in any other shape or form unless prior permission is sought from those involved;

- All data will be securely stored and only accessed by the researcher;

- The research will be shared as it progresses through reports to staff and also available online at www.learningplatforms.info;

- Staff have the right to view and comment on the final research before it is submitted to the University.

Jim Fanning

June 2008

Appendix 2

Staff Learning Platform Questionnaire

Staff Questionnaire

1. **Circle any of the following that you recognise as learning platforms (VLEs):**

   Fronter   Kaleidos   Moodle   UniServity   FirstClass   Frog

2. **List in order of priority (*1-4 where 4 is most used and 1 is least used*) the technology you use most to support your teaching:**

   SmartBoard ( ) Scanner ( ) Printer ( ) Camera ( ) Sound recorder ( )

3. **List in order of priority (*1-4 where 4 is most used and 1 is least used*) whichever you use most to support your teaching:**

   UniServity ( ) Word ( ) SmartNote ( ) PowerPoint ( ) Email ( )

   Internet ( ) Other Specialist Software (e.g. _____)

4. **Do you provide learning support to students in school using school email?**

   Yes   No

5. **Do you provide learning support to students out-of-school using school email?**

   Yes   No

6. **Which technology do you think best supports student learning (*1-4 where 4 is most support and 1 is least support*):**

   UniServity ( ) Email ( ) Smartboard ( ) Internet ( )

   MS Office e.g. Word ( ) Other (e.g. _____)

7. **How do you rate your ICT/technical skills (select one):**

a) I feel confident in using most hardware and software for learning and hardly use ICT support.

b) I feel confident most of the time but need training in some technologies and use ICT support some of the time.

c) I am a pretty average user and would need to call on ICT support if I had a problem.

d) I don't feel that confident some of the time and would need to call on ICT support if I had a problem.

e) I am not at all confident, need training and would use ICT support a lot.

8. How important do you think learning platform use will be in schools in the future (select one):

a) Very important – it's a critical technology for supporting personalised learning.

b) Quite important – ahead of most other applications we use.

c) Average – it's just one application amongst many.

d) Quite unimportant – it will only ever be used by a small number of staff.

e) Very unimportant – once the present fixation with platforms has passed.

9. You have used the learning platform in your classroom teaching (circle):

Most of the time   A lot of the time   Some of the time   Never

10. Which platform features have you used (circle):

Forum   Wiki   Survey   Uploading-files   Mark-book

11. Preparing a lesson using the learning platform takes more time than traditional preparation (circle):

I agree   I disagree

12. The greatest barrier to using the platform is (*1-4 where 4 is most and 1 is least*):

Lack of technical skills-teachers ( )

Little understanding of the pedagogy of platforms ( )

Lack of technical skills-students ( )

Lack of classroom access ( )

13. Supporting out of school learning is an important feature of platform use (circle):

Yes   No

14. Have you provided learning support to students in school using the learning platform (circle)?

Yes   No

15. Have you provided learning support to students out-of-school using the learning platform (circle)?

Yes   No

16. Which of the following statements would you agree with (*1-4 where 4 is most and 1 is least*):

I know that learning platform use is important to the school (   )

Learning platforms (LPs) can support differentiation in a major way (   )

LPs are best used to support group work (   )

LPs are best used to support individual students (   )

LPs can be used to monitor and assess in a major way (   )

LPs are best used to support out-of-school work rather than classroom work (   )

Appendix 3 Staff Personalised Learning Questionnaire

Personalised Learning Questionnaire:

Have you visited any DCSF website to find out information about personalised learning?

YES   NO

Have you discussed personalised learning at any staff meeting (e.g. whole staff, middle leaders, departmental)?

YES   NO

Have you attended training relating to personalised learning?

