

Expanding horizons

Digital Learning Platforms
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Foreword

The *Melbourne Declaration on Educational Goals for Young Australians* (MCEETYA 2009) has two clear goals:

1. Australian schooling promotes equity and excellence.
2. All young Australians become successful learners, confident and creative individuals, and active and informed citizens. To be successful learners young Australians are to be 'creative and productive users of technology, especially ICT, as a foundation for success in all learning areas'.

For many years Victorian students have had access to a range of technologies from laptop and desktop computers, to interactive whiteboards and school intranets. Digital learning platforms join up technology use by providing spaces for accessing and storing digital materials; tools for communicating, creating and collaborating; and access to data that can track progress in learning. With the Ultranet, a digital learning platform developed specifically for Victorian government schools, teachers, students and parents will be able to make the most of Information and Communications Technology (ICT) by connecting within and across their communities in a safe and secure online environment.

The research outlined in this series of papers on digital learning platforms shows that learning in a social context is very important, and that parents and guardians, teachers, and students are enthusiastic about 'anywhere, anytime' access. With learning platforms, students have access through many devices to resources to support their learning interests and needs, and a range of tools to collaborate with others and to create their own material online. Parents, teachers and students also save time through accessing, storing and sharing online curriculum, assessment and reporting resources and through streamlined communication. Importantly, all have a safe repository for data on skills, achievement and attendance that can be built up over time. Together, these factors are already transforming learning.

The Digital Learning Platforms Research Series has been developed to provide Victorian, national and international research evidence to support schools in making the most of the Ultranet. This paper, the first in the series, provides an introduction to digital learning platforms and what they can do, making specific reference to the functionality of the Ultranet. It presents a model showing the elements within a learning platform and highlights some of the ways these elements can be used to enrich teaching and learning.

The Ultranet marks an exciting new phase in Victorian education and I trust you will find this series of publications useful in making the most of its potential for success in learning.

Chris Wardlaw



Deputy Secretary
Office for Policy Research and Innovation



Contents

1	Overview of Digital Learning Platforms Research Series	1
2	What is a learning platform?	3
3	Why use learning platforms?	5
4	Elements of learning platforms	8
	Access	9
	Interface	11
	Communication and resources	12
	Communication and collaboration	12
	Resources	16
	Student work, assessment and data	17
	Administration	18
5	The Ultranet: Victoria's digital learning platform	21
6	Conclusion	25
7	References	27
8	Glossary	28

1 Overview of Digital Learning Platforms Research Series

Expanding Horizons provides an introduction to digital learning platforms and their functionality, making specific reference to the Ultranet. It presents a model showing the elements within a learning platform and highlights some of the ways these elements can be used to enrich teaching and learning.

Connecting people examines the communication functionality of learning platforms, and explores the benefits and challenges of supporting independent learning and collaborative practices. The value of learning platforms includes their ability to enable social networks and educational communities to be fostered in ways where there is an emphasis on creation rather than consumption, and on the decentralisation of content and control (Becta 2007a). This paper explores the connectivity offered through Web 2.0 technologies in learning platforms (such as chat, messaging, blogs, wikis and forums), and discusses the implications of these for the educational opportunities of students, parents, teachers and the broader community.

Assessment in online learning environments focuses on the potential for learning platforms to improve assessment practices. The paper examines current teaching and assessment practices, and the use of e-assessment, digital portfolios and other data to help students, teachers and parents monitor progress and achievement. It shows how information and communications technology (ICT) and Web 2.0 tools have been used to improve both formative and summative assessment practices. The paper also highlights ways that learning platforms can assist teachers to assess '21st century skills' such as problem solving and higher order thinking skills.

Flexible learning looks at how learning platforms can support a variety of approaches to teaching and learning, in and beyond schools. With new conceptions of time and space, flexible learning recognises that learning experiences can be planned and organised, or spontaneous and opportunistic. This paper explores evidence showing how the resources, tools and flexibility to access the learning platform at any time and from anywhere, along with the development of teachers' and students' capabilities, catalyse changes in learning and teaching.

Professional learning and practice reviews approaches to professional learning that support educators to learn through technologies in order to use them effectively to create a range of learning environments. It recognises that learning platforms themselves do not bring about improvements in educational quality simply through their installation. It is the strategic and thoughtful use of the tools that brings benefits to both learning and teaching.



2 What is a learning platform?

The Ultranet is an online student-centred learning environment that supports high-quality learning and teaching, and connects students, teachers and parents.

It is a 21st-century online learning platform that takes learning beyond the walls of the classroom and provides a rich knowledge management framework for schools.

The Ultranet will connect every Victorian government school, facilitating knowledge sharing within and across schools. It will capture a complete record of student learning progress over time, from year to year and school to school.

The term 'learning platform' refers to a range of integrated online tools that can be either intranet or internet-based. These tools can include web pages, email, message boards, text and video conferencing, personal or shared calendars and communication spaces, as well as assessment and management tools. A repository enables storage and provides access to digital resources. The aim of most learning platforms is to provide an online learning environment that supports quality learning and teaching, and connects students, teachers and parents, anywhere and at any time (DEECD 2010).

While the functionality of different learning platforms may vary, each one provides a range of tools that can be accessed via either an intranet (if it is stored on a local server) or the internet. These tools include:

- content management software to create, store and repurpose resources which can be accessed online
- curriculum mapping and planning tools, and storage capacity that supports assessment for learning, personalisation and lesson planning
- learner administration tools that enable access to student information, attendance, timetabling, portfolios and management information
- tools and services that provide communication functions such as email, messaging, discussion forums and blogs (Becta 2007c).

A learning platform can either be school-based or enterprise. A school-based learning platform is usually used by a single school whereas an enterprise learning platform can connect a number of schools or whole school system. Such inter-connectivity can facilitate the sharing of skills, knowledge and resources in ways that were not previously possible, as communities of practice develop.

