



Providing Inspection Services for

Department of Education  
Department for Employment and Learning  
Department of Culture, Arts and Leisure

---



INVESTOR IN PEOPLE



CUSTOMER SERVICE EXCELLENCE

Education and Training Inspectorate

# An Evaluation of the Use and Impact of Learning Environments in Schools and in the Wider Education Service

October 2008



# CONTENTS

<b>Section</b>	<b>Page</b>
1. INTRODUCTION	1
1.1 Survey Aims and Methodology	1
1.2 Context of the Survey	2
1.3 Background Information to LearningNI	4
1.4 Previous Inspection Findings	7
2. MAIN FINDINGS	9
2.1 Emerging Patterns of the use of Learning Environments	9
2.2 Technological Design and Functionality Issues	20
2.3 User Development and Support Issues	24
3. CONCLUSION	30
4. RECOMMENDATIONS	31
SUMMARY OF RECOMMENDATIONS: IDENTIFICATION OF RESPONSIBILITY	32
4.1 Change Management Programme	33
4.2 Procurement of a new Online Learning Service	34
4.3 Development of Emergent Quality Models of e-Learning	35
APPENDIX 1: Inspection Visits	37
APPENDIX 2: Stakeholder Interviews	38
APPENDIX 3: Glossary of Terms	39



# 1. Introduction

## 1.1 SURVEY AIMS AND METHODOLOGY

The report summarises the findings of an inspection of the use and impact of **learning environments** across the school and teacher education service. The inspection was undertaken by the Education and Training Inspectorate (Inspectorate) during the 2007-08 academic year. The purpose of this inspection was to:

- inspect the design and operation, uptake and use of learning environments, including LearningNI (LNI), for teaching and learning, curriculum, collaboration and professional development purposes, including initial teacher education and leadership development;
- make recommendations to the Department of Education (the Department) and the key stakeholders intended to inform the future development of, support for, uptake and use of learning environments to support learning; and
- inform the review of the Department's **e-learning** strategy.

The timing of this inspection is especially appropriate not only because of the review of the Department's Empowering Schools e-learning strategy, but also because of the preparation to procure the latest tranches of Classroom 2000 (C2k) services, **Lot 7**, and the emergence and widespread use, mainly by young people, of **Web 2.0** technologies.

The findings from this inspection are based on evidence from:

- visits to 30 schools, including primary, post-primary and special schools (Appendix 1);
- interviews with a range (eleven) of representative stakeholders from across the education service (Appendix 2);
- technical evaluations provided by **Becta**; and
- an online questionnaire completed by schools.

During the visits to the schools, discussions were held with principals, members of the school management teams (SMTs), information and communication technology (ICT) co-ordinators, heads of department, teachers and pupils. In addition, inspectors visited some lessons, examined samples of pupils' work, school development plans and other relevant curriculum documentation.

A complementary component of the evidence base underpinning this inspection was the contribution made by Becta technical analysts. They used Becta's functional requirements for learning environments to provide the Department with a detailed comparative technical evaluation of the functionality of LNI against two other learning environments<sup>1</sup> in use in our schools, namely **Moodle** and **Blackboard**. They also visited two schools to observe primarily the usability and performance of LNI within these school settings on a typical day. Becta provided the Department with two reports.

In May 2008, the senior managers of all our schools were asked to complete an online questionnaire in order to provide important background information on their specific use of learning environments, and how they rated some of the key aspects of LNI. The Inspectorate appreciates the good return rate, with 456 schools (40%) completing the questionnaire. This contributed significantly to the evidence base upon which the inspection was able to draw. Detailed extracts from the questionnaire returns were provided to C2k and the Department.

This report reflects fully the evidence from the school visits, the stakeholder interviews, the Becta technical analysis of LNI and the questionnaire returns. A number of specialist terms are included in a glossary; their first appearance in the text is highlighted, using **bold text**.

## 1.2 CONTEXT OF THE SURVEY

This report focuses specifically on one aspect only of education technology, namely the use and impact of learning environments in our schools, and identifies a range of issues central to making better progress with this set of online tools to support effectively teaching, learning and professional development. As a result of the very significant investment by the Department in this aspect of the managed service solution in schools and the availability of LNI in all schools, many of the findings relate specifically to LNI. The report is, however, of wider and greater relevance and concludes with recommendations directed to a range of stakeholders.

---

<sup>1</sup> *Becta Learning Platform Functional Requirements (Version 1.1) (2006)*

C2k, more broadly, represents a significant investment in education technologies in schools which contributes to economic regeneration by enabling learners to develop competitive skills from their access to and use of a high quality technology system in the classroom, along with appropriate provision for access from outside school.

The creation, uptake and use of the C2k managed service as a whole has been largely successful and the findings of this specific inspection should not be interpreted as reflecting negatively on the wider C2k service. The children and young people in our schools have good, improving access to technology which is not readily matched elsewhere. This has been augmented to good effect during 2008, for example, with the roll-out of around 20,000 wireless enabled laptops to the schools sector. Through the successful implementation of the C2k managed service, a considerable part of the technical and financial burden relating to the use of technology has been removed from the schools.

An important aspect of the work of C2k has been the development of a regional educational network. The wide area network encompasses all our schools and includes communications links and a data centre. It is a level of centrally-funded provision which is either uncommon or unknown elsewhere in the United Kingdom (UK).

The report indicates that in most schools some teachers are adopting online tools to enhance the teaching and learning. There is evidence that a small minority of these schools, encouraged by their experiences with LNI, are progressing to more significant and innovative uses.

Inspection work in schools over the past few years indicates clearly that some schools and stakeholders are developing sophisticated applications and aspire to use learning environments for a growing variety of purposes including: the delivery of curriculum courses at 14-19; the development of collaborative approaches to learning; inter-school contact nationally and internationally as part of citizenship education; online assessment and e-portfolio-based approaches to learning and teaching, and, in the context of professional learning for teachers, to support a professional community of collegial practice. All of these applications are inherent to the effective implementation of several of the Department's key policy priorities, and it is important that the extent of progress being made across the schools' sector is determined, any constraints and gaps are identified and instances of good practice are shared more widely.

The Inspectorate is aware that experience with and research into the use of learning environments in other jurisdictions indicates that the adoption curve for learning environments across the education workforce is commonly slow and

sporadic, perhaps because of the complexities involved in the associated change management process, the implicit challenge to teachers to adopt more active methods in their teaching and to undertake significant, ongoing professional development.

### 1.3 BACKGROUND INFORMATION TO LNI

According to Becta, a learning environment (or platform) brings together hardware, software and supporting services to enable more effective ways of working within and outside the classroom. They can vary considerably, but every learning environment should provide a range of ICT-based functions:

- *Content management* - enabling teaching staff to create, store and repurpose resources and coursework which can be accessed online.
- *Curriculum mapping and planning* - providing tools and storage to support assessment for learning, personalisation, lesson planning etc.
- *Learner engagement and administration* - enabling access to pupil information, attendance, timetabling, e-portfolios and management information.
- *Tools and services* - providing communication tools such as e-mail, messaging, discussion forums and blogs. (Becta, 2007)

The contract for the development and implementation of the wide area service network aspect of the C2k managed service was awarded to Hewlett Packard (HP) in 2002, through a public procurement exercise. Virtually all our schools now have a very high level of centrally-funded, networked, secure broadband access that enables pupils and teachers to access information and resources within and beyond the school, which makes access and use of a scalable, regional learning environment a feasible prospect.

A critical part of this network is the online learning environment, LNI, which was first deployed in schools in 2004, and re-designed and re-deployed in 2007. It is intended that the LNI online environment will facilitate the development of teaching communities that can be used to collaborate in a variety of ways, including the sharing of resources. It provides access to learning resources, **streaming video** and conferencing from both inside and outside the school environment, and enables schools, libraries, local communities and



other organisations to collaborate on developing and sharing joint learning programmes.

C2k has worked with a wide range of private and public-sector partners to deliver a stable, reliable service, which has been installed in all schools. The findings from this inspection reveal, however, that there are significant technical and other complexities to be managed as the services from different private-sector providers are integrated. The regional LNI learning environment is accessed through local and wide area networks, which are the split responsibility of different private-sector suppliers. While a Joint Change Management Board handles these complexities, some schools still report that they are confused about the source and solution to problems. Whether these problems arise at the desktop, on the local area network, in the wide area network or at the data centre, either accessing LNI or in LNI itself, is of little consequence to the users in schools when they encounter a problem using LNI.

LNI has been made available to all our primary and post-primary schools; all pupils are registered users and it can be accessed from within school and also at home. LNI has been deployed within a central managed service, which is

A technology and design teacher in a post-primary school has developed a website hosted in iTunes, to publish podcasts to teach the theoretical elements of the subject at GCSE and A Level. These are downloaded and used regularly on their iPods not only by the pupils in his school but internationally, including extensively in the USA. His students submit their homework on LNI which he annotates online.

contractually designed to provide the high level of security and confidentiality required for a user population largely made up of children and young people.

C2k report that some important advantages of LNI's design for regional use by schools include:

- the pre-population of user accounts;
- it facilitates collaboration with all schools/users;
- the guardianship model of the school system is respected by LNI;
- schools can supervise online collaboration;
- schools can supervise pupil personal storage;
- full audit trails of online activity are available; and
- the safeguard to users from inappropriate content.

In addition, C2k point to further advantages of deploying a regional learning environment through a managed service, including:

- the zero cost to schools of the provision of the learning environment;
- LNI traffic is encrypted when accessed over the Internet;
- the scalability and guaranteed availability of LNI;
- the regular backing up of all LNI data;
- the availability of a dedicated LNI support team;
- LNI is protected by multilayer firewalls, intrusion detection, prevention and real-time monitoring by a dedicated security team;
- a dedicated high bandwidth Internet connection; and
- a single help desk number to call for support.

The C2k LNI Development Team responsible for the development and implementation of LNI has worked hard to include and involve a range of stakeholders in a programme of pilot projects involving LNI. Since 2004, around 37 pilots involving over 170 schools have been run or supported by C2k, with most of them involving a curriculum focus. The majority of the pilots have involved post-primary schools, and over 1,500 pupils and just under 400 teachers have

participated. The pilot projects have included inter-school collaborations such as virtual days, support for a community of beginning teachers, pupil and teacher e-portfolios, the **Digital Citizenship Project** and various pieces of subject-focused work.

A non-selective post-primary use a VLE (Blackboard) to expand the curriculum and offer a new subject at GCSE. The school is currently piloting a module from a GCSE specification, with the intention of offering the GCSE course (Double Award Engineering) from next year. The course will be a blend of online learning and face to face sessions, where pupils will have the opportunity to complete the practical element of the course within the classroom and learn much of the theory online. The VLE enables the school to tailor elements of the course to meet individual needs, draw in experts from industry for particular lessons, link with partners within and beyond the local Learning Community and provide additional mathematics support which will also be accessible to pupils outside the course.