YES   NO

Please circle to what extent you agree with the statement *"The school learning platform has an important role to play in delivering personalised learning":* (1 = totally agree 6 = totally disagree):

1   2   3   4   5   6

Please circle to what extent you feel the following are important features of personalised learning (1 = extremely important 6 = not important):

1) Working with students in class on a 1-2-1 basis: 1 2 3 4 5 6

2) Small group work in class: 1 2 3 4 5 6

3) Assessment for learning: 1 2 3 4 5 6

4) Differentiated learning resources: 1 2 3 4 5 6

5) Parental access to assessment data: 1 2 3 4 5 6

6) Parental access to student learning resources: 1 2 3 4 5 6

7) Student access to learning resources outside the classroom: 1 2 3 4 5 6

8) Student access to learning support outside the classroom: 1 2 3 4 5 6

9) Computer availability in classrooms: <u>1 2 3 4 5 6</u>

10) Computer availability outside the classroom: <u>1 2 3 4 5 6</u>

Which feature or aspect of personalised learning do you most use in your classroom teaching?

_____

_____

_____

Appendix 4 Teacher Self-Evaluation Form

<u>Teacher Evaluation</u>   Date:_____ Initials: _____

Thank you for filling this questionnaire. If possible, fill in all the questions, both the intervals provided and the approximate minutes dealing with these issues.

<u>1</u>. How much time did you spend in the lesson supporting/teaching individual students 1-2-1?   **MINUTES ____**

Less than 5 minutes   5-10   11-15   More than 15

<u>1a</u>. How many students did you support individually in the lesson?
                      _____ please write the number of students.

<u>2</u>. How much time did you spend supporting/teaching groups of students/group work in the lesson?   **MINUTES _____**

Less than 5 minutes   5-10   11-15   More than 15

<u>2a</u>. How many groups did you support independently in the lesson?
_____ groups of _____ students (e.g. 2 groups of 8 students).

<u>3</u>. How much time did you spend supporting/teaching the class group as a whole in the lesson?

Less than 5 minutes   5-10   11-15   More than 15

<u>4</u>. How much time did you spend dealing with behaviour issues in the lesson?

1 minute   2-3   4-5   6-7   8-9   10 or more

<u>4a</u>. How many students caused behaviour issues in the lesson?
                      _____ please write the number of students.

<u>5</u>. How much time did you spend supporting literacy/numeracy (as opposed to historical) questions/skills?   MINUTES _____

1 minute   2-3   4-5   6-7   8-9   10 or more

<u>6</u>. How much time did you spend on lesson planning for this individual lesson?

5 minutes   10   15   More than 20

7. How much time did you spend teaching the lesson starter?

5 minutes   10 minutes   More than 10 minutes

8. How much time did you spend teaching the lesson plenary?

5 minutes   10 minutes   More than 10 minutes

9. What was the main way in which you assessed student learning in the lesson?

Through discussion   Observation   Individual work   Group work

10. How much time did students spend on group work learning/activities?

                          MINUTES _____

5 minutes   10   15   20   25 or more

Appendix 5 AFL Audit Grid

Reviewing learning and teaching in lessons (AfL focus)				Traffic light the statements:
Teacher:	*Subject:*	*Class:*	*Date:*	Green = secure or surpassed Amber = partial or inconsistent Red = not evident

	Focusing	Developing	Establishing	Enhancing
Pupils	All pupils know there are learning objectives. Most know what they have to do, a few have a limited understanding of what they are trying to learn. Some pupils can relate the lesson to recent lessons. Most pupils can work together. Some are confident to contribute to discussions. Some are confident to talk about their work. Most pupils make progress in their learning.	**Most pupils are clear about what they are trying to learn. Many are aware of some features of a good learning outcome. Many can, with support, identify some strengths and weaknesses in their work and suggest how to improve it. Many recognise how the learning builds upon earlier learning. In whole class discussions all pupils listen to others. Many are confident to contribute. In paired or group discussions most pupils contribute & learn from each other. Discussions remain focused. Most pupils make progress in relation to the learning objectives.**	All pupils have a clear understanding of what they are trying to learn (and value having learning objectives). All pupils are clear about the success criteria and can, with support, use these to judge the quality of their own and each other's work and identify how best to improve it. Most pupils can, with support, contribute to determining the success criteria. **All pupils can relate their learning to past, present and future learning in the subject and most can relate this learning to other subjects. In whole class, group or paired discussions all pupils develop their thinking and learn from each other. Pupils are confident to take risks by sharing partially formed thinking or constructively challenging others. All pupils make good progress, in relation to the learning objectives, with some independence.**	All pupils understand what they are trying to learn & confidently discuss this using subject terminology. All pupils routinely determine and use their own success criteria to improve. Pupils understand how the learning relates to the key concepts and skills they are developing. **Pupils value talk for learning and consciously use it to advance their thinking. There is a classroom buzz: pupils initiate and lead whole class discussions; group discussions are self determined & governed. Responses are typically extended, demonstrate high-level thinking and support their views.** All pupils have an appetite for learning: they independently identify and take their next steps in learning to make good progress.