Much of the research reported in this paper was conducted in the UK, where schools were required to implement learning platforms under government policy, and a range of different platforms were used (Department for Education and Skills 2005).

In Victoria, some schools have been using learning platforms to enrich learning and teaching for several years. However with the Ultranet, implemented across the state in 2010, all schools have the same interface and tools, and a common language for communication and collaboration.



3 Why use a learning platform?

There are two clear advantages of learning platforms: first, learners can take a more active part in their education; and secondly, learning platforms offer ‘anytime, anywhere learning’ (Becta 2007a).

However, the benefits of learning platforms extend beyond those for students. Table 1 outlines the benefits for teachers, students, parents and school administration and management.

Table 1: Benefits of a digital learning platform (adapted from Becta 2007b)

Teachers	Students
<ul style="list-style-type: none"> • create and share teaching materials which can be accessed anywhere online or printed out • put resources online, page by page, lesson plan by lesson plan, so colleagues can access them both in school and from home • access and customise a wide variety of learning materials • work from home on lessons and then easily access them back at school • access lesson plans from colleagues to cover extra classes • assess, monitor and track individual and group progress • access key documents all in the one place to assist curriculum planning • receive work from students and provide feedback in one area that is easy to manage • manage timetable, diary and discussions • access rich assessment data on individual students along with content that is readily available to be adapted, supporting personalised learning 	<ul style="list-style-type: none"> • access learning materials and feedback from teachers and others outside lesson time and from locations such as the local library and home • store work and notes online for use in assignments, homework and revision outside normal school hours • work at their own pace and with a wider choice of learning styles, through a more personalised curriculum • create a portfolio including work samples, digital photos and videos, and share their work with a wider audience • improve ICT skills and online management of materials • submit homework and assignments for assessment and feedback • communicate by email and participate in live discussions and forums with other students and teachers • access Web 2.0 tools such as blogs and wikis that support collaboration
Parents	School administration and management
<ul style="list-style-type: none"> • play a greater part in their child’s learning, through access to the learning platform from home • access and view their child’s work • view reports, attendance and results from assessment activities • communicate with teachers, school administrators and others supporting their child’s learning • engage with wider school issues through online communication tools • become active partners with the school and easily access school information (e.g. school newsletter) 	<ul style="list-style-type: none"> • provide up-to-date management information on attendance and attainment • track the progress of individuals and groups of children • collate summative and formative assessments • reduce the administrative burden on teachers by using transferable data • enable communication (within and beyond school), on a one-to-one, one-to-many, or many-to-many basis • increase and manage communication with parents



Through using Moodle, the digital learning platform, the staff at Monbulk College have already begun to develop the knowledge and skills required to capitalise on the benefits offered by the Ultranet.

Monbulk College, located in Melbourne's outer eastern suburbs, is a co-educational school with approximately 600 students. The college has a strong focus on technology and since 2007 has used Moodle, an open-source school based digital learning platform that was developed in Australia and has been popular internationally in both schools and in higher education settings.

Moodle assists school staff and students in curriculum development and planning, resource sharing, communication and collaboration, and assessment, among other things. According to Matthew Forster, the college's learning technologies coordinator, 'Learning is no longer perceived as something that occurs only within the walls of the classroom'. Importantly, teachers and students do not see the learning platform as just another means for setting and delivering homework. Rather, it has created a vibrant and rich learning environment that is accessible by all students and staff in and out of school.

The VCE teachers have been especially enthusiastic about using the learning platform with senior students. For example, students studying Literature developed a shared common workspace to evaluate poems about World War I. They used the tools to develop a discussion forum where they could further explore their ideas outside class time. The forum was moderated by their teacher who contributed to the discussion as it developed. Reflecting on this experience, Forster says, 'It was evident that students had matured in their thoughts and assisted each other to build their knowledge'.

Teachers are more effectively identifying student knowledge gaps through questionnaires on the learning platform. They regularly upload questionnaires to assess students' knowledge across various subjects. Responses are automatically collated, enabling teachers to tailor future teaching. They can administer an online test at the start and end of a lesson and identify the effectiveness of the content and their teaching. According to Forster, 'The learning platform enables us to easily and quickly assess students and respond appropriately. This has led to major improvement in school-wide data gathering and sharing of that data'.

Teachers' work is also being redefined. Staff who are absent for a period of time, such as attending a school camp, are able to connect remotely to the learning platform to upload any class material into the appropriate section for casual relief teachers or directly for the students. Likewise, students unable to attend school, due to illness for example, can access class work and submit homework.

As an enterprise learning platform, the Ultranet will provide additional benefits to teachers and students at Monbulk College: they will be able to connect and collaborate with peers and colleagues across the state, not just within their own school. Individual resources and learning information tied to each user will stay with them as they move from year to year and school to school.



4 Elements of learning platforms

The learning platform model below depicts the core elements of a learning platform and locates them within the spheres of access, interface, communication and resources. The diagram is based on commercial and open-source learning platforms including the Ultranet, Studywiz, Moodle, Scholaris and Blackboard, as well as research about personal learning environments, virtual learning environments, learning management systems and learning platforms.

Although the elements within the learning platform model outlined in Figure 1 appear as distinct boxes, information flows across the learning platform and the various elements interact with each other.

