The Ultranet and School Management: Creating a New Management Paradigm for Education

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Abstract. The Ultranet is a form of extranet set up by the Victorian Education Department and designed to allow students to access personalised learning activities and to keep an ongoing record of these activities. It is intended to facilitate teachers in creation of curriculum plans, collaboration with other teachers, monitoring of student progress and providing for convenient student assessment. The idea is also that parents are able to access the Ultranet to see information that would keep them up-to-date with their child's learning. While the Ultranet has many of the features found in learning management systems such as Blackboard or Moodle, it also has many other features intended to inform parents about their child's education and about the school they attend. Powerful tools like this will change the ways that education managers can operate. The Ultranet appears to be one of the first attempts to include all these features in order to inform parents of school children about their school and to provide their teachers with facilities to work collaboratively. The Ultranet is a very large state-wide system involving access to half a million school students (along with their parents and teachers).

Keywords. Ultranet; school management; students; parents; teachers.

1   The Victoria Education Ultranet

In Australia, as in many other countries, parents have traditionally been informed of their child's progress at school through the use of written school reports each term, two or three parent-teacher evenings and perhaps an 'Open Day' each year. As a parent it is natural to want to know what your child is doing at school, and also how well they are progressing. Many parents want to know as much about the school where their children spend so much time as possible, but this is not always easy to achieve.

Learning takes place as a result of every interaction a child has inside and outside the school. We will use the term 'educational environment' to refer to this broader view of education.

Recently, as the result of work by the Victorian Department of Education and Early Childhood Development (DEECD), the Victorian Government conceived an online system, the Ultranet, for informing school communities using web-based technology. This project began several years ago with a report by Griffin and Woods [1] on a "proof of concept student-centric ICT system, called Students@Centre, to support online teaching and learning, curriculum delivery and knowledge management in Victorian government schools" [2]. Their report ultimately resulted in design and construction of the Ultranet, which DEECD describes as "a student centred electronic learning environment that supports high quality learning and teaching, connects students, teachers and parents and enables efficient knowledge transfer" [3]. The $60 million Ultranet, which is essentially an extended intranet/extranet, was rolled out to all government schools in September 2010 [4] when the then Victorian Minister for Education noted that: "The Victorian Government is committed to giving every child every opportunity to experience the full potential of online learning, collaboration and information sharing" and described the Ultranet as the "Victorian Government's biggest investments in information and communication technology in our public education system" [5].

The Ultranet was designed to support knowledge sharing across Victorian government schools and also to provide facilities for informing parents about their child's school, for curriculum delivery and online learning, and teaching activities [6].

The research project described below was commenced in late 2010, but will be on-going for several years as the Ultranet is still in its early stages of use and has not been fully adopted as yet. As there is no compulsion for schools to use the Ultranet, it is not clear which features will be used by teachers and schools, and which will not.

2   Features of the Ultranet

School education in Australia is a state matter and the Federal Government only gets involved in national projects. The Ultranet was designed by the Victorian State Government for use only in Victorian government schools. Time will tell if other Australian State Governments will follow suit. Victoria has 1,555 government schools and 40,000 teachers [7, 8], serving the educational needs of 540,000 students, and their parents. (The State also has 489 Catholic schools and 218 independent schools, but the Ultranet has not been made available to these schools.) All Victorian government schools have government-funded broadband access to the Internet (either via cable or wireless), so high speed access to the Ultranet is not a problem [9, 10].

The Ultranet has many of the features of a business extranet in that security is an important issue and that it is closed to people outside the Victorian government school community and requires a username and password to gain access. A major difference however is in its very large size compared to most business extranets. The Ultranet website [3] notes that this is a 'closed community' with controlled access and that it has a very specific educational purpose as everything that students can do on the Ultranet is intended to support their learning [9].

The Ultranet was designed for three principle uses:

1. To allow students to access personalised learning activities and to keep an ongoing record of these. Students will be able to collaborate with other students from their own school and with students from other Victorian government schools and to create learning portfolios and use online communication tools such as wikis, blogs and discussion boards.

2. Teachers will be able to create curriculum plans, collaborate with other teachers, monitor student progress and provide student assessment.

3. Parents will be able to access the Ultranet to see information that will help them keep up-to-date with their child's learning [9, 11].