Teacher	Lessons are planned to learning objectives and appropriate tasks then identified. The learning objectives and/or learning outcomes are shared e.g. displayed. Opportunities are provided for discussion related to learning (whole class, group or paired) Pupils are encouraged to listen and learn from each other and contribute to discussions. Progress, in relation to the learning objectives, is reviewed with the class e.g. during the plenary.	The lesson is planned to appropriately challenging *learning objectives* (linked to N.C. standards) which focus the teaching. The teacher explains the *learning objectives* and *outcomes* and checks pupils' understanding. The teacher explains what a good *learning outcome* will 'look like' and this relates to subject standards. **The teacher explains the value of what is being learned and how it links to past and future learning *(big picture)*.** **The teacher relates the tasks to the learning objectives and outcomes throughout the lesson.** The teacher regularly assesses learning and provides specific, positive feedback to inform next steps. There are opportunities for structured whole class, & supported group / paired discussion. Teacher uses specific strategies to improve the quality of dialogue and pupil confidence.	**The lesson is planned to appropriately challenging *learning objectives* and intended *learning outcomes* using *success criteria* to scaffold learning.** Opportunities are provided for pupils to explore the objectives, outcomes and success criteria and sometimes determine the success criteria themselves. Exploration of the *big picture* includes links to other aspects of the subject and to other subjects. Pupils are helped to use success criteria (which focus on fine grades of progression in key concepts and skills) to identify how to take their next steps. **Progress is regularly reviewed with pupils e.g. prior to the next stage of a task.** The teaching is flexible and responsive to pupils' learning needs and the progress they are making. The teacher uses skilful questioning, appropriate resources and engaging activities to focus and sustain whole class, group and paired dialogue. The teacher explicitly develops pupils' dispositions, skills and confidence to engage in dialogue.	**Planning is informed by an in depth understanding of standards and progression in key concepts & skills (subject & cross curricular).** **The teaching enables each pupil to use AfL to take their learning forward independently.** The teacher routinely explores with pupils how they learn most effectively and how this can be applied. **The teacher and pupils develop the lesson together in response to the learning needs.** **Whole class and group dialogue is skillfully orchestrated and supported as an integral feature of the lesson to accelerate learning and develop pupils' independence.** **Teacher intervention in discussions is minimal but timely and in response to critical learning moments.**

Appendix 6 School Teaching and Learning Policy

Principles

All members of this school community, both adults and young people, are fully committed to our learning and teaching. It is every teacher's priority to plan learning that enables all young people for whom they are responsible to experience both success and challenge. It is every teacher's responsibility, too, to ensure their own learning equips him or her with the skills and knowledge necessary to reflect on and improve their own practice.

Roles and Responsibilities

Each teacher is responsible for teaching to the highest standard. Heads of Department, together with members of the SLT, are responsible for monitoring and evaluating the quality of teaching and learning through lesson observations, through analysis of outcomes and through work scrutiny. Performance management identifies areas for development in relation to pedagogy for individual teachers and for the whole school.

Expectations

We expect to see in all lessons evidence that teachers:

- Have planned lessons that incorporate a variety of teaching methods to meet the needs of all types of learners and differentiate by support, resource or task;
- Have planned three-part lessons derived from the scheme of work that address the individual needs of their students;
- Make use of data, student records including profiles and SEN record and provision maps in order to tailor support to individual needs;
- Are in the classroom to greet students at the start of the lessons (where possible);
- Have a recorded seating plan based on the **teacher's** professional judgements;
- Require students to have their planner on the desk;

- Share with students the learning objectives of the lesson;

- Know and use each student's first name;