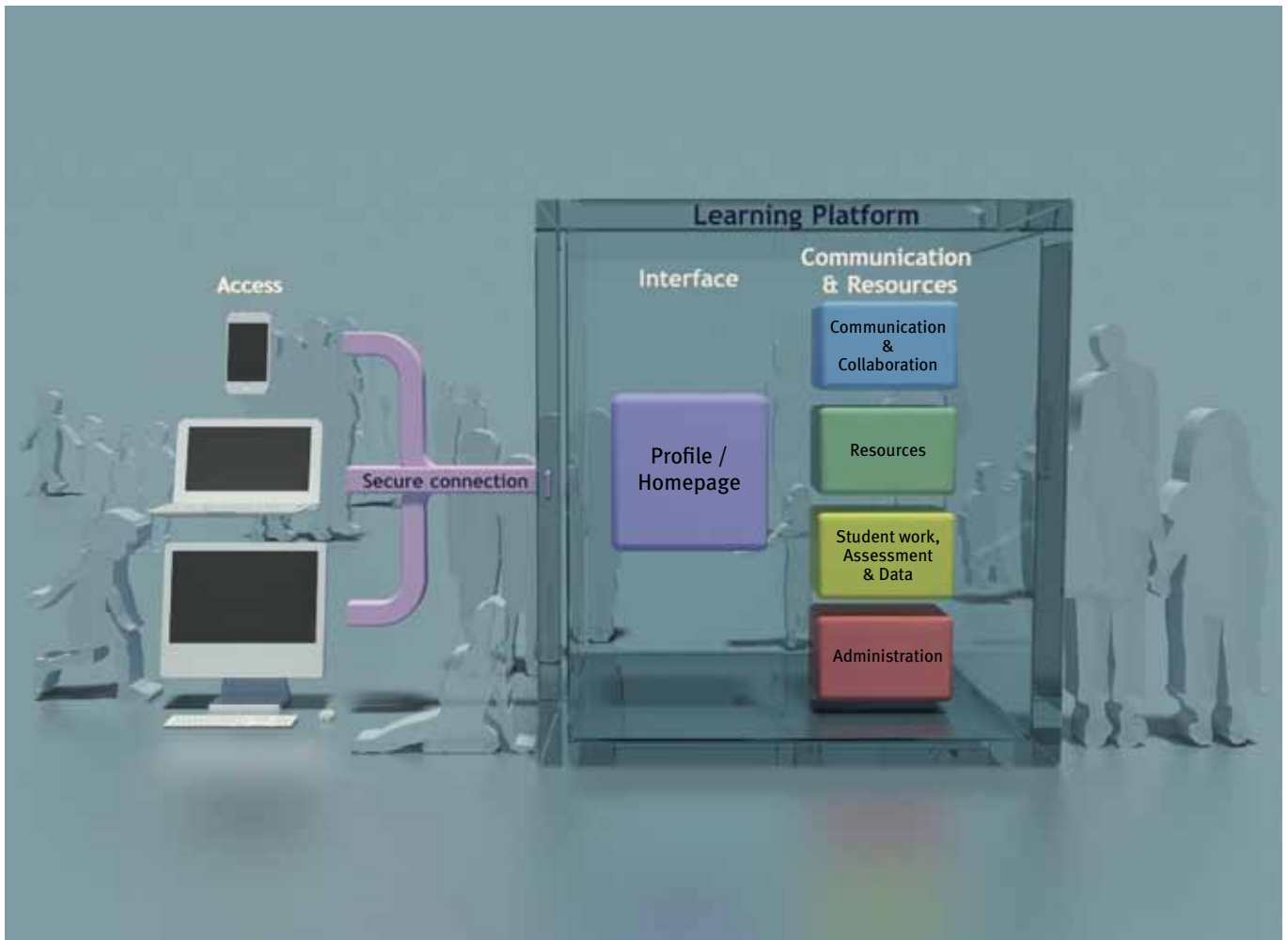


Figure 1: Learning platform model

Access

A learning platform is usually web browser based so it can be accessed wherever there is an internet enabled desktop or laptop computer. In many situations mobile devices such as phones, netbooks or iPads, can also connect to a learning platform. This increases the flexibility for learning to occur 'anytime and anywhere', and capitalises on the ubiquitous use of mobile devices in everyday life.

The learning platform extends learning beyond the classroom and school, and provides students with more opportunities to engage. They can access the same learning objects, activities and class work from home, a friend's house, a local library or at a bus stop, as they would at school. They can refer to assignments, connect with their classmates or teachers to discuss or revise work, or submit items to their teacher or classmates for feedback. They can also revisit their work at any time, providing greater opportunities for reflection.

'I can send and receive messages from friends and teachers, which is helpful to me to do my coursework. I can send messages to my teachers if I need any extra work. It is really good to use because it becomes a part of school learning' (Becta 2007d).

Teachers may log in to the learning platform at anytime to assess student work or respond to questions, plan lessons or collaborate with colleagues and share resources. A teacher may start developing resources for a lesson at home, upload them to the learning platform and then access them when required at school.

A learning platform also provides an avenue for parents and families to more easily engage in their child's learning. Parents can check their child's attendance, progress and homework tasks, and receive updates or news feeds from the school. Parents and children can revise classroom lessons and discuss homework together. Parents can connect with their children's teachers and school principal, and possibly with other parents depending on which spaces they access.

In the UK, parental involvement in their child's learning has been shown to have a positive impact on achievement (Becta 2009). A survey of parents in the UK found that 80 per cent of parents wanted to provide more help and support for their child with their schoolwork at home (Becta 2010).

'My daughter and I find it fun sitting together and learning together using the online resources provided by the school, because I am learning new things and I'm finding out what my daughter is doing at school. I can have better conversations with her and a better understanding of what she is learning so I can help her out more than I ever used to be able to' (Becta 2010).



Access to the Ultranet for all users requires a username and a complex seven character password that includes a combination of at least three character types (uppercase and lowercase letters, numbers and symbols). All Ultranet users must be an active part of a Victorian government school community.

'I've rediscovered the joy of learning with my kids. I didn't know what they meant when they said they were studying 'lines of symmetry' but we had a look at the examples on the learning platform, it clicked and we did it together' (Becta 2010).