Figure 1: What is the Ultranet? Source: [3].

According to DEECD's website [3] the Ultranet aims to:
- "improve responsiveness to individual learning needs for every student,
- provide better information to parents, schools and the Department,
- improve efficiency of the learning environment and school administration,
- adopt an enterprise approach to intranet development,
- exploit previous ICT investments."

The Ultranet is based on the use of what it calls **Spaces**, which are really mini-websites. It uses icons to help the user to get to the appropriate Space, and **Applications** for use in each space [10]. Each of the different types of specially designed Spaces is intended to allow different information to be accessed and different learning activities to be performed. Each Space is classified by its accessibility into one of the following categories:

- **Me Spaces** (private, and accessible only to the owner),
- **We Spaces** (shared with permission), and
- **See Spaces** (open, public access).

The currently available Spaces are: Home, eXpress Space, Design, Community, Collaborative Learning, Learner Profile, Learning Tasks, My Content and Connect [9].

"**Home** is a personalised page for students, parents and teachers. Users can see school or community notices. Students and teachers can add their favourite applications.

eXpress is a personal space for students and teachers to capture, share and reflect upon their learning. The student eXpress Space includes spaces for their Learning Portfolio and Learning Goals.

Design is where teachers can plan, create and collaborate with colleagues within and across schools. Teachers can use this space to design curriculum and student learning activities.

Community is where students, parents and teachers can find the latest school news and events and get involved in school-based groups, clubs or activities.

Collaborative Learning is where students take part in online learning activities set up by teachers. Students use a range of Web 2.0 tools for learning, including blogs, wikis, message boards and polls.

Learner Profile is where students, their parents and teachers can view a detailed profile of individual learning progress.

Learning Tasks is where teachers can plan, deliver and assess learning activities, and students can view and submit learning tasks.

My Content is where teachers and students can store and search for personal, school and quality-assured digital learning resources.

Connect is where students can find reviewed websites and online activities." [3].

3 School Management Using the Ultranet

Much of our traditional thinking about school management in information technology in educational management (ITEM) has in fact been about administration: things such

as attendance records, timetables, test results and learning progress, homework activities and tasks, and teacher feedback. The existence of tools such as the Ultranet enables us to think more about educational management, rather than just about administration [12-14]. Figure 2 shows the relationship between the components of the educational environment that can become facilitated and interconnected by the Ultranet.
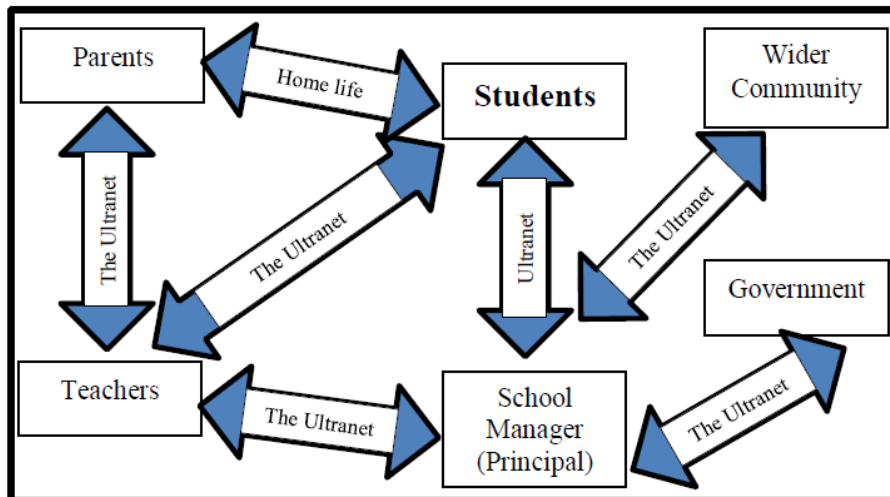

Figure 2. The Ultranet enhanced educational environment.

A consideration of the potential of the Ultranet has allowed us to identify a number of worthwhile things that can be done. These include [11]:

1. **Communicating student progress within the educational environment**. Teachers will be able to learn more about individual students through systemic information collected by other teachers. This will allow for more effective personalisation of the learning process and catering for student diversity. Parents will be able to directly learn more about their child's progress but also contribute information back to teachers.