- Circulate while students are engaged on tasks and support or intervene where appropriate;

- Change activities within the lesson to take account of students' concentration spans;

- Work with other members of staff, such as TAs, to support students effectively;

- Reinforce and develop students' literacy and numeracy skills;

- Ensure the lesson proceeds at a good pace, using timed activities where appropriate;

- Ensure the learning environment is conducive to learning using displays of students' work to motivate and as models;

- Ensure the maximum participation from all students within the group;

- Provide students with assessment criteria to enable them to evaluate their own work and to evaluate the work of other students (self and peer assessment);

- Refer to prior learning and students' existing knowledge and understanding so students understand the context of the lesson;

- Use praise to motivate all students, issue merits each lesson, and balance negative comments with a substantially greater number of positive comments;

- Check students' understanding at the end of the lesson and refer back to the learning objectives;

- Keep a record of student attendance at each lesson;

- Keep a record of each student's attainment and progress;

- Leave the classroom as they would like to find it.

Aspirations

We expect all teachers to develop higher-level pedagogy – **_for example_** by:

- Developing students' higher order thinking skills;

- Being at the cutting edge with the use of ICT and other learning technologies;

- Developing higher level questioning skills;

- Incorporating the moral, spiritual and ethical dimensions into lessons;

- Using up-to-date research into the working of the brain to inform their own pedagogy;

- Providing student choice within the lesson;

- Using student feedback to help evaluate their own teaching.

Links with other policies

This policy should be read in conjunction with

- Assessment and Marking Policy
- SEN Policy
- Behaviour and Attendance Policy
- Performance Management and School CPD Policy

Appendix 7 Lesson Observation Template

Teacher:	Year Group:	Subject:
Observer:	Date:	Ability:

Focus:	
Learning: Strengths	**Learning: Areas for Development**
Teaching: Strengths	**Teaching: Areas for Development**
Professional Development Needs (optional)	
Overall judgement of quality of teaching and learning *(n.b. refer to elements school T&L Policy e.g. differentiation).*	

[ ]   Excellent/very good – worthy of sharing across and/or beyond the school

[ ]   Good

[ ]   Satisfactory – adequate

[ ]   Unsatisfactory – needs attention

Signed (Teacher)   _____   Date_____

Please make any comments on reverse of this form

Signed (Observer)   _____   Date_____

Copy to teacher, observer, HOF, AH (HR) and headteacher

Appendix 8 Technology Vision Statement

<u>Digital Learning (ICT) Vision</u>

Our development of ICT is informed by the following statements:

- Students and staff will be able to access learning and teaching resources and support at any time and place where they have Internet access.

- Students of all abilities will take greater control of their learning through the use of digital technologies in and out of school.

- Students will use digital technologies in a balanced way and develop the skills to know <u>when</u> and <u>when not</u> to use them. They will use them effectively when needed.

- Students will have access to high quality digital technologies whenever and wherever they are needed and have links to their classmates and teachers while studying out of school.

- Students will reach levels of attainment at the end of each Key Stage that match or exceed national expectations.

- Parents and carers will have opportunities to participate in their child's education and school life through the use of digital technologies. They will have access to current programmes of study and resources to support learning out of school. There will be opportunities to discuss issues online with school staff, other parents and governors.

- The continuing professional development of school staff and school leaders will match our vision for the development of digital technologies.

- The burden of administration will be reduced through effective use of digital technologies.

- The wider community will have the opportunity to use school facilities outside normal curriculum time.

- We will develop a standard hardware, software and communications base in school that matches or exceeds national targets.

Appendix 9 Lesson Planning Template

Year Group		Subject		Groupings	M	F
Period		Teacher		Class Size		

Context of Lesson

Learning Objectives (we are learning too….) This MUST be shared with students.	Learning Outcomes (What I'm looking for) All must Most will Some could
Timing of Lesson (this may be incorporated into whiteboard prep – no need to repeat here).	Resources

Homework

Notes (e.g. health and Safety considerations, list of keywords, evaluation of lesson, use of TAs, adaptation of work for individuals, etc.