'Our learning platform provides links, materials and tutorials for the child and parent to work through together. There is no doubt that helping parents to support their children has had a significant impact upon learning outcomes as well as developing even stronger links between the school, parent and child' (Becta 2010).

When a new space is set up in the Ultranet, the Space Owner (a teacher or student) must decide who they want to be able to participate and set the access preferences accordingly. The Space Owner decides if the space will be:

- Private: viewable and accessible only by those Ultranet users invited to participate. These communities cannot be seen by people who are not part of the space.
- Restricted: viewable by all Ultranet users across all schools but they must seek permission from the person who set up the site to be able to access it.
- Open: viewable and accessible by all Ultranet users across all schools.

Access to a learning platform for all users is normally through a single login with a unique username and password. This secure connection ensures a safe and closed environment. The physical environment of a school, in which students are protected and their interactions monitored, is mirrored in the virtual environment of the learning platform.

The unique login allows the learning platform to discriminate between different types of users (e.g. administrator, teacher, parent and student) and provides different users with their respective profiles and access rights. Identification at the point of login ensures that students can only view content relevant to their learning, and access classes in which they are enrolled. A teacher can draft lessons, store planning documents or participate in a professional learning space, however none of these activities are viewable by non-teacher users unless special access is provided. Users can set individual preferences to determine who can view the spaces they create and access the materials they generate.

Interface



Once they are logged in to a learning platform, users can access their personal homepage. The homepage provides a snapshot of current activity and important information. Much like the homepage of a website, it is also the gateway to accessing the tools, resources and various spaces within the learning platform. The homepage will also usually link to the user's profile, and may be customised to the user's preferences and the types of information they want to be displayed.

A teacher's homepage will usually display a calendar that can include upcoming meetings and events, a timetable of classes, and a list of contacts, including colleagues and school management. There may be a list of classes currently being taught with links to subject or group-specific pages and links to the spaces of individual students.

The interface of learning platforms can encourage students to be responsible for their own planning, achievement and evaluation of activities, in order to meet their specific learning goals. On their homepage, a student may have a calendar, timetable and list of subjects, as well as notices informing them of current teacher-assigned tasks or homework, and data on their attendance. They may have links to spaces for class groups as well as extra-curricula groups to which they belong. Information that can be updated, such as school bulletins, canteen menus and specific announcements can also be communicated to users through their homepage.

In the Ultranet, a user's homepage is called Home. Teachers and students can add a range of applications to Home. These include blogs, message boards, image galleries, slide shows, publication notices and a calendar. Teachers and students can personalise their homepage to easily access Ultranet spaces and frequently used applications.

Learning platforms put students in control of their own learning by providing access to learning materials and resources at any time. This means students can easily revise materials covered in class within a single online space. A survey of students in the US found that 47 per cent of Year 9–12 students, 39 per cent of Year 6–8 students and 25 per cent of Year 3–5 students want to learn online to 'be in control of my learning'. The survey found that students do not expect courses to be easier online, but they do expect the online format to make it easier to succeed because they can review materials when they want and are more comfortable asking teachers for help. Seventy-six per cent of teachers who have taught online stated that online learning benefits students by putting them in control of their own learning (Project Tomorrow 2009).



Communication and resources

Communication and collaboration

Communication & Collaboration

- blogs
- chat
- forums
- messaging
- virtual conferencing
- wikis

When the internet first came into widespread use, it marked a new era in the way daily transactions could be carried out, and made information more accessible. The internet enables people to read web pages and browse services, access library catalogues, shop online, participate in community forums, and search image libraries, from many places and with a range of devices. The emergence of Web 2.0 tools and applications on the internet has made people more connected across the globe. They are able to publish and share content online while commenting on other people's pages, photos, videos and posts. This activity has generated an enormous amount of content enabling learners to mine, access and interpret information from online sources that were unavailable to earlier generations.

Web 2.0

The term Web 2.0 refers to online applications designed to facilitate communication, information sharing and collaboration on the internet. Web 2.0 applications are often freely available and allow for the use of rich multimedia. They are designed so that they do not require specialised technical skills or knowledge to use them.

Web 2.0 applications allow content to be published online almost instantly. Web 2.0 applications can be effectively used in classrooms to provide rich opportunities for communication, creation and collaboration. Depending on the specific program, teachers and students can share information, create their own content, connect with others, work collaboratively, organise information, and provide feedback to each other.

The most powerful learning is social rather than individual (Kalantzis & Cope 2008). Current learning theories emphasise the importance of social involvement for motivation, construction of knowledge and as a source of support (Schaffert & Hilzensauer 2008). The co-construction of knowledge can lead to deeper level learning while collaborative learning can develop critical thinking, shared understandings, and lead to long term retention of learning materials compared to more traditional knowledge transfer models (Kreijins, Kirschner & Jochems 2003).

Feedback is essential for learning, whether from teachers to students, between students, and more importantly, from students to teachers (Hattie 2009). Blogs, wikis, and discussion forums connect people online, enabling communication, collaboration and feedback.

Blog

A blog (a contraction of the term ‘web-log’) is a type of website, usually maintained by an individual who creates entries that can be published to the blog immediately. A typical blog combines text, images, and links to other blogs, web pages, and other media related to its topic. Blogs can be private or public and readers can leave comments in response to blog entries.

Wiki

A wiki is a website that allows the easy creation and editing of any number of interlinked web pages via a web browser using a simplified WYSIWYG (what you see is what you get) text editor. Unlike blogs, wikis are typically maintained by a group of people and can be extremely useful for online collaboration, with contributors able to track the changes or comments made by others. Wikis can be secure and open to invited members only, or accessible to anyone.

‘The teachers set up some guidelines for the students to begin with, but as students participated in and contributed to the blog, the blog took on a life of its own, and the teachers could now stand back and watch the blog and the deeper levels of thinking and learning’ (DEECD 2010).