2. **Management of teacher collaboration and professional development.** The Ultranet may provide an online platform for delivering and monitoring sustainable teacher professional learning, allowing teachers to collaborate, share leading practices and access professional development programmes without traditional space-to-time mappings. It could also provide teachers with opportunities for just-in-time professional learning, trouble-shooting and technical support.

3. **For managing the active involvement of parents.** Parents, students and teachers could see themselves supported by the Ultranet to create a community-wide educational institution. Students would come to see their education as part of their whole life and family rather than a disjoint time during semesters. This can be problematic as it can result in a reduced face-to-face interaction between parents and schools, but at the same time it offers new avenues for flexible partnerships between teachers and parents, providing opportunities for real-time

monitoring of student progress, instantaneous feedback, better alignment of goals and aims between families and teachers which has, in the past, been one of the major obstacles to effective collaboration between schools and parents. Varied levels of digital literacy could also cause concerns as parents with a lack of digital skills may find it difficult to engage with the innovation. This is likely to have a number of adverse effects on the adoption of the Ultranet and could result in widening the gap between those who have and those who have not, initiating further inequalities in the acquisition of social capital and access to digital citizenship.

4. **For managing social networking as new learning platforms for students.** The Ultranet offers a stable powerful technical infrastructure providing opportunities for creating effective local and global networks of learners that can communicate, exchange information and collaborate in augmented realities (real and virtual), allowing for new learning and teaching practices to emerge [15]. The Ultranet could successfully serve this purpose and become a world's leading practice in providing students with an innovative, multi-dimensional eLearning environment. It could provide students with access to experts and learning platforms worldwide and have the potential to revolutionise the learning space deleting the traditional boundaries of classroom walls. This will also change the traditional classroom dynamics and roles, giving students more autonomy, more opportunities for self-directed learning, peer tutoring, and peer and self-assessment. It will also allow students to publish their work worldwide and to establish a track record of excellence. It is unlikely that students will bring in the personal dimension of social networking because of the closely monitored nature of the Ultranet.

5. **Managing the educational environment.** The Ultranet has the capacity to create a social network for all those interested in their local school. Parents, teachers and students could be enabled to take an active role. Educational decisions, resource allocation, individual student progress and teacher employment could be the subject of community discussion and decision making [16]. The idea of communities deciding what happens in the detail of schooling forms the basis for several independent schools in Victoria. Some of these matters have theoretically been devolved to local communities in state schools, but the practicalities of democratic decision making normally preclude all but a select group doing the decision making. The Ultranet could provide the platform for community-directed schooling. This again raises the issue of the digital divide. Communities poor in resources and those with low expectation of schooling could suffer disadvantage over a system with minimum standards.

4   Conclusion

In the 1940s Thomas J. Watson (Chairman of the Board of International Business Machines) is reputed to have said that the world would have a need for only about five computers. In the 1950s a computer user was a 'white coated scientist' writing computer programs in machine or assembler code and feeding data into a mainframe.

The invention of the PC offered a tool that has meant that the user is an 'everyman', using a computer in a plethora of ways and for many different purposes. In education, the current manager is constrained by the tools available to manage locally within school buildings. A tool like the Ultranet removes the restriction of locality and communication. The school manager now has the responsibility, and the ability, to involve all elements of the educational environment and not just those on the old communication lines.

Parents can now be seen as an educational resource and not just as an arms-length client. Each parent has significant information on a daily basis about their child. An open and facilitated communication between the parent and the school means that this information can be utilised and not just overlooked. Parents can now be kept informed about ways in which they can contribute to their child's learning. To take advantage of the Ultranet in this way, however, the school manager must revise their view of the role of the parent.

The management of teacher professional development often appears to be very haphazard in an industry supposedly devoted to education. While some formal learning activities are provided to teachers, the informal education that forms the majority of professional development in other professions is largely absent. An educational manager is tasked with keeping individual classrooms supervised rather than worrying about a bigger picture. The Ultranet encourages asynchronous communication between teachers and between schools, and this removes the impediment of time and location from collaboration within a discipline.

A school exists in a community rich in human resources: people with industrial experience, the elderly, local professionals, work settings, factories, shops, hospitals and community bodies. While in the past it has been very difficult for schools to utilise these resources, as a social network the Ultranet facilitates ready communication and easier management.