Appendix 10 Lesson Planning Template Updated

School LESSON PLAN

Class	Date	Period	Teacher	Ability range	Roll

LESSON OBJECTIVES DISPLAYED: (We are learning to…) …evaluate new employment opportunities in business, the media, politics and public life.

Learning Outcomes (What I'm looking for)

Context:

Timings	
	Development – targeted activities.

Provision	Outcome (Evidence of Pupil Progress)

Plenary – assessment of progress.

Differentiation strategies employed for students identified:	Vulnerable groups: SEN, LAC, Trvs, FSM, G&T, CAF Other

Literacy	**Numeracy**
ICT	**Health & Safety**
Homework	
AFL Strategies employed (e.g., peer/self assess't, shared criteria, questioning, feedback, target setting.	

Appendix 11 Lesson Observation Template Updated

Teacher			
Observer			
Topic			
Observation time		Date	
Pupil numbers		Group	

Aspect	Seen	Strengths / Development points
a) Showing expertise in subject, courses and areas of learning		
b) Planning/sharing and exhibiting clear learning objectives alongside suitable teaching strategies		
c) Interesting, encouraging and engaging pupils – maintaining a good pace		
d) Challenging pupils and expecting the most from them – promoting equality of opportunity – vulnerable groups?		

e) Planning, methods and resources enabling all pupils to learn effectively – differentiation (based on prior attainment)

f) Insisting on high standards of behaviour, using strategies to ensure effective use of time

g) Making effective use of teaching assistants and other support

h) Using homework to reinforce and extend what is learnt in school

i) The use of assessment and AFL strategies to enhance learning and inform planning (e.g., peer/self-assess't, shared criteria, questioning, feedback, target setting)

j) The quality of pupils' attainment, progress and learning

Appendix 12 Student Learning Log

My Learning Log.   My Name _____

	Period 1	Period 2	Period 3	Period 4	Period 5
Monday e.g. I used the netbooks in history to access the learning platform.	Subject	Subject	Subject	Subject	Subject
Tuesday					
Wednesday					
Thursday					
Friday					

This is how I used technology after school:					

Appendix 13 Student Letter.

From: Mr Fanning

To:

Date:

Dear

During Term 3 you were using the school website / learning platform in history lessons to support your coursework on 'Ireland and the Troubles'. At the time I explained that I was doing a research degree at Sussex University and that I would like to interview students once that unit of work had been completed.

I should like to invite you to a discussion (along with three other students) with me on Wednesday 4th March at 1.05pm in my office.

I would like to get your impressions of the use of the learning platform in these lessons.

This is entirely voluntary and you do not need to take part in the discussion if you feel that you don't want to.

I would like to record the discussions using a digital recorder. I will write up an account of what was said in the interviews and let you read this afterwards just to make sure you agree with the way in which I have recorded things. In my research report I will not mention students or staff by name. Once my research has been completed the digital recordings will be deleted.

Let me know if you are happy to take part in this discussion.

Thank you

Mr Fanning

Appendix 14 Learning Platform Code of Practice.

Using the learning platform you can find:

• learning materials from your subjects

• links to useful websites

• help with revision and preparing for tests

• the school calendar

• interactive activities (e.g. chat forums)

• chances to work with other students

• a way to ask for help with your homework (or to find out what it is)

• a place to show your work and to see examples of other students work

You agree to this code of conduct when you log on to the platform.

<u>**Security**</u>

- You are responsible for the security of your Username and password.
- You are not allowed to use the account, Username or password of any other student or teacher.
- You must not tell anyone else your Username or password.

Communication

When using chat, forums and emails you must:

- Respect other people's views and beliefs

- Only post comments which are appropriate to the particular discussion

- Remember that you are talking to real people and not with a screen name in cyberspace

YOU MUST NOT:

- Post anything abusive, obscene or illegal

- Copy or forward e-mail without permission

- Include copyright material which is owned by someone else, unless you have first obtained permission

- Post material which contains viruses or other programs

- Behave in an impolite or offensive way

When submitting work on the platform you must acknowledgement the source of any material you use e.g. a quote from a textbook, an image from a website.

If you ignore the Code of Practice you may be:

• be suspended from using the platform

• be suspended from E-Mail

• be suspended from school computer systems

• other sanctions including detentions