Video case studies have been produced to disseminate the outcomes of some of the pilot work. While these projects have been very important in raising the awareness and expertise of teachers in the use, and the potential, of learning environments, the impact on capacity-building within the schools has been limited and the embedding of the pedagogy of online learning remains at an early stage in most schools.

## 1.4 PREVIOUS INSPECTION FINDINGS

An Inspectorate survey (2006)<sup>2</sup> on the impact and use of ICT in post-primary schools reported that a number of schools had expressed concerns over the functionality and performance of the LNI environment, and that a few of them had begun to use alternatives. The report went on to say that

*there is a clear risk that the potential of LNI, offering a common **VLE (Virtual Learning Environment)** across all schools and components of the education system, will not be realised fully if a significant number of schools invest in alternative environments.*

A primary school has undertaken collaborative work with a school in Dublin as part of the Dissolving Boundaries programme. The aim of the programme is to promote, within partner schools, a mutual understanding of each other's environment. The Moodle VLE is being used as a platform for that understanding to take place.

From their learning and teaching plans, the year 6 teachers selected shared story writing and peer editing as a context for their work. As a first stage, the children in one school used a **Wiki** to outline the setting and characters in the story; the children in the partner school peer edited against agreed success criteria and further developed the plot. The children's artwork was scanned and uploaded to illustrate the story. Contact between the two schools progressed to using the VLE discussion forum to post messages in relation to the ongoing work and to video conferencing which allowed the children to virtually enter each other's classroom.

The VLE was used as a tool to help consolidate learning in PDMU, literacy and to promote assessment for learning. It facilitated professional discussion between the teachers, enabled the children to engage in distance collaborative group work and provided an additional, external audience for the children's writing.

---

<sup>2</sup> An Evaluation of ICT in Post-primary Schools, Education and Training Inspectorate (2006)

The Inspectorate report (2008)<sup>3</sup> on the implementation of the revised curriculum (RNIC), reported that the **Partnership Management Board** (PMB) had chosen not to use online learning as part of the dissemination strategy. The Inspectorate found that

*the lack of online learning support through LNI is a major barrier to progress*

and recommended to the Department and to PMB that:

*opportunities for online learning to support school and teacher communities of learners are included in the next stage of the preparation for the RNIC through the effective use of learning environments, such as, for example LNI.*

The findings raised concerns both about the realisation of the benefits of a single learning environment and about the capability and the commitment of the stakeholder organisations to use online learning as a methodology for teacher training and professional support. Since then, on behalf of the PMB, the Southern Education and Library Board (SELB) in collaboration with C2k has conducted a small-scale pilot project to explore how to support the implementation of the RNIC in primary schools. The Council for Curriculum, Examinations and Assessment (CCEA) plan a larger scale online programme in the 2008-09 school year.

A recent Inspectorate report (2008)<sup>4</sup> on the use of Information and Learning Technologies (ILT) in the six area based colleges found that:

*The main use of VLEs is still mostly as a repository for course materials and assignments and for students to access relevant information. The use of the advanced features of VLEs is still mostly underdeveloped.*

This raises significant concerns about the potential use of learning environments to complement and support the increasing collaborative links between post-primary schools and further education and training providers.

---

<sup>3</sup> *An Evaluation of the Arrangements for the Implementation of the Revised Northern Ireland Curriculum in Primary, Special and Post-primary Schools, Education and Training Inspectorate (2008)*

<sup>4</sup> *Report of a Survey on the use of Information and Learning Technologies in the Six Area Based Colleges in Northern Ireland, Education and Training Inspectorate (2008)*

On the other hand, an Inspectorate report (2008)<sup>5</sup> on the use of ICT in special schools found that:

*the "Granada" consultants who provide support to the special schools have made a significant contribution to raising awareness and developing teachers' skills in using ICT specifically to support pupils with special needs.*

In their work to support the special schools these consultants made extensive use of learning environments.

## 2. Main Findings

The findings of this inspection are reported under three main headings: emerging patterns of the use of learning environments; technological design and functionality issues, and user development and support issues.

### 2.1 EMERGING PATTERNS OF THE USE OF LEARNING ENVIRONMENTS

#### 2.1.1 Schools

Most of the schools visited appreciate and can articulate the value of a regional learning environment such as LNI, and many are aware of the learning potential both for pupils, and furthermore, for their wider school community, in particular, families.

A non-selective post-primary school uses a VLE (Moodle) extensively and successfully to support pupils, teachers and parents. Pupils use it for a wide range of purposes such as accessing resources, participating in discussion forums and contributing to whole school decision making. It is also popular with the pupils for general social networking which according to some teachers, has resulted in a number of pastoral benefits including peer support, especially between the junior and senior pupils. Teachers also use the VLE to centralise departmental policies, documents and templates and are currently exploring how it could facilitate curriculum planning and promote greater collaboration. Parents can use the VLE to access school information and policies and the school is looking at a way of using it to provide a programme of Literacy and Numeracy for parents, to help them support their children's learning.

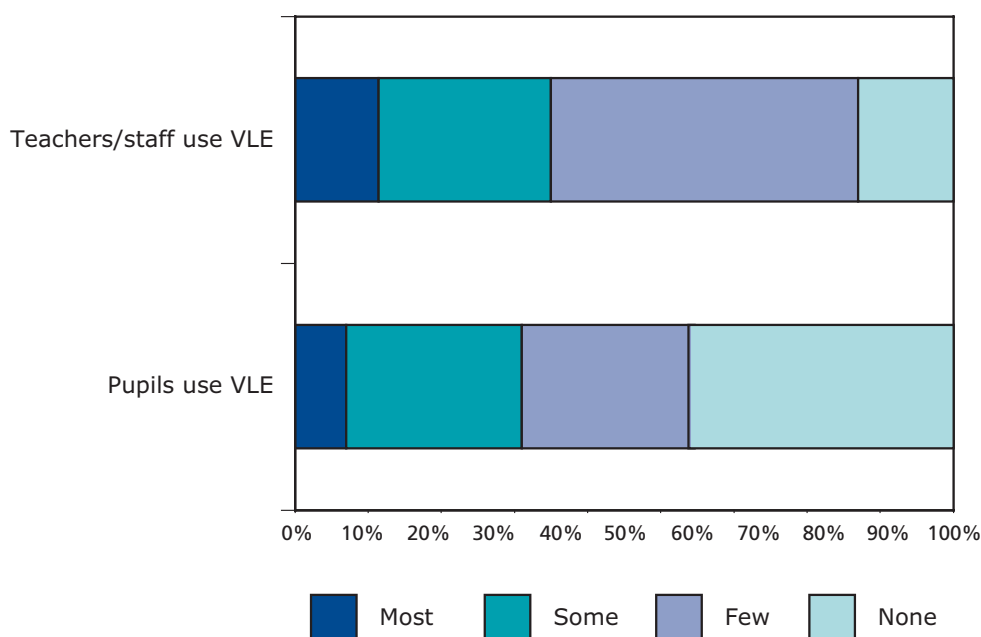
While significant progress has been made in recent years with regard to the adoption of learning environments in a minority of schools, for the vast majority they remain underdeveloped and underused as a resource for teaching and learning. In two-thirds of the schools who responded to the questionnaire, the pupils have few or no opportunities to use a learning environment, with a similar pattern evident for the teachers. (Figure 1)

---

<sup>5</sup> *An Evaluation of ICT in Special Schools, Education and Training Inspectorate (2008)*

**Figure 1**

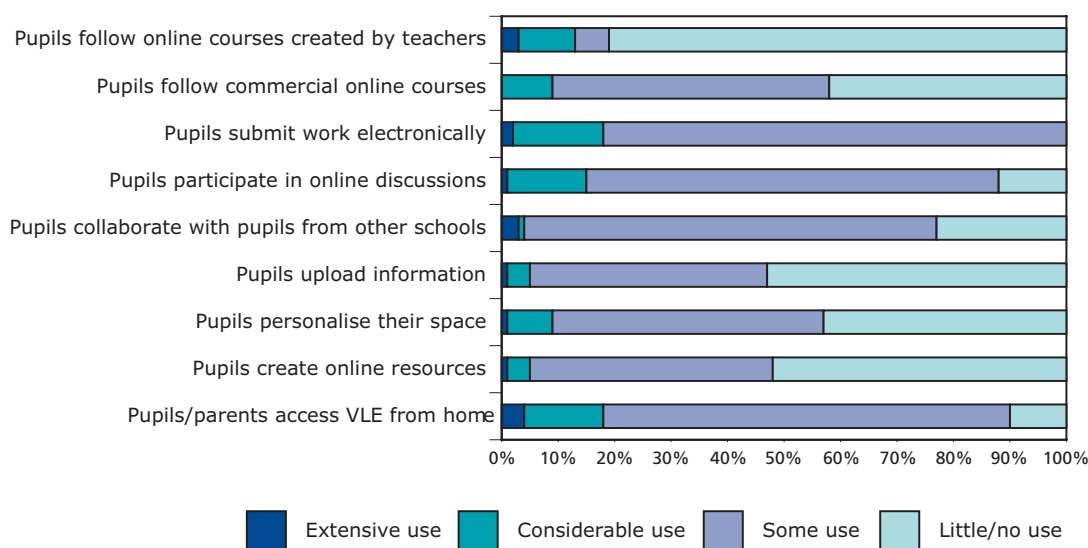
**Use of VLEs by Teachers and Pupils**



Most schools, but particularly the primary schools, remain at the early stages of introducing learning environments and struggle with the many complexities of using the platform effectively with pupils and the associated staff development and change management issues. Increasingly, pupils are making use of Web 2.0 and other collaborative tools outside school, but have only limited experience of even the basics of learning environments within the majority of schools. (Figure 2)