A blog or wiki, for example, can act as a collaborative workspace for a Year 6 class, a group of students working on a science project, a group of teachers wanting to share resources or for students, teachers and parents involved in a school committee. The flexibility offered by Web 2.0 technologies in learning platforms also enables teachers to personalise the learning experiences of their students, thereby catering for students’ individual learning needs.

At Yackandandah Primary School in Victoria’s north-east the Year 5–6 teacher used a wiki to encourage his students to reflect on their own and their peers’ learning. Through embedding a survey widget within the wiki, the students were able to reflect on their peers’ work and provide instant feedback. The wiki was also used to monitor students’ writing and to track the self-assessment of their work.



The Victorian School of Languages in Wodonga caters for students from many schools. A Japanese class of nine students from five different schools set up a wiki so that they could communicate and collaborate in between their weekly lesson, not only with the teacher, but with each other. Using www.epals.com the teacher contacted a class in Japan willing to collaborate with them and set up user accounts. The students recorded audio podcasts introducing themselves, which they posted onto the wiki, as well as photos of their schools. This allowed all the students to get real life exposure to the language and culture they were studying and work effectively outside class time.

The wiki can be found at: <http://vsl-japanese.wikispaces.com>

Fostering networks and communities is an essential element of a learning platform. It has been recognised for some time that principals, teachers, students and parents can connect and form communities organised around relationships and ideas (Sergiovanni 1996). Through an online community, members can reflect, comment, and contribute to conversations, equally. The conversations become ‘learning activities’ (Becta 2007a) that can involve ‘experts’, as well as all members of the community.

For example, a group of students might discuss their understanding of a concept, share expertise and upload work for peer review. A teacher or external expert may join the conversation, offer guidance or suggest other resources. These conversations can become rich tapestries of dialogue, using found and user-created objects, blending images, sound, video, and multimedia, in ways that are dynamic and interconnected (Becta 2007a).

‘Reflection is shared with all members of the blog not just the teacher’ (DEECD 2010).

Teachers can use shared spaces to collaborate online with colleagues to plan lessons and develop materials. Individual teachers can provide links to their class blogs and share examples of student work, thereby building and enriching their practices. For example, a group of Languages Other Than English (LOTE) teachers within a school or across a number of schools may wish to connect using a wiki and form a professional network to share resources and teaching strategies within a password-protected environment.

A remote school wanting to offer a language could access the professional network to draw on the expertise of the members, and through synchronous communication tools, connect their students with a Japanese, Indonesian or French teacher, for example. These opportunities open up the possibility to deliver ‘hard-to-staff’ subjects via video conferencing, with a subject blog or wiki to facilitate student discussion and the sharing of resources.

Collaborative Learning in the Ultranet is a place for student collaboration and learning. Students and teachers can communicate and collaborate on aspects of learning and co-create knowledge. This space provides access to Web2.0 applications and tools and creates opportunities to extend learning beyond the classroom.

The Ultranet provides a place for teacher professional collaboration and learning called Design. It is a space where teachers can interact, engage in professional dialogue and plan curriculum/learning activities with colleagues from within the school and across schools. Teachers can incorporate a range of Web 2.0 applications into Design spaces, including blogs and wikis.

Learning platforms enable the sharing of resources to support many approaches to teaching and learning. Through video conferencing and the Moodle learning platform, the Wimmera Virtual School (WVS) has begun to address some of the disadvantage experienced by students in rural and remote areas. A joint project involving 14 rural high schools in Victoria's north-west, the WVS has facilitated access to subjects that would otherwise not have been available to students. Sixteen VCE subjects including Physics, Chemistry, Music, German, Japanese and English Literature have been offered, with teachers having 'local' students in the physical space and 'remote' students attending class via video conferencing technology. According to one teacher involved in the project, 'Students are now able to receive tuition in subjects that their school cannot provide due to lack of student numbers and staffing constraints'. Materials from lessons can be uploaded by teachers to the learning platform and accessed by both the local and remote students at any time.

Shared spaces in a learning platform can also be used to connect members of a wider school community. A learning platform can facilitate knowledge sharing between students and teachers across schools by engaging them in a collaborative project. Teachers, students and parents involved in a school event such as a drama production might communicate using a blog. A message board and calendar can be used to keep group members informed of upcoming rehearsals or meetings, and to celebrate progress through reflective comments and images.

Many teachers are already using blogs and wikis within their teaching. However, with a learning platform they are hosted in the one online space without requiring multiple accounts and logins. They are closed and inherit the same security as the learning platform, meaning they can not be viewed or accessed by people outside of the password-protected environment.

The Ultranet contains high-quality digital resources and content that the Department has made available to schools through FUSE, the digital content library of the Ultranet, including resources from Connect and The Learning Federation.

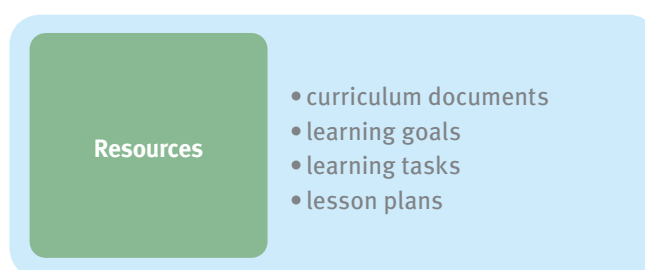
The Ultranet enables teachers to easily locate teaching and learning resources in FUSE and incorporate them into Learning Tasks, Collaborative Learning, Design and Community spaces to support student learning.

Users of the Ultranet can create, store and search for personal, school and quality-assured digital learning resources within My Content.