The task of the new educational manager with a tool such as the Ultranet is thus to think of their role in the wider educational environment.

The Victorian schools Ultranet commenced operation only in September 2010 and so far not all teachers and parents are fully supportive of its operation. The need to inform parents of school children about the child's school and educational progress is something that governments and education authorities have always acknowledged. Technology like the Ultranet offers new ways to do this and should appeal to the 21st century parent. The Ultranet can be seen to offer many possibilities for informing parents about what their children are doing at school and about their progress, as well as informing parents about the school itself. Some people, however, question whether parents are ready for information of this type. The Ultranet offers possibilities for useful interactions of many types between all members of school education communities, but some again question the value of such interactions. Time will tell whether the Ultranet turns into something really worthwhile or just another government White Elephant.

References

1. Griffin, P., Woods, K.: Evaluation of the Pilot Implementation of the Student@Centre Ultranet in Victorian Schools. The University of Melbourne, Melbourne, Australia (2006)
2. Department of Education and Early Childhood Development: Students@Centre - Research and Development. Available from: http://www.education.vic.gov.au/management/ultranet/research.htm, (2010)
3. Department of Education and Early Childhood Development: Ultranet. Available from: http://www.education.vic.gov.au/about/directions/ultranet/default.htm, (2011)
4. Tatnall, A., Dakich, E.: Informing Parents with the Victorian Education Ultranet. Paper presented at Informing Science and IT Education, Novi Sad, Serbia (2011)
5. Pike, B.: Ultranet - Minister's Message. Available from: http://www.education.vic.gov.au/about/directions/ultranet/minister.htm, (2010)
6. Department of Education and Early Childhood Development: Ultranet - Students@Centre Trial. Available from: http://www.education.vic.gov.au/about/directions/ultranet/trial.htm, (2010)
7. Australian Bureau of Statistics: Statistics Victoria. Available from: http://www.abs.gov.au/AUSSTATS/abs@.nsf/Lookup/1100.2Main+Features3Mar+2010, (2010)
8. Department of Education and Early Childhood Development: Summary Statistics for Victorian Schools. Available from: http://www.education.vic.gov.au/about/publications/newsinfo/factsandfigures.htm, (2010)
9. Tatnall, A., Michael, I., Dakich, E.: The Victorian Schools Ultranet - an Australian eGovernment Initiative. Paper presented at the International Information Systems Conference - iiSC 2011, Sultan Qaboos University, Muscat, Oman (2011)
10. Tatnall, A.: Information Systems Research, Technological Innovation and Actor-Network Theory. Heidelberg Press, Melbourne, Australia (2011)
11. Tatnall, A., Dakich, E., Davey, W.: The Ultranet as a Future Social Network: An Actor-Network Analysis. Paper presented at the 24th Bled eConference, University of Maribor, Bled, Slovenia (2011)
12. Davey, W., Tatnall, A.: Managing the Online Student Experience: an Ecological Model. In Tatnall, A., Kereteletswe, O.C., Visscher, A.J. (eds.) Information Technology and Managing Quality Education. Springer: Heidelberg, Germany, pp. 43-51 (2011)
13. Baker, G., O'Mahony, C., Selwood, I., Strickley, A.: ITEM Evolution. In Tatnall, A., Visscher, A.J., Finegan, A., O'Mahony, C. (eds.) Evolution of Information Technology in Educational Management. Springer, New York, NY, pp. 189-199 (2009)
14. Tatnall, A.: Researching the Adoption and Implementation of Innovative Enterprise Information Systems. Paper presented at the Conference on ENTERprise Information Systems (CENTRIS). Universidade de Tras-os-Montes e Alto Douro, Ofir, Portugal (2009)
15. Davey, W., Tatnall, A.: The Paradox of Social Portals. In Tatnall, A. (ed.) Encyclopaedia of Portal Technology and Applications. Information Science Reference, Hershey, PA, pp. 689-693 (2007)
16. Tatnall, A.: To Adopt or Not to Adopt Computer-Based School Management Systems? An ITEM Research Agenda. In Tatnall, A., Visscher, A.J., Osorio, J. (eds.) Information Technology and Educational Management in the Knowledge Society. Springer, New York, NY, pp. 199-207 (2005)