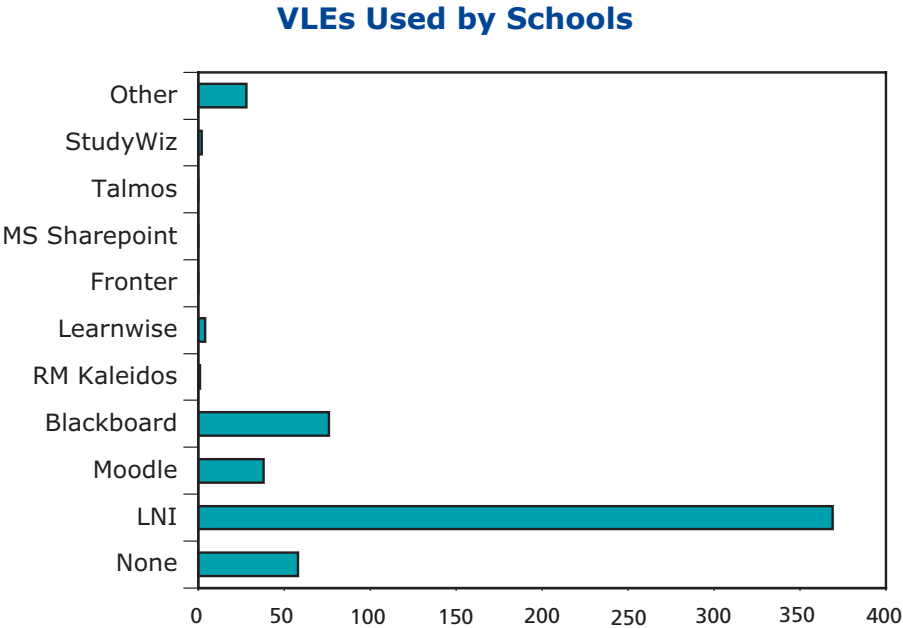
**Figure 2**

**Pupils' Use of VLEs**



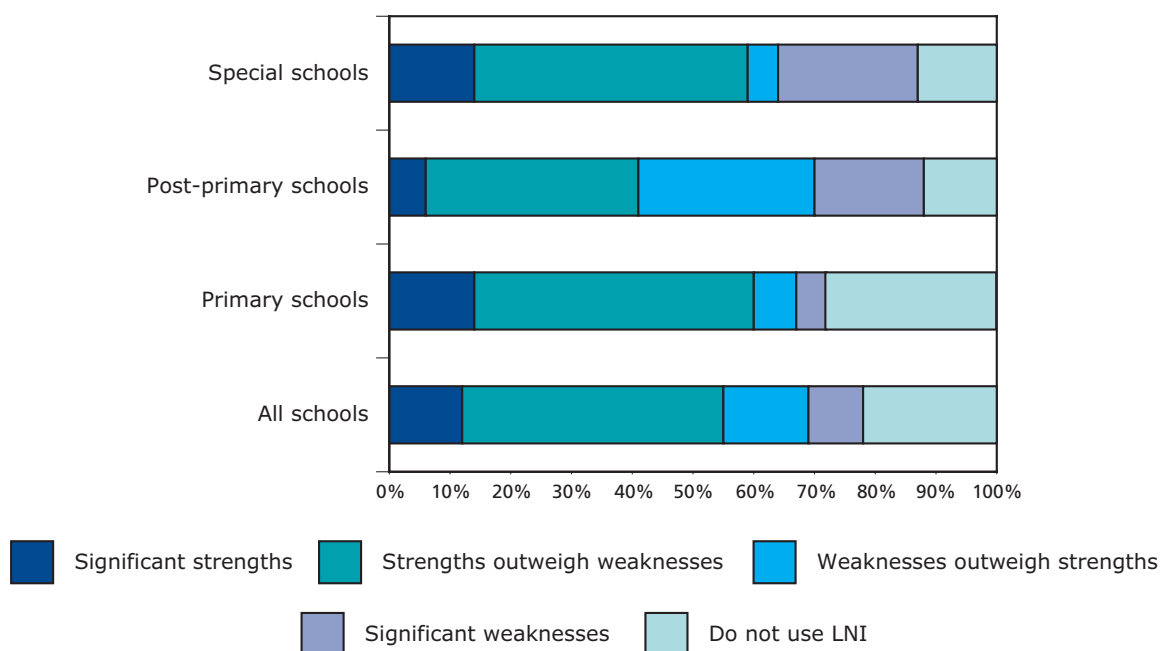
The questionnaire returns also reveal that awareness and usage of LNI is higher in post-primary schools than in primary schools; around 12% of post-primary schools reported that they do not use LNI, compared with more than one-quarter of primary schools. LearningNI remains the most used learning environment in our schools, although a range of environments are emerging, especially in the post-primary sector. (Figure 3)

**Figure 3**



Primary schools report better levels of satisfaction with the LNI environment than post-primary schools (Figure 4); it is a measure of success that 60% of the primary schools rated it to have either significant strengths (14%) or strengths which outweigh weaknesses (46%) along with just over 40% of post-primary schools. In contrast, almost one-half of the post-primary schools reported either that the weaknesses of LNI outweighed the strengths (29%), or that LNI had significant weaknesses (18%). It is noteworthy that when the schools who report that they do not use LNI are removed from the analysis, a majority of the schools are satisfied with LNI.

### School Assessments of LNI



It is clear from the questionnaire returns and fieldwork visits that LNI remains, for the most part, an underused resource within the vast majority of primary schools. Almost all primary schools are positive in their outlook on LNI, are appreciative of much of the content and materials which are available, and can see the potential for future development. Many of them, however, report that the lack of time and adequate training are the major barriers to progress in the use of a learning environment within the primary school curriculum. The general pattern of use emerging, mainly in primary schools but also those post-primary schools whose use of learning environments is in the early stages, is that LNI is suitable and is appreciated for the range of licensed resource content and for the support of online discussions.

Several of the schools visited in the course of this inspection had set the use of LNI as a PRSD objective for all of the teachers; others stated that they intended to do so in the next school year. The variety of resources, either discovered on the Internet and/or developed from new, was intended largely to support teaching; often to be used on interactive whiteboards in the classroom. The resources ranged from simple web-based learning objects to help to illustrate a complex concept or idea, to creative and sophisticated interactive materials created by some teachers. The schools valued the exercise as a productive means of awareness-raising for all of their staff; the exercise pointed to the need for guidance to be provided to help some teachers make judgements about the quality and appropriateness of found resources and to be able to identify resources which could be used by pupils to support learning.



Primary schools, for the most part, do not have the financial flexibility nor the technical expertise to procure and implement school-specific environments; they rely almost exclusively on C2k to provide this service through LNI. The primary schools report the implementation of LNI at minimal cost to them and the safety and security of the environment as positive factors in their choice of environment to use.

A large grammar school has developed a tripartite strategy in which it deploys LNI to support online teaching in KS3, making good use of the licensed content in many lessons. Next year the school plans to replace LNI with Yacapaca as it offers e-portfolio and assessment options which they judge support the revised curriculum more appropriately. In addition, it licenses Moodle through a secure hosting service to publish digital content, web materials, video, e-assessments, bulletin boards, asynchronous conferences, and assignments (which are also assessed online) and which cover most of the examination specifications for twenty of its A Level courses. All students access the courses from both home and school; it is reported that, in any hour in the 24 hour day, someone is online. It is now extending Moodle to host its GCSE courses. For its teaching staff, the school uses effectively **Google Apps** which can host all of the teachers' lesson plans, diaries and timetables, email, mark books and reports. The school is creating, on Moodle, a revised curriculum staff development course to provide CPD on assessment for learning and cross curricular assessment. The school sees online staff development as a means of building teacher confidence in learning platforms which in turn helps their pupils.

Users who have a more developed understanding of the purpose and value of online learning identify a range of constraints, specifically with LNI, which can be summarised under the main headings of usability, flexibility, and performance. There is a consensus, both from the school visits and the extensive comments written in the questionnaire returns, that LNI should work much better than it does. A typical comment by schools describes having to 'wrestle with it' to make progress, causing frustration because of the pressure of time and the energy necessary to overcome the many stumbling blocks. These usability issues are further confirmed by the independent reports from Becta.

Where the primary schools were engaged in the use of a learning environment, the teachers reported increased motivation and engagement by the children, an extended audience for the children's work and, on the professional side, found that it was a useful tool to combat isolation for those teachers in smaller or more rural schools.

The evidence from the inspection indicates that many primary schools perceive the implementation of LNI as an additional teaching resource, rather

than a tool to support their ongoing curriculum development and enhance the range of learning opportunities and experiences for the children. This is despite a considerable investment by many primary schools in interactive presentation technologies.

Many teachers, across all phases, lack the required training, understanding and expertise to develop the learning environment in a coherent and holistic manner, in a way that would improve learning and raise standards on a whole-school, sustainable basis, through an associated change programme.

A few primary schools have developed to a higher level their school website, for example, to reach out to parents, communicate and collaborate with pupils from other countries, to share resources and to support assessment for learning strategies such as the development of peer-editing.

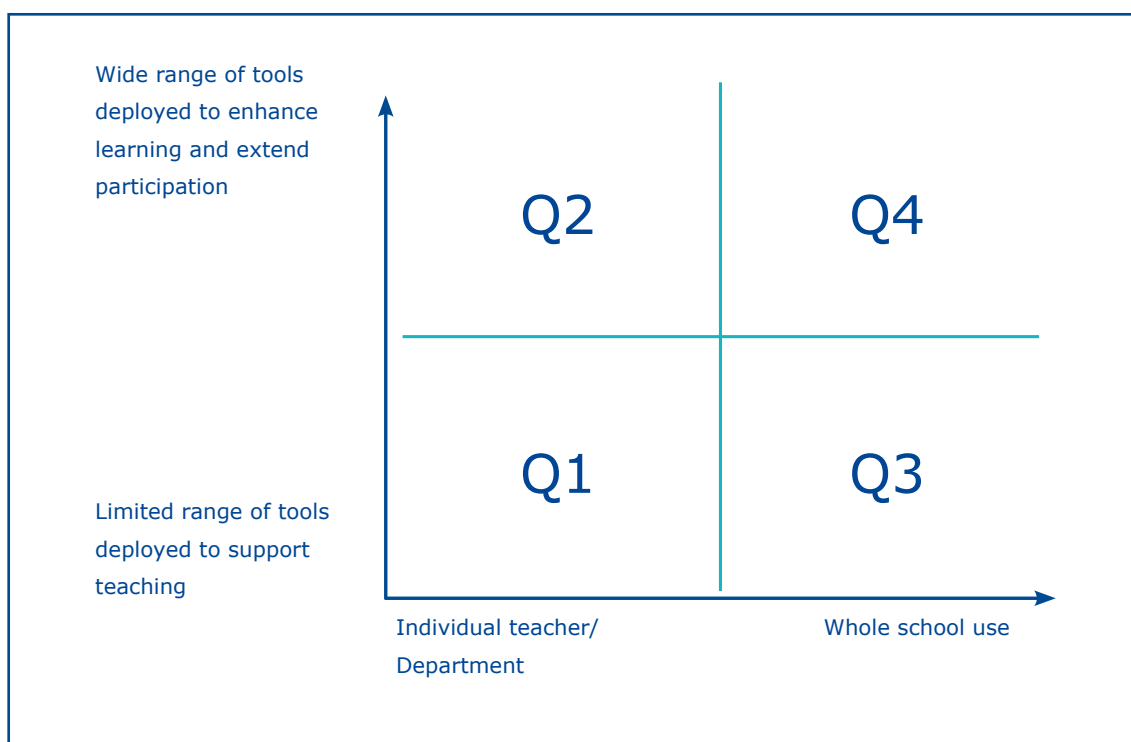
Few primary schools, however, have developed adequately the potential of a learning environment to extend the school audience to include the pupils working at home, along with their families.