The Ultranet can be used to access and store a large collection of content. Categories of content are:

- Endorsed – this is Department quality-assured content available to all schools through FUSE.
- Personal – content added to an individual’s personal storage area. This is where individuals can store personal files to which only they have access.
- School – content that has been added to the school repository by staff within the school, and is only available to staff and students within the school.

Resources



Learning and teaching resources including digital learning objects and curriculum documents can be accessed from a repository within a learning platform. This might include images from a public art gallery, film clips from a science museum, an interactive mathematical game or digitised historical artefacts. Teachers can construct learning tasks and learning sequences using these resources.

User-generated resources are also important for building knowledge. Students and teachers can create, upload and exchange their own personal learning and teaching resources to be shared within the learning platform.

Teachers can use learning platforms such as the Ultranet to store and use a range of resources. A teacher, for example, might embed a film clip in a Year 8 History wiki. Students might then generate their own objects in response, such as videoclips, podcasts, photostories or essays. They may choose to make their work available to other schools within the learning platform, or share their work with a group of students at another school studying the same topic.

As the number of objects grows within the repository of a learning platform, links between objects can be created and the quality and relevance of the objects can be rated by users. When someone else searches for material on the same topic, the results can then point to a concise set of objects, some inter-related, that have been gathered, sorted and rated. These functions have time-saving implications for teachers’ preparation of lessons.

The availability and variety of resources further promotes flexible learning within the learning platform. A teacher can personalise learning by designating specific learning tasks for groups or individuals, adjust the learning sequence to cater for individuals’ learning styles, make available additional resources to students, and monitor and assess students’ completion of activities.

‘I think the key advantage for the individual is that they can access it at any time and they can work on things in the way that they want to, rather than just what the teacher is telling them to do. They’ve got that mobility to challenge themselves, to work to their strengths, and to really push forward without the influence of their peers as well’ (Becta 2007d).

Student work, assessment and data

Student work, assessment & data

- assessment outcomes
- diagnostic tools
- feedback
- portfolio
- quizzes and results
- work samples

Effective assessment, and the resulting data on student performance, can provide teachers, students and parents with evidence that learning has or has not occurred. This data can be used to refine learning sequences, to guide the adaptation of materials, and for the development of extension activities. Students can reflect on their progress, respond to a teacher's feedback, or comment on their peers' work.

Over time, as a student generates and submits work within a learning platform, a repository of their personal learning experiences is created. The data collection and analysis tools integrated within learning platforms also enable the collation of assessment results over time, and can be used to provide accurate records for every student throughout his or her schooling life. Students can draw on this material to generate a customised digital portfolio which can demonstrate their knowledge, skills, experiences and personal achievements, when required, to other students, teachers and employers.

[Digital portfolios are] 'used as part of the assessment that we make on the children, by taking photographs or little video clips that we can do now, showing just where children are, their social skills, or their confidence skills and things like that' (Becta 2007d).

In the past, students have used flash drives or USB memory sticks to transfer work, which can result in work being lost or files being incompatible with other computers. This can be especially problematic for students who find it difficult to manage and keep track of their work. Saving their work within the learning platform means that it will be securely stored in the one place, and able to be accessed at any time. A project they undertake at home, uploaded to the school's learning platform can then be opened the next morning to complete at school.

The data collection and analysis tools integrated within a learning platform also have the potential for saving teachers' time by streamlining assessment processes. For example, online quizzes and tests can provide instant and automatically generated feedback to students. If a student is unsuccessful at a particular task, they may be directed to a revision module or series of resources to supplement their learning.

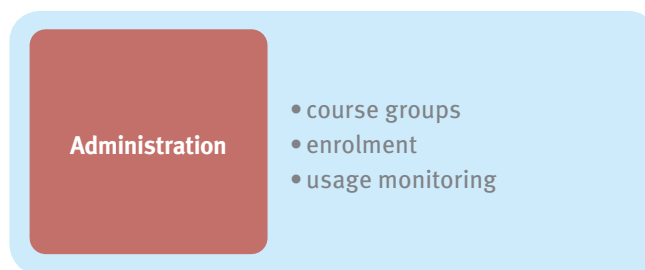
Students can document their individual Learning Goals within the Ultranet and they are available for review and feedback from their parents and teachers at their school. Additionally students have a Learning Portfolio where they can collect the evidence of their learning. This means that the individual student, their parents and the teachers can review this information at any time. Both Learning Goals and the Learning Portfolio stay with the student from year to year and school to school.

The Learner Profile in the Ultranet will provide the student, their parents and teachers with just-in-time personalised learning information about the student. This includes attendance, learning tasks, learning progress, teacher feedback and timetable.

Alternatively, if a student is successful at completing a particular assessment item, they may be directed to the next learning module or activity. Using a learning platform in this way increases teachers' ability to create personalised learning opportunities for students.

It can be seen that learning platforms support rich assessment practices and provide alternative approaches to assessment. These will be explored in more detail in the Digital Learning Platform Research Series paper entitled *Assessment in online learning environments*.

Administration



Administration is the 'behind the scenes' sphere of the learning platform, and is accessed by school staff only. A learning platform Identity and Access Management (IDAM) system manages usernames and passwords, to ensure a safe and secure closed environment for all members in a school community. Users are provided with a unique login and password, and they enter a learning platform in much the same way as they would any other secure web-based environment, such as internet banking.

Different levels of access can be assigned to different types of users, so for example students would not have access to a staff member's planning documents or to other students' results. This type of user discrimination ensures that only information relevant and intended for particular users is available to those users.

A learning platform can also be configured to draw data from a school's administrative management system. CASES 21 is an administrative management system used by Victorian government schools and is an example of such functionality, providing school staff with tools to manage:

- student enrolments
- class lists
- student attendance
- timetabling
- students' achievements
- daily organisation and calendar.