The mathematics department in a rural grammar school is making good use of LNI to raise standards in KS3 mathematics. A range of good support materials is available online, and the pupils are encouraged to download and complete a weekly mathematics assessment at home. There are also links to appropriate websites and the pupils can access detailed mark schemes for work previously completed. A teacher provides online support through a discussion board, which is well used and valued by the pupils. The mathematics department encourages parents to become involved and reports higher levels of interest and motivation in the subject.

While Figure 5 represents a relatively arbitrary way of classifying the range of experiences that a number of schools evidenced in relation to how they use a learning environment, it illustrates the stages of development in our schools and is supported by the evidence collated during the fieldwork for this inspection.

The horizontal axis represents the active users, from the individual teacher introducing a learning environment (Q1) towards a more strategic, systemic whole-school approach which reflects a mature and sustainable vision for e-learning for the school (Q4). The vertical axis represents the development of the potential of the VLE from using it as a repository of resources which support teaching to using a wider range of tools and media to extend learning.

**Development of Learning Environments in Schools**



The diagram enables the evidence to be interpreted in the following manner:

**Quadrant 1:** These schools almost exclusively use LNI as their learning environment. Almost all primary schools surveyed, and a significant minority of post-primary schools remain here. In many of these schools, a small number of individual teachers or departments use the learning environment, mainly as a repository of resources and/or to organise and present materials. They also make use of some of the Library content in LNI and also the **Newsdesk**, the **Pathé News clips**, the **Auditory Network** and by linking out to external websites.

**Quadrant 2:** This represents a minority of the post-primary schools surveyed that have been using a learning environment for some time, some of these will have experimented with an environment other than LNI. This quadrant includes those schools still limited to a minority of enthusiasts (not even whole departments) on a relatively ad-hoc basis, but who are using more advanced tools and functionality in innovative ways to support pupils' learning, such as some limited **asynchronous** discussion, creating courses, revision sites, learner tracking,

online assessment units, online tutoring and creating more innovative and media-rich learning materials such as **podcasts**. In several of the schools visited, the use of learning environments by the small number of teachers in these schools is a direct result of their involvement in courses such as the Regional Training Unit (RTU) Online Learning and Teaching for Educators (OLTE) programme.

**Quadrant 3:** A few primary schools and a larger number of post-primary schools surveyed are in this quadrant. Many of them have had whole-staff training and support, normally in LNI; a few have established its use across the staff of the school by, for example, setting a Performance Review and Staff Development (PRSD) objective and several groups of teachers or departments are beginning to use the environment as a repository of resources, and to organise and present materials in class. More widespread use is made of the Library content in LNI. A few of the post-primary schools have made good progress in encouraging their pupils to use the environment for independent study at home. Several encourage online submission of homework, and some of them mark the pupils' work online; a few teachers provide further tutorial and feedback comments to the students in an online discussion forum.

**Quadrant 4:** A small number of post-primary schools have worked very hard and have invested financially to reach this quadrant. They have made some initial use of LNI, but have moved on to other environments which they judge to better meet their needs. The staff have benefited from good continuing professional development (CPD) opportunities and the learning environment is integral to much of the life and work of the school, both for pupils and for staff, and is aligned well to the school development plan. The learning environment is an effective collaborative tool and enhances the learning experiences, inside and outside school, of many of the pupils, some through the development of collaborative online courses offered within school, and beyond in an emerging learning community. A few of the post-primary schools visited understand the role of ICT to accelerate whole-school improvement and could also articulate clearly the improved standards of performance in public examinations emanating from their use of a learning environment.

For the most part, teachers in post-primary schools in quadrants 3 and 4 were able to describe a wide range of the perceived learning gains from their experiences of using learning environments. These included:

- high levels of pupil motivation and engagement;
- pupils using a variety and choice of media to support their learning including podcasts, text, video-clips and live discussions;
- pupils learning with and from each other, through peer support and discussion forums;
- pupils linking up with other learners within and beyond our education system, for example, sharing resources and experiences and hot-seating experts;
- pupils demonstrating a deeper knowledge and understanding of specific concepts and content resulting in higher standards of achievement;

Two ICT Specialist post-primary schools joined forces for the second year running to host a 'Virtual Day' when 250 of their Year 11 students study online, most of them from home, using prepared study resources and completing and submitting assignments, which the teachers mark online. This year, the digital resources, including streamed video, were hosted in LNI at one school and on another learning environment at the other school. The work focused on Citizenship and Personal and Social Development in the context of GCSE Learning for Life and Work. Pupils from both schools simultaneously interviewed a Polish worker and the Human Resources Manager in Dunbia (a company in Dungannon) through a video conference as part of one assignment. Other assignments included creating a PowerPoint presentation to encourage Year 10 students to continue to study the sciences in support of the Government's Science, Technology, Engineering and Maths (STEM) agenda. In one of the schools, three teachers, working online, by email, through a discussion board and through text messaging on mobile phones, provided synchronous teaching support throughout the day to 105 students. The teachers reported that heightened work rates, improved engagement, enhanced quality work and greater on-task focus and perseverance were evident from many of their pupils.

- pupils working independently and managing their own learning, for example, planning work, managing time, reflecting and reviewing own learning; and
- teachers monitoring and tracking pupils in order to target feedback, and provide support to meet individual learning and pastoral needs.

Schools and stakeholders who have developed significant use of Moodle report that they license dedicated space on a secure server and protect each course separately; archives and audit trails are reported and moderated daily. This was especially the case in the **Dissolving Boundaries Project** where many schools shared the same course areas. Neither the schools nor the project co-ordinators using Moodle reported any inappropriate use.

### 2.1.2 Stakeholders

The feedback from the majority of the stakeholders interviewed is that LNI does not adequately meet their needs; they report that it is currently not fit for their purposes. Several stakeholders, as well as some teachers, reported that they do not have a sense of ownership of the LNI environment as an education service.

All of the stakeholders interviewed recognise, could articulate clearly and are positive about the potential advantages of a single regional learning environment for our schools and wider educational community. Five of the stakeholders interviewed, however, reported how they have assessed alternative solutions, in light of a growing understanding of their own business needs, and have chosen to use environments other than LNI. It is noteworthy that all of these organisations have consciously developed their **digital assets** to be environment-independent so that they may be used as widely as possible on different environments, sometimes in parallel with LNI.

The providers of initial teacher education work hard to develop skills in the use of LNI by student teachers. They do this in parallel to the students' use of established university online environments, such as **WebCT** and **Queen's Online (QOL)**. The lecturers report that the skills, for the most part, are transferable and the student teachers "*move relatively seamlessly from one to another*".

For the past seven years, one of the initial teacher education providers has used a learning environment to enhance collaboration with schools and support student teachers on teaching experience. The students and lecturers post lesson evaluations and use discussion forums to facilitate the evaluation of teaching and the sharing of new practices in teaching and learning. More recently, this has been extended to include the use of webcams to enable the students to share their reflections through video conferencing.

Some of the more significant developments taken forward by stakeholders include:

- CCEA has experimented with a variety of online learning environments and has chosen Moodle as an '*interim solution*' to deliver curriculum content and other aspects of its core business, including some proposed online professional development of teachers in the primary sector. They reported that the significant factors in their decision were: the need for a consistency of approach; the flexibility of Moodle and the ability of their own multi-media designers to control the environment and make rapid adjustments to meet differing and emerging needs. For example, having researched the market, CCEA is writing its own standards-based assessment engine. This tool, and all of their curriculum and training content are, however, being developed to be independent resources which can be used in any standards-based learning environment. Some important pilot work is being taken forward by a few of its officers, but CCEA recognises the need to provide additional training and development in e-learning for more of its professional staff.
- The RTU provides online courses, making licensed use of Blackboard, in support of its roles in staff and leadership development; it currently hosts over 1,250 users enrolled on 250 online courses. Online learning has been a mandatory part of the Professional Qualification for Headship (PQH) programme since 2003. The RTU reported that the key factors in its choice of environment were the availability, ease and control of use and reliability of a full range of curriculum tools to support full-scale online courses. In addition, 158 teachers and educational professionals are currently enrolled on the RTU OLTE programme which is evaluated later in this report.
- Building on three years experience of the use of their Digital Truck, a mobile production resource for digital audio and television, one of the Education and Library Boards (ELBs) has established "NEELB.tv" which is able to stream 300 on-demand or live digital television programmes and pupil and teacher podcasts to schools in all available streaming formats.
- Similarly, another ELB has developed the application of Moodle and **Yacapaca** for the purpose of making Web 2.0 tools and a wide range of flexible resources available for use by teachers in 83 registered schools.

- The Dissolving Boundaries and Digital Citizenship Projects, coordinated through the School of Education at the University of Ulster, make extensive use of different learning environments to facilitate collaborative partnerships between schools. While the positive learning outcomes for the pupils and teachers involved with these innovative and successful projects are clear, the relative performance of the learning environments deployed has been quite distinctive. The evaluations completed for the Inspectorate show clearly that Moodle worked well and was clearly fit for purpose for the Dissolving Boundaries Project. On the Digital Citizenship Project, however, LNI was beset with problems around its performance and functionality, and proved frustrating and disappointing for the teachers, pupils and tutors. The project leaders and school co-ordinators of these projects have reported a reluctance to persevere with LNI unless significant improvements are made.

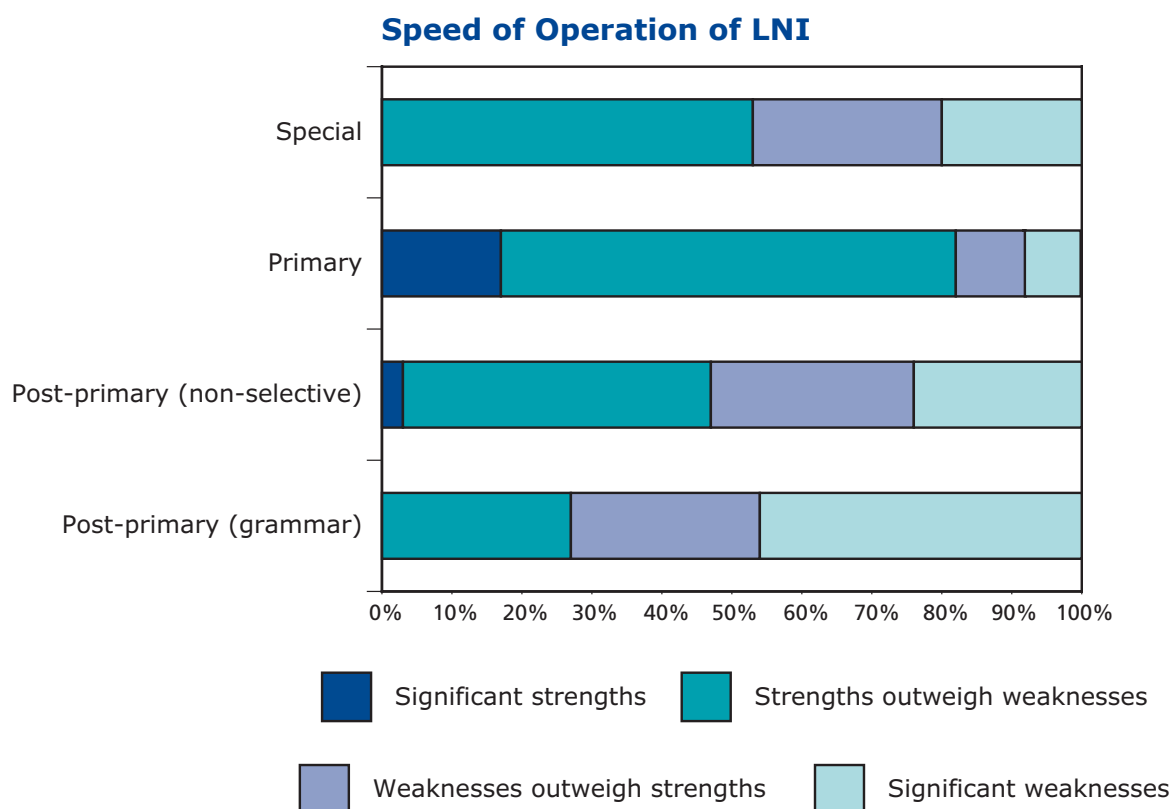
It is a matter of concern that some of the more innovative and pace-setting, ICT-confident schools (in Quadrant 4), along with a range of educational stakeholder organisations, are procuring and developing learning environments other than LNI. A common feature of all of these organisations is that they have considered carefully their specific business needs and have selected a software solution which they consider to be more appropriate. Consequently, securing the undoubted potential advantages from a single regional solution described earlier in this report is at risk.

## **2.2 TECHNOLOGICAL DESIGN AND FUNCTIONALITY ISSUES**

A significant number of schools, along with the wider education stakeholders, have expressed some concerns about how well LNI meets their requirements, particularly in terms of its usability, performance and the quality of some of the tools. These constraints are hindering the reputation and uptake of the learning environment by teachers and the wider education community. The concerns regarding the speed of operation of LNI are more acute in the post-primary and special schools, with around three-quarters of the grammar schools who completed the questionnaire, for example, reporting that they are less than satisfied with the speed of operation (Figure 6).



**Figure 6**



The technology supplier, HP, has identified appropriately a range of strategic developments required to improve and upgrade LNI. They report that, during the course of this inspection they have, for example, identified and resolved some performance and other issues highlighted by users to the Inspectorate. Whilst this rapid response by HP is a welcome development, the problems with LNI have been evident for some time; HP should have been required, by the senior managers in C2k, to undertake this remedial work at a much earlier stage, in order to reduce the clear frustrations of users. The findings from this evaluation confirm that much remains to be done if LNI is to fulfil its potential as a regional learning environment, which is capable of meeting effectively the needs of the wider education community.

### 2.2.1 Summary of Becta’s Findings

In May 2008, Becta undertook two studies for the Department. The first<sup>6</sup> was a comparative, high-level analysis of the mandatory and optional functional

<sup>6</sup> *A Comparative Study of the Learning Platform Functional Requirements (Version 1.1) Against the LNI, Moodle and Blackboard 'Learning Platforms' (Becta, 2008)*

requirements of LNI against Becta's Learning Platform Services Framework. The study reports those requirements:

- which LNI fulfils (ie 'matches');
- for which the LNI implementation is sub-optimal; and
- which the LNI implementation has not met (ie 'null matches').

This document also offers a comparison of Becta's functional requirements against two other implementations used in our schools, namely, Blackboard and Moodle.

The report refers to the learning environment (platform) as if it were a single entity; however, a learning platform is not expected to be a single product but rather a collection of interoperable systems or modules, possibly from different suppliers. Each may perform discrete functions, but collectively they should deliver the requirements as described.

The 26 mandatory items cover all of the functions that are essential in any learning platform and the 18 recommended, but optional, requirements list all of the functions that should ideally be offered by a learning platform.

Becta's comparative, high-level analysis indicates a broadly similar level of functionality in all three platforms. It is noteworthy that users with experience of more than one learning environment were able to contrast the differences in the quality and ease of use of the different environments, reporting their view that LNI is less flexible.

Becta's second study<sup>7</sup> assessed the usability and performance of LNI based on tests on C2k networks in two schools. The report from Becta confirms a significant number of issues which were also identified clearly through the questionnaire to schools and the inspection visits. Some common threads include:

- The Graphical User Interface (GUI) is not sufficiently pupil-friendly, with many users reporting that it is cumbersome or awkward for them to navigate, requiring too many mouse-button clicks, too many linear windows to traverse the environment and lacks a drag and drop facility.

---

<sup>7</sup> *Observations of a Site Visit Undertaken by Becta on Behalf of the Department of Education in Northern Ireland (Becta, 2008)*

- There is insufficient tailoring for younger children, which necessitates the teachers finding creative ways for these children to log-on.
- The search facilities are not sufficiently straightforward for the pupils and teachers to use, with too many windows employed to facilitate a search for content.
- The performance of LNI is problematic, particularly the variability and generally slow download times for content, which contributes significantly to the negative perception that many schools have developed towards LNI. This problem is exacerbated by the current limited availability of bandwidth in our schools.
- In a classroom situation, teachers expect the almost instantaneous provision of content, but LNI does not meet this expectation with any degree of consistency. The delays suffered by users are unpredictable and can lead to classroom management issues, particularly when teachers are working with larger groups of pupils.
- The overly text-reliant and generally inflexible quiz tool.
- The issues around registering pupils on inter-school courses or with non-C2k email addresses and the organisation and display of courses.
- The very limited personalisation and customisation available to users.

The evidence from all of the sources employed in this inspection support the conclusion that the more sophisticated users, found amongst the stakeholders and the schools in quadrant 4 (Figure 5), are selecting environments which provide greater control for the users and more flexibility than that offered by LNI, even though this comes at an additional cost to them. It is also clear that schools whose use of LNI is modest, often through a low, relatively undeveloped level of use, make only modest demands on the environment and consequently express higher levels of satisfaction with LNI; this is particularly true of many of the responses made by the primary schools in the online questionnaire.

There is a need for better, more effective communication between C2k and its stakeholders. Evidence from the interviews, school visits and questionnaire returns is that some stakeholders and schools express difficulty establishing a

sense of ownership of LNI. C2k needs to take responsibility for remedying this situation. Several stakeholders, including some of those represented on the C2k Project Board, have not engaged in a successful dialogue with C2k to promote the uptake and use of LNI with a view to improving the existing service, which raises a question about the effectiveness of the governance arrangements. There is a need for the Department to provide stronger strategic management of the various agencies involved in the support of learning environments and the wider use of technology in schools, with a particular emphasis on detailing roles and responsibilities and clarifying lines of accountability in terms of the educational return on the significant investment made.

While significant efforts have been made to disseminate LNI and promote its use, these efforts have been fragmentary across the service as a whole, limiting their impact. At least one stakeholder and several quadrant four (Figure 5) schools made the point that they would value more technical design help with LNI than is available from C2k, to help them realise their intentions for an effective whole-school environment. It is unsatisfactory, for example, that schools report considerable difficulty when enrolling pupils from other schools on an online course on LNI. A specialist school reported that one of the main reasons for procuring an alternative environment was the control and ownership this offered them, for example, they could enrol onto courses the students from all of the schools in their learning community without restriction.

### **2.3 USER DEVELOPMENT AND SUPPORT ISSUES**

The returns from the questionnaire, along with the evidence from the fieldwork visits, show that the majority of teachers from across the sectors have low levels of competence in the use of learning environments (Figure 7). There is a range of training available for learning environments, which includes training from C2k related to LNI, programmes through the RTU, relevant Masters' course modules, professional development for some schools provided by the higher education institutes (HEIs) and training tailored to the special schools. While these vary in their impact, it remains the case that there is no overall coherent plan.

In 2004, C2k implemented a cascade-based 'train the trainers' model, with training provided to 115 officers from the Curriculum Advisory and Support Services (CASS) from the ELBs and other stakeholders. This was based upon the understanding these stakeholders would cascade the training internally within their organisations, and in turn support schools, building capacity in the usage of LNI in the process. C2k report that this model was largely

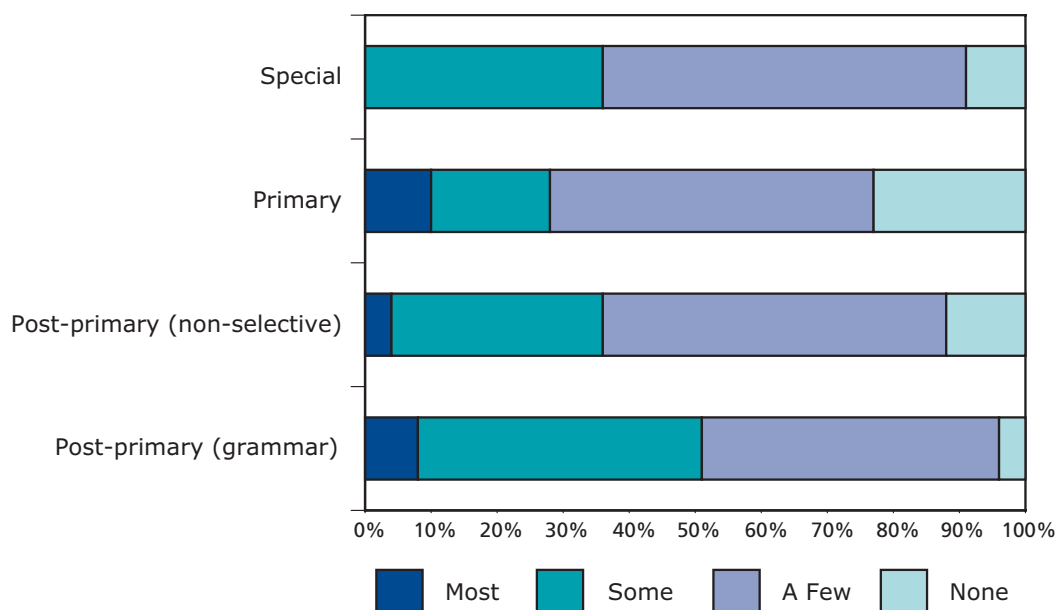
unsuccessful. The evidence from the inspection indicates that some of the main reasons for this include:

- the timing of this work coincided with the roll-out of other regional initiatives such as the strategies for literacy and numeracy and the RNIC, which over-stretched the capacity of the education support organisations;
- the absence of an online dimension in the support framework underpinning the implementation of the RNIC;
- the LNI platform was still in a developmental stage, with some of the functionality non-operational;
- the training was largely based around the available functionality and navigation, with insufficient emphasis on the pedagogy of online learning or recognition of the low existing skills base across our education service with regard to this type of work; and
- the time was insufficient to adequately up-skill those trained by C2k to the required level.