The integration of data, fed from a school's management system, gives a learning platform powerful administrative functions. Much of this data is aggregated and streamed into the homepage or individual's profile, so only relevant data is presented to users.

Usage monitoring tools allow teachers to track the participation of students in their spaces. For example, these tools can be used to show how often and in what form students are contributing or posting information to a class wiki or blog. Staff can see accurately when students have been online, which can be particularly useful to track the level of students' participation and engagement.



5 The Ultranet: Victoria's digital learning platform

The Ultranet has been introduced into Victorian government schools as a system-wide digital learning platform. The Ultranet demonstrates how the Victorian Government is working to strengthen communities by using technology to connect parents, teachers and students in a partnership focused upon each student's learning.

The Ultranet will:

- provide online anytime, anywhere access to students, parents and teachers
- support high quality learning and teaching
- capture a complete record of student learning progress over time, from year to year and school to school
- provide teachers with a rich, readily accessible source of information about each learner to inform personalised curriculum planning and delivery
- provide teachers with the ability to readily plan, deliver and assess curriculum online
- allow teachers to incorporate the use of Web 2.0 technologies to enable students to communicate, collaborate, publish and share with peers within and across schools
- provide ready access to quality digital learning resources
- enable students to take greater responsibility for their own learning
- enable teachers to communicate each student's learning progress more easily with parents and guardians
- allow teachers to collaborate with colleagues in their schools and across Victoria
- facilitate knowledge transfer and sharing across schools and the system.

Figure 2:
Overview of Ultranet functionality



The Ultranet provides a range of online applications to support student-centred learning within a secure environment. Figure 2 illustrates the functions of the Ultranet.

The Ultranet benefits the entire Victorian government school community. It will help improve the educational outcomes of all Victorians:

- Students will have access to an online learning platform designed to meet their current and future learning needs. They will use educational tools that will engage them and remain relevant to their lives and future careers.
- Parents, teachers, school leaders and staff will be able to interact with the Ultranet to improve student learning outcomes and contribute to their school community.
- Regional and central offices of the Department will have access to unprecedented information to support policy development and system improvement.

The Ultranet facilitates sharing of student data in ways that balance privacy with accessibility: users are protected and teachers have access to the information they require to do their jobs well.

Figure 3 on the next page illustrates the range of online tools and spaces for students, parents and teachers. Further information is available online at: <http://www.education.vic.gov.au/about/directions/ultranet/glance.htm>



Figure 3: Ultranet global navigation icons and their functionality

GLOBAL NAVIGATION

The Global Navigation icons appear at the bottom of the screen, allowing you to navigate easily to the spaces and tools available in the Ultranet. The icons are grouped into four colour themes: **green** (personal or collaboration spaces), **blue** (learning spaces), purple (content), and **orange** (resources, and tools for managing and customising spaces).

 <p>Home</p>	<p>Home provides a personalised home page for all users. It provides easy access to the Ultranet spaces and your most frequently used applications.</p>
 <p>eXpress Space</p>	<p>The eXpress Space is a personal space. For students, it is viewable by Portfolio Viewers and includes a landing page, Profile, Learning Portfolio and Learning Goals. For teachers, it is viewable by Learning Contacts and Portfolio Viewers and includes a landing page, Wall, Profile and Portfolio.</p>
 <p>Design</p>	<p>Design is a place for professional collaboration and learning facilitated by a range of Web 2.0 applications, including blogs and wikis (not available to students).</p>
 <p>Community</p>	<p>Community is a place for your school's communities. This includes a space for your entire school community as well as other groups that exist within your school or extend across schools in Victoria.</p>
 <p>Collaborative Learning</p>	<p>Collaborative Learning is a place for student collaboration and learning, where students and teachers can engage in learning activities using a range of Web 2.0 applications, including blogs, wikis and polls.</p>
 <p>Learner Profile</p>	<p>Learner Profile is a place to find and record up-to-date information about each student you teach.</p>
 <p>Learning Tasks</p>	<p>Learning Tasks is a place for teachers to plan, deliver and assess learning activities, and for students to view and participate in learning activities.</p>
 <p>My Content</p>	<p>My Content is a place for teachers and students to store and search for personal, school and quality-assured digital learning resources.</p>
 <p>Connect</p>	<p>Connect is a place for students to find reviewed websites and online activities. Connect is only available for students, and it links externally to the Connect Primary and Connect Secondary FUSE site, depending on the age of the student.</p>
 <p>Actions</p>	<p>Actions is a pop-up menu where you can choose your applications for each page and customise each space. Select from Manage Pages, Change Layout, Add Applications, Edit Controls, and Flag Inappropriate Content (only appears in some spaces).</p>
 <p>Utilities</p>	<p>Utilities is a pop-up menu providing access to the Control Panel, Email, Find People, Log Out, View Moderator Requests, the Bastow Institute of Educational Leadership and the Ultranet Support site.</p>



6 Conclusion

The research outlined in this publication highlights the capacity of learning platforms to support learning processes and outcomes on a large scale.

- For students, learning platforms incorporate technological tools they are already using in their everyday life. They enable a broadening of horizons through communication tools, better organisation through storage and planning tools and better knowledge of progress through reflection, feedback and testing tools.
- For teachers, learning platforms have been shown to increase efficiency in planning, facilitate monitoring of student learning more effectively, and enable linkages with colleagues for professional interaction and development.
- For families, learning platforms create a stronger link between home and school, through ready access to class assignments, school news and individual student data.
- For education systems, learning platforms (with robust communications network access) provide a safe and secure environment for all users. They support equity by expanding learning opportunities in geographic areas that have limited resources.

The Ultranet capitalises on previous government investments in information technology infrastructure to create a realisation of the classroom without walls. Building on initiatives like wireless broadband, 1-to-1 devices, standard suites of software etc, the Ultranet provides one standardised digital learning platform across every Victorian government school. It will reduce the disparity between technology rich and technology poor schools within our system.