As a result, the committed and hard-working C2k LNI Development Team became increasingly involved in providing direct high-level, high-volume awareness-raising sessions for teachers and stakeholders on request. Training has been provided to around 8,000 users, including a very significant number of post-primary teachers. Many teachers have benefited from this and report that they valued the initial training provided by C2k on the use of LNI, along with more intensive support provided to individual schools on request. Typically, this team has provided follow-on training for schools and focused support for a range of pilot projects. There is evidence that the pilots have resulted in development work continuing in some of the schools.

**Figure 7**

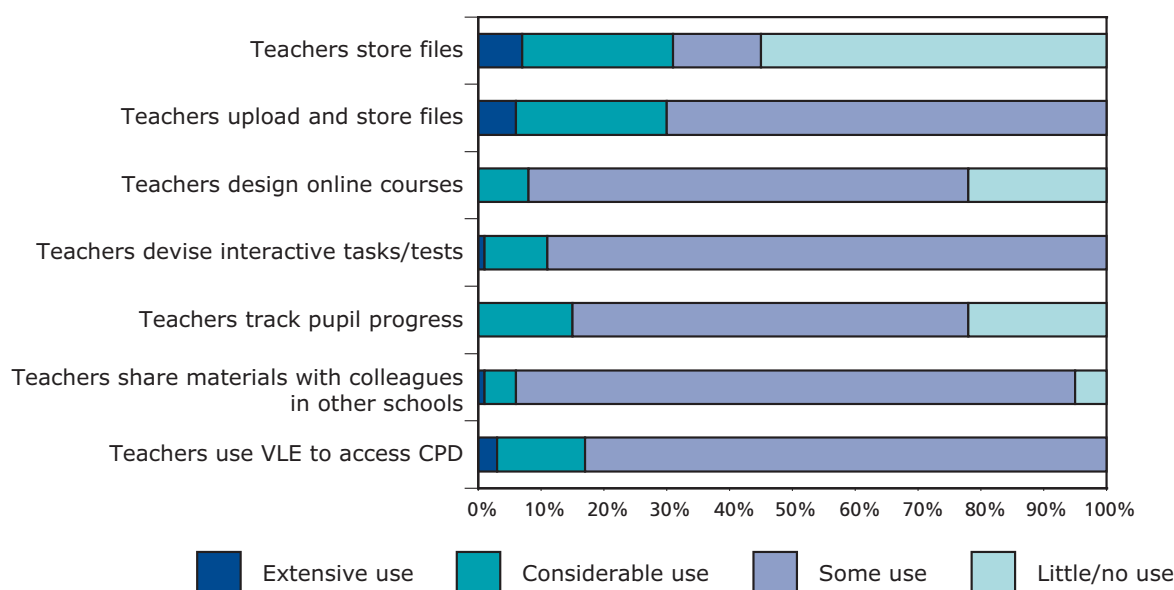
### Teacher Competence in the Use of Learning Environments



The work of the LNI team takes place in the absence of effectively co-ordinated support from the wider education support services. The findings from the inspection, backed up by the questionnaire returns (Figure 8), indicate strongly that this fragmented model of support, and general lack of strategic direction, does not meet the current needs of schools and teachers. The evidence from the school visits shows clearly that the impact on pedagogical practices within the majority of schools has been minimal, particularly in the primary school sector.

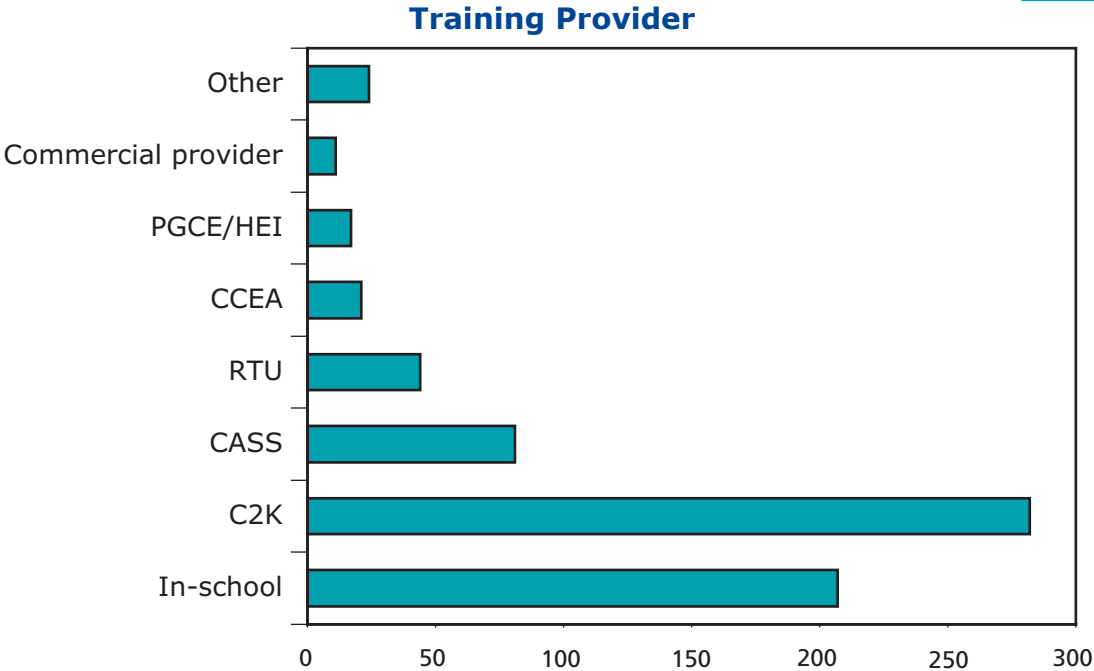
**Figure 8**

### Teachers' Use of VLEs



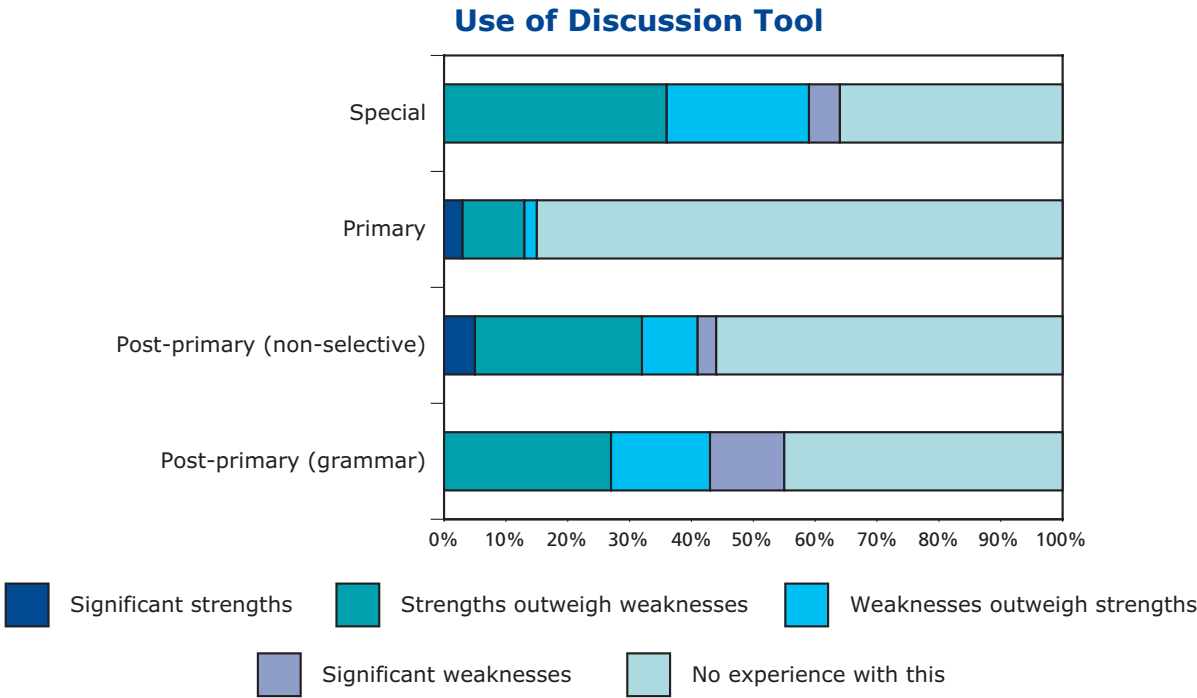
The returns from the questionnaire show that for training and support in LNI, schools tend to use C2k and follow this up with in-house development (Figure 9).

**Figure 9**

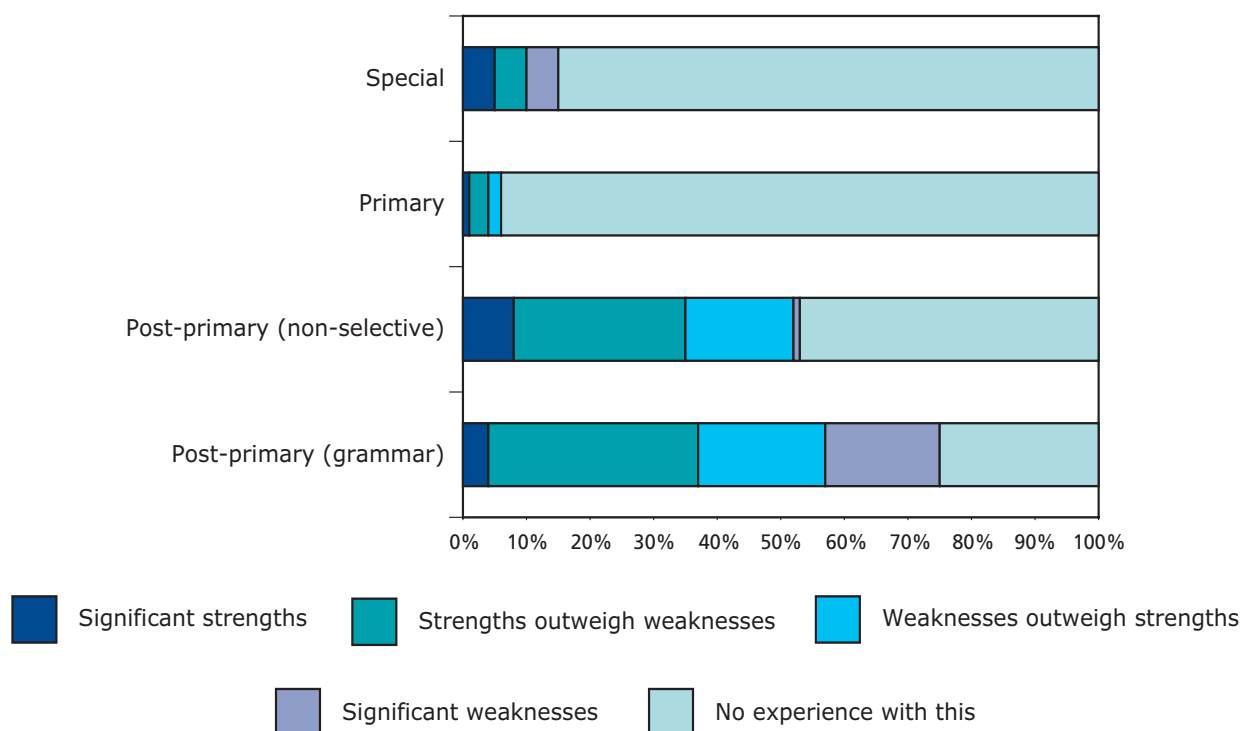


Many teachers remain unsure about the educational purpose and potential of a learning environment. In addition, most lack the necessary pedagogical and online curriculum design skills to deploy effectively the learning tools to enhance their classroom practice and to promote learning in the RNIC. The questionnaire returns illustrate that most primary schools, for example, have little experience in the use of discussion forums (Figure 10) or building an online course (Figure 11).

**Figure 10**



### Building an Online Course on LNI



The potential of learning environments across the primary phase has not been effectively promoted by the education stakeholders. As a result, the senior managers in primary schools have yet to develop fully an appreciation of the benefits which a learning environment can provide for the school community, and in some cases these senior managers are unaware of the improved functionality of more recent upgrades to LNI.

There has been insufficient post-implementation consultation by C2k with users and potential users of LNI; there is, for example, no users' forum. Too many schools report that their concerns and frustrations with the usability and performance of LNI are not being listened to or addressed adequately. Specifically, many users report that they have lost some confidence with the Helpdesk; they report that they are not kept adequately informed about whether an LNI-related issue raised has been resolved or not.

There are some examples of good practice, such as the intense and well-received support provided by members of the C2k LNI Development Team in the schools. Of particular interest also is the model of focused, contextualised support provided for the special education needs community through the LNI environment. This model uses online pedagogy to provide specialist support and guidance, to often isolated practitioners. LNI is used to good effect to discuss pertinent topics, share documents, planning ideas and practice, all online; this



is highly valued by the participating teachers and special schools. This model is indicative of the level and intensity of teacher support necessary to impact positively on classroom practice.

Since 2003, the RTU has been supported by the Department to provide the OLTE programme which aims to develop 'quality online tutor skills'<sup>8</sup>. The course is accredited at level 4 by the Open College Network.

At the time of the inspection, just over 100 professional educators, mainly from the education support community had enrolled on the RTU OLTE programme, of which only 27% have completed all three modules comprising the programme. The RTU reports that this is indicative of an insufficient priority given by senior managers of those organisations, resulting in inadequate time being provided to enable those officers to meet the full demands of the programme. Nonetheless, the officers who have graduated are a key resource to build capacity across the education community, although not all of them are in a position to do so. By contrast, of the 54 classroom teachers who registered for the OLTE programme in September 2007, just over 75% have fully completed the assignments at the time of the inspection. A further cohort of teachers is expected to start in September 2008. It is noteworthy that around 1,500 further participants have experienced online learning as a consequence of being enrolled in the courses run by the OLTE candidates as part of their assessment. The external moderator for the OLTE programme reports<sup>9</sup> that it is "one of most effective, well structured and delivered programmes of its kind".

A strength of the OLTE programme is that participants are 'encouraged to engage in critical thinking in relation to the development and evaluation of e-learning'. The participants on the programme appraise different learning environments, make judgements about their effectiveness and are well placed to make informed choices regarding which environment best meets their needs. The evidence indicates that the majority of teachers, who are making informed decisions, are finding other environments more fit for their purpose than LNI. The choice by the RTU OLTE programme of the Blackboard learning environment to provide essential, accredited training to education support staff and, more recently, teachers, is the cause of some lack of clarity and coherence within the system, given the investment in, and availability of LNI. This adds to the risk that the considerable advantages which should arise from a single, regional environment will not be achieved.

---

<sup>8</sup> 'Online Learning and Teaching for Educators', Programme Management Board for Curriculum and Assessment Implementation website. [http://www.pmbni.org.uk/news\\_stories/0208/online.asp](http://www.pmbni.org.uk/news_stories/0208/online.asp)

<sup>9</sup> Comber, C, *Regional Training Unit Online Learning for Teacher Educators (OLTE) Course. External Moderators Report. University of Leicester (2007).*

In September 2007, C2k launched an in-house LNI Accreditation Scheme to 'reward users who are making use of the environment' and to encourage its uptake. At the time of the inspection, the uptake by classroom teachers was modest.

### **3. Conclusion**

Technology is increasingly used by children and young people and enhances and enriches their lives in many ways; for some of them, technology is providing access to a more diverse and engaging range of learning experiences. For many, however, their experience of technology at home is much richer than at school, and the expectations from young people with regard to its use as a more routine part of school life are rising.

The Department continues to invest significant funds in the development of ICT in schools. The impact of this is most noticeable in the consistently good quality infrastructure across the schools, delivered through a managed service; the children and young people in our schools have good, improving, access to technology which is not readily matched elsewhere in the UK.

The LNI regional learning environment has been provided to all schools and the pattern of use emerging in quadrant 1 schools (Figure 5) is that LNI is suitable and is appreciated for the range of licensed resource content and for the support of online discussions. The LNI aspect of the C2k managed service solution, however, has been less successful overall and the evidence is clear that it works less well than it should.

The range of training for learning environments has had relatively little impact on the pedagogical practices of the vast majority of teachers in our schools; many of them lack the understanding and knowledge to deploy such a tool with any confidence in a classroom environment. Many of the potential learning gains from a regional learning environment have yet to be realised.

There is clear evidence that almost all primary schools are at a very early stage with regard to the embedding of learning environments into the life and work of the school. Other than occasional access to some of the resource content by some primary schools, the use of other functionality is quite rare. A lack of time, awareness and the professional development of the teachers are the main constraints.

The post-primary and special schools have made better progress and a few of the more forward-thinking and ICT-mature schools significantly enhance the

pupils' learning experiences through innovative work built around their learning environment. Almost without exception, the schools making more sophisticated and whole-school use of learning environments use platforms other than LNI. While the awareness of the potential of learning environments is much greater in the post-primary and special sectors, the levels of usage and development remain relatively immature, with instances of extensive use often as a result of the efforts of individual enthusiasts or departments.

The feedback from the majority of the stakeholders interviewed for this inspection is that LNI is not currently fit for their purposes and does not meet their needs well. Several stakeholders, as well as some teachers, reported that they do not have a developed sense of ownership of the LNI environment as an education service.

The education stakeholders recognise and are positive about the potential advantages of a single regional learning environment for our educational community and they are making increasing use of learning environments to support their core business. Despite the investment in a single regional learning platform, a fragmented picture of uptake, and support for, learning environments has emerged.

In the context of this inspection, C2k needs to recognise and address the concerns reported by users and stakeholders, including setting out to improve its dialogue and relationship with its customers, and to devise appropriate action plans in collaboration with HP to address the areas for improvement.

The Inspectorate will monitor and report on the areas for improvement identified in this report, along with progress on the recommendations proposed.

## **4. Recommendations**

Based upon the evidence reported, we make three major recommendations and for each major recommendation we make a number of important supporting recommendations.

## SUMMARY OF RECOMMENDATIONS: IDENTIFICATION OF RESPONSIBILITY

Refer to Section 4 for the full details of each recommendation	
	ACTION
<b>4.1 CHANGE MANAGEMENT PROGRAMME</b>	
Professional development for school leadership teams, teachers and learning support staff. The need is especially acute in the primary sector.	CASS RTU
In the Department's review of the Empowering Schools strategy, the Inspectorate recommends that a co-ordinated support programme for teachers be the highest and most urgent priority.	DE
<b>Supporting recommendations:</b>	
i) Enhanced awareness of ICT amongst school leaders.	RTU and CASS
ii) Stronger strategic management of the various support agencies.	DE
iii) E-portfolio for professional learning; communities of professional practice; efficiencies in teacher education.	DE, CASS, RTU, HEIs and GTCNI
iv) LNI should be an integral part of the training for RNIC.	DE and PMB
v) Newly qualified, unappointed teacher access to LNI.	C2k and GTCNI
<b>4.2 PROCUREMENT OF A NEW ONLINE LEARNING SERVICE</b>	
A plan for the specification of a new online learning service.	DE, C2k and Stakeholders
<b>Supporting recommendations:</b>	
i) Usability, performance and technical support issues.	C2k and HP
ii) Short-cycle feedback on the usability and performance.	C2k and HP
iii) Targets to improve the LNI helpline.	C2k and HP
iv) Enhancement of bandwidth.	C2k and HP
v) <b>Mobile aware</b> development.	C2k
<b>4.3 DEVELOPMENT OF EMERGENT QUALITY MODELS OF E-LEARNING</b>	
Support the development and evaluation of new models of distance-learning delivery of online accredited courses.	DE, RTU, CASS Entitled to Succeed (E2S), Area Learning Communities C2k and further education (FE) stakeholders
<b>Supporting recommendations:</b>	
i) Existing OLTE provision from RTU should be extended.	RTU, CASS, CCEA and C2k
ii) Progression from level 4 course to Masters level.	HEIs and RTU

## 4.1 CHANGE MANAGEMENT PROGRAMME

The use of learning environments encompasses technological, professional development and cultural change issues. It is clear that schools need advice and support with the complexities of the implementation of learning environment strategies in a way which supports whole school improvement. There is an obvious need for more and better focused professional development for school leadership teams, teachers and learning support staff to grow deeper roots of professional competence in making best use of the investment, not just in LNI, but in all of the learning technologies currently in our schools.

The evidence from this inspection is that the need for support is especially acute in the primary school sector, where typically there is very little access by the schools to adequate technical expertise.

In the Department's review of the Empowering Schools strategy, the Inspectorate recommends that a support programme for teachers be the highest and most urgent priority. The Department is recommended to consider the successful model of support for special schools reported in this inspection, and to assess what level of support may be afforded for a sustained, area-based, networked, collegial professional model. This model might be best effected by providing teaching cover to release proven, ICT-mature practitioners to provide mentorship, both online and face-to-face, to develop expertise amongst practitioners and support the emergence of online communities of professional practice.