The Ultranet implementation in 2010 is just the beginning. Over time, the Ultranet will become populated with rich data about every student. This will be made available to their parents and teachers, providing the foundation on which to create supportive learning partnerships.

While the Ultranet presents Victorian school communities with some exciting opportunities by supporting the movement towards more learner-directed activity and content creation, it also creates new challenges. Questions arise for educators, such as:

- How can teaching and learning become more dynamic and meaningful for students, and what are the new paradigms of learning that can spring from the use of learning platforms?
- What does ‘anywhere, anytime’ learning actually mean and how can it be put into practice?
- How can student learning be assessed in environments that are personalised and customised to individual learning needs?
- What makes online communities of practice work?
- How can students’ and teachers’ privacy be protected?

The Department has commissioned research to gather robust evidence from Victorian schools in relation to questions like these. The findings will be shared in print and online publications and forums to inform and develop policy and practice.

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7 Glossary

Some of the commonly used terms and phrases that describe different functions and actions in online environments in *Digital Learning Platforms Research Series*, are described below. Some of these definitions are also available on the DEECD *Technology A-Z website*. See: <http://www.education.vic.gov.au/studentlearning/elearning/technology/wikis.htm>

Asynchronous	Asynchronous transactions occur at any time and do not require a common timing for that communication to occur. People who participate in online environments asynchronously are not necessarily communicating at the same time.
Blended learning	Blended learning refers to the mixing of different pedagogical strategies including both face-to-face and computer-mediated learning.
Blog	A blog (a contraction of the term ‘web-log’) is a type of website, usually maintained by an individual who creates entries that can be published to the blog immediately. A typical blog combines text, images, and links to other blogs, web pages, and other media related to its topic. Blogs can be private or public, and readers can leave comments in response to blog entries.
Chat	Chat in online environments refers to informal online conversations.
Chatrooms	Chatrooms on the internet are places where informal, synchronous conversations are held. It is an online application that supports conversations and user-generated content.
Flexible learning	Flexible learning is a phrase referring to different styles of learning, including learning with technologies. Flexible learning strategies expand students’ choices about what, when, where and how they learn.
Forum	An internet forum is an online space where notices can be posted and responses collected. It is another term to refer to an online application that supports conversations and user-generated content.
Functionality	The functionality of software refers to the set of tasks a software application is equipped to perform.
Instant Messaging	Instant messaging or messaging refers to computer software designed to deliver messages from one person to another or many. The text is sent in common, readable forms, either as formatted or unformatted text. It is also possible to save these texts for later reference. The text is transmitted by devices connected to an IT network.
Learning management systems	Learning management systems are software applications designed to support the teaching and learning of students, and the administration, documentation, tracking, and reporting of students’ performance. Learning management systems provide teachers with the capacity to upload lessons and online learning activities and for students to access these remotely.

Learning object	A learning object is a web-based resource that can be used and re-used to support learning. It usually comprises rich multimedia such as animation, audio, video and/or text.
Learning platform	A learning platform is similar to a learning management system. Learning platforms are comprised of an integrated set of interactive online applications that enable teachers, students, parents and others to access information, tools, content and resources to support and enhance teaching, learning and educational administration.
Moodle	Moodle is the abbreviation for <i>Modular Object-Oriented Dynamic Learning Environment</i> . It is an open source Course Management System (CMS), Learning Management System (LMS) or a Virtual Learning Environment (VLE). Moodle is popular among educators in all levels of education around the world, as a tool for creating web sites for students.
Personal learning environment	Personal learning environments are designed for students to be able to control both the content and processes of their learning when online. Personal learning environments include functions that provide students with support to identify and review their own personal learning goals.
Social networking software	Social networking software supports the building of online communities of people who share interests and/or activities, or who are interested in exploring their interests and activities with others. Most social networking services are internet-based and provide a variety of ways for users to interact, such as with email and instant messaging. Popular social networking sites include <i>FaceBook</i> , <i>MySpace</i> and <i>Ning</i> .
Synchronous	Synchronous transactions occur when people communicate with each other at the same time.
Ultranet	The Ultranet is a digital learning platform specifically designed and built for use in Victorian government schools. The Ultranet provides access to Web 2.0 applications and tools in many of its spaces. The Ultranet will put high quality online tools into the hands of teachers and students that will transform teaching and learning in Victorian schools
Virtual learning environment	A virtual learning environment is similar to a learning platform. It is a software system created to support the different pedagogical and administrative requirements of teaching and learning in educational settings.
Web 2.0	<p>The term Web 2.0 refers to online applications designed to facilitate communication, information sharing and collaboration on the internet. Web 2.0 applications are often freely available and allow for the use of rich multimedia. They are designed so that they do not require specialised technical skills or knowledge to use them.</p> <p>Web 2.0 applications allow content to be published online almost instantly. Web 2.0 applications can be effectively used in classrooms to provide rich opportunities for communication, creation and collaboration. Depending on the specific program, teachers and students can share information, create their own content, connect with others, work collaboratively, organise information, and provide feedback to each other.</p>

Web browser

Web browsers are software programs used to access the Internet from a device, and include common programs such as Internet Explorer, Mozilla Firefox, Google Chrome and Safari. Learning platforms are usually housed on the Internet as this enables them to be accessed outside of the school by opening a web-browser and navigating to the learning platform website.

Wiki

A wiki is a website that allows the easy creation and editing of any number of interlinked web pages via a web browser using a simplified WYSIWYG (what you see is what you get) text editor. Unlike blogs, wikis are typically maintained by a group of people, and can be useful for online collaboration, with contributors able to track the changes or comments made by others. Wikis can be accessible to anyone on the Internet, or they can be secured and made open only to invited members.