Supporting recommendations:

- There is a clear need for an enhanced awareness amongst school leaders of the relevance and potential advantages of learning environments for their staff and learners, which can be integrated into the educational vision and school development planning process for the school.
- There is a need for the Department to provide stronger strategic management of the various agencies involved in the support of learning environments and the wider use of technology in schools, with a particular emphasis on detailing roles and responsibilities and clarifying lines of accountability in terms of the educational return on the significant investment made.

- There is scope for the successful use of e-learning for professional development for headship to be built upon, including through the integration of an e-portfolio for professional learning, to create communities of professional practice and introduce efficiencies into all stages of teacher education.
- While a pilot has begun, the use of a significantly improved LNI should be an integral part of the training for the RNIC, and other policies including, for example, whole-school improvement, literacy and numeracy, and inclusion and diversity.
- All newly qualified teachers should be provided with access to LNI to support ongoing induction and early professional development, irrespective of their employment status within the teaching profession; this has implications for the development of a teacher e-portfolio.

## **4.2 PROCUREMENT OF A NEW ONLINE LEARNING SERVICE**

There is a need for the Department and the C2k Board to work closely with its main stakeholders, including direct input from some quadrant 4 schools (Figure 5), who have undertaken a deep analysis of their business needs for e-learning, to review the findings of this inspection report.

This review should consider the economic and costing implications of our recommendations, and take time (in the timescale appropriate for Lot 7) to draw up a plan for the specification, in the context of emerging techniques for data integration and Web 2.0, for the procurement, deployment and support of a new online learning service which provides users with some choice of a learning environment without loss of the advantages of a single, secure regional solution. This could lead potentially to the identification of a range of LNI-linked learning environments within the context of an overall single regional solution.

Such an approach would integrate on the desk-top the functionality of a learning environment, management information systems (such as those provided currently by SIMS) and other management tools. It would also link effectively into the e-Schools service currently under development.

The specification should be based upon a clear and explicit statement of educational needs. The specification of needs should be undertaken in the wider context of the emergence of interoperable, online education services across the UK, including those in the FE sector, in order to support the Department's

policies for 14-19 year olds and for a continuous and coherent system of teacher education.

The procurement and deployment plan should be based on a stronger engagement, collegiality and accountability across the stakeholders, including those with expertise in ICT-mature schools, to own and deploy this service.

Supporting recommendations:

- There are a number of usability, performance and technical support issues identified in the report which, where possible, should be urgently addressed in the short term and once resolved the improvements should be advertised. Furthermore, lessons learned here should feed into the Lot 7 procurement process.
- In the short term, C2k and HP should revisit arrangements whereby the teaching profession and the wider education community can provide short-cycle feedback on the usability and performance of LNI and other aspects of the service, such as technical user support, thus contributing to a refreshed identification of user needs.
- The lack of confidence expressed by users in the effectiveness of the helpline for LNI-related issues, which is leading them to cease to report their problems, needs to be urgently addressed by ensuring that all incidents are recorded and that progress and closure is reported back, and with a register of issues reported/resolved/not resolved, which is easily accessible online. The C2K Board should set challenging targets for improvements here and monitor progress.
- There is a need to review the bandwidth available to schools with a view to significant enhancement.
- In the longer-term specification, technological developments need to take account of innovations such as ensuring that the future functionality is mobile aware.

### **4.3 DEVELOPMENT OF EMERGENT QUALITY MODELS OF E-LEARNING**

The Department is providing, through the professional development and quality assurance framework afforded by the RTU OLTE programme, support for emerging models for the distance-learning delivery of online accredited courses

which are being developed by local learning communities for the purpose of providing the entitlement curriculum framework in schools.

This pioneering work is drawing upon a range of different learning environment solutions; the Department should continue to support the development and evaluation of new models, including those which demonstrate links with further education providers. This work needs to take as a framework the larger context of online developments beyond our educational community and the ability for a (single) password log-on to ensure that access to courses outside our region is possible. This has implications for the specification of a new learning service and should also feed into the Lot 7 procurement process.

Supporting recommendations:

- Organisations such as CASS, CCEA, and others are identifying separately their needs for professional development to support online learning. In meeting these needs, existing duplication and overlap should be avoided and a single plan created. Existing provision from the RTU through the OLTE programme and from the HEIs should be considered, and their development and extension co-ordinated. Training in the appropriate use of learning environments for teachers needs to be set in the context of the challenges facing them today in the classroom, for example, the implementation of the RNIC, the Entitlement Framework, critical reflective practice and leadership development. For educational leaders, the training should encompass the opportunities presented by the effective deployment of learning technologies to contribute to institutional effectiveness and improvement.
- Progression should be created, through assessment of prior learning, for teachers and educators by providing a pathway for those who wish to progress from the existing level 4 course, through assessment of prior learning, to a Masters level, higher education qualification.



### INSPECTION VISITS

Inspection visits were made to the following schools:

Ashfield Girls' High School, Belfast  
Ballyclare High School  
Belfast Model School for Girls  
Belfast Royal Academy  
Bloomfield Collegiate, Belfast  
Crumlin Integrated College  
Grosvenor Grammar School, Belfast  
Hazelwood College, Belfast  
Lurgan College  
Oakgrove Integrated College, Derry  
Portora Royal, Enniskillen  
Rainey Endowed School, Magherafelt  
St Aidan's High School, Derrylin  
St Brigid's College, Derry  
St Cecilia's College, Derry  
St Ciaran's High School, Ballygawley  
St Columbanus' College, Bangor  
St Louis Grammar School, Ballymena  
St Mary's Grammar School, Magherafelt  
St Patrick's Grammar School, Armagh  
St Pius X College, Magherafelt  
Wallace High School, Lisburn

Ballymena Primary School  
Newtownards Model Primary School  
Oakgrove Integrated Primary School, Derry  
St Malachy's Primary School, Camlough  
St Mary's Primary School, Ballygawley  
St Patricks's Primary School, Dungannon

Fleming Fulton Special School, Belfast  
Rostulla Special School, Newtownabbey

### STAKEHOLDER INTERVIEWS

The inspection team conducted interviews with representatives of the following stakeholders:

C2k

Hewlett Packard

The Regional Training Unit

The Council for the Curriculum, Examinations and Assessment

Education and Skills Authority

The Education and Library Board ICT Curriculum Advisory and Support Services

The Programme Management Board ICT Group

The School of Education, University of Ulster

The Teacher e-Portfolio Project

The Dissolving Boundaries Project

The Digital Citizenship Project

## GLOSSARY OF TERMS

Term	Definition (in the context of this report)	Section in which term first appears
Asynchronous	This is communication in which interaction between the participants does not take place simultaneously. E-mail, for example, is a form of asynchronous communication.	2.1.1
Auditory Network	Music and audio clips available from LNI for use in schools.	2.1.1
Becta	Becta, formerly known as the British Educational Communications and Technology Agency, is an agency of the Department for Children, Schools and Families in the UK. Becta is the Government's lead agency for ICT in education in the UK.	1.1
Blackboard	Blackboard is a proprietary Virtual Learning Environment (VLE) that supports online learning and teaching.	1.1
Digital assets	A term which covers any resource which is in digital format which can be used in different learning platforms.	2.1.2
Digital Citizenship Project	The Digital Citizenship project involves researchers from the School of Education at the University of Ulster in partnership with CASS officers, working with a group of schools in an attempt to strengthen relations and deepen their understanding of citizenship issues through the use of ICT.	1.2
Dissolving Boundaries Project	The Dissolving Boundaries project, co-ordinated through the University of Ulster at Coleraine and the National University of Ireland at Maynooth, links schools in the north and south of Ireland for joint project work through Moodle and video conferencing and providing teachers with opportunities for shared professional development.	2.1.2
e-learning	A collective term for teaching, learning and assessment activities designed and delivered online. More specifically used, it refers to the delivery of distance learning models for complete courses of study.	1.1
Google Apps	Google Apps is a service from Google encompassing several Google products. It features several Web-based applications which have similar functionality to traditional office software suites including: Gmail, Google Calendar, Talk, Docs and Sites.	2.1.1

<b>Term</b>	<b>Definition (in the context of this report)</b>	<b>Section in which term first appears</b>
Learning Environment/ Platform	A learning environment or learning platform is a collection of interoperable systems of modules which include: <ul style="list-style-type: none"> <li>■ Content management;</li> <li>■ Curriculum mapping and planning;</li> <li>■ Learner engagement and administration; and</li> <li>■ Communication and collaboration tools and services.</li> </ul>	1.3
Lot 7	The name given to the next major procurement of C2k services to replace the infrastructure in post-primary and special schools and a range of central services. (the next significant upgrade to C2k services).	1.1
Mobile aware	The design of a web-based application which can be accessed and used on a mobile device with a small screen such as a mobile phone.	4.1
Moodle	Moodle is an open source virtual learning environment. It is designed to help educators create online courses. The open source license arrangement, along with its modular design enables users to develop specific functionality.	1.1
Newsdesk	A daily news service run for pupils on LNI.	2.1.1
Pathé News Clips	The historic Pathé News clips digitised for use in schools, from LNI	2.1.1
Podcast	A series of digital-media files distributed over the internet using web feeds. They can be played back on portable players, such as the Apple iPod, or on computers.	2.1.1
Partnership Management Board	The PMB is a stakeholder representative group which is responsible for the dissemination strategy for the roll-out of the revised curriculum.	1.3
SIMS	An integrated Management Information System (MIS) for schools. It is a product of Capita Education Services.	4.2
Streaming video on-demand	Streaming video allows users to download and watch video/audio content on demand.	1.2
VLE	Virtual Learning Environment (see Learning Environment/Platform)	1.3
Web 2.0	A collection of web-based tools which enable and promote communication, collaboration and communitarian activities on the Internet.	1.1

<b>Term</b>	<b>Definition (in the context of this report)</b>	<b>Section in which term first appears</b>
WebCT	Web CT (Course Tools) is a proprietary virtual learning environment system, in common use in higher education institutions. It is now owned by Blackboard.	2.1.1
Queen's Online (QOL)	Queen's Online (QOL) is a secure and managed learning environment in which staff and students from the university may access online resources and services that they are registered to use.	2.1.1
Wiki	A web based software application that allows users to create, edit and link web pages easily. Wikis are often used to create collaborative workspaces and documents.	2.1.1
Yacapaca	Yacapaca is a free e-learning platform, designed for educators to create (and to share, set, mark and analyse) online assessments in a variety of formats. It is a web service.	2.1.2





An Evaluation of the Use and Impact  
of Learning Environments in Schools  
and in the Wider Education Service

© CROWN COPYRIGHT 2008

This report may be reproduced in whole or in part, except for commercial purposes or in connection with a prospectus or advertisement, provided that the source and date thereof are stated.

Copies of this report may be obtained from the Inspection Services Branch, Department of Education, Rathgael House, 43 Balloo Road, Bangor, Co Down BT19 7PR. A copy is also available on the DE website: [www.deni.gov.uk](http://www.deni.gov.uk)