SCHOOL LEADERSHIP CRITICAL TO MAXIMISING THE IMPACT OF ICT ON LEARNING

C. Paul Newhouse, PhD
Centre for Schooling and Learning Technologies, Edith Cowan University

Abstract

International research has consistently found that the organisation and leadership of a school are critical factors in the way in which educational technologies such as computers are used and their subsequent impact on learning opportunities in schools. This involves the Principal but also should involve a leadership team including a Curriculum leader (e.g. Director of Curriculum) who provides vision and support for teachers’ use of Information and Communications Technology (ICT), separate from but connected to technical ICT support. The formalisation of a leadership position to include such a leadership role is seen as a powerful strategy to link curriculum and ICT. Without the role there is little prospect of teachers and students realizing the potential for ICT to support them in teaching and learning. The effectiveness of such a role depends on its connection with leadership structure in the school, the status of the person or persons in the role, and a range of personal characteristics. The most successful have a combination of curriculum understanding and competence in the use of ICT. This paper explores this critical theme by drawing on a range of local research and national and international findings. It recommends leadership models, professional learning for school leaders and guidelines for policy and practice in schools.

This paper refers to insights gained from research conducted at the Centre for Schooling and Learning Technologies (CSaLT), in particular an evaluation of a one-to-one notebook programme at John Willcock College (JWC) from 2004 to 2008 (C.P. Newhouse, 2008) and a five-year evaluation, involving over 50 government schools, of a project that provided some support for an ICT leadership position (there is a comprehensive analysis of some of the data in Tondeur, Cooper and Newhouse (In Press)). Both of these studies involved collecting both quantitative and qualitative data from staff and students over a number of years (methodology is outlined in Newhouse and Clarkson (2008)). It is not possible to discuss these evaluations in depth in this paper, therefore the reader is directed to the referred papers if these details are required. This paper will relate some of the findings of these studies to theoretical frameworks found in the literature, particularly that provided by Moyle (2006) in her report for Teaching Australia, Leadership and Learning with ICT. In general it was found that the position at JWC encapsulated more of the ‘better’ aspects of leadership that were found at some of the schools in the larger study and therefore JWC is referred to often throughout the paper. Where greater generalization is required the larger study provides the basis.

School Leadership and Decision-Making

International research (Becta, 2006; Moyle, 2006; Stuart, Mills, & Remus, 2009) has consistently found that the leadership and organisation of a school are critical factors in the way in which educational technologies such as computers are used and their subsequent impact on learning opportunities in schools. A MCEETYA report, ”Leadership strategy - learning in an online world” (Curriculum Corporation, 2006), explains the importance of school leadership.

Effective leaders in an online world understand the transformative potential of ICT. They use their skills in the creation of new learning environments, in the appropriate and purposeful integration of ICT in learning, and in high-level management and communication processes. In these ways leaders are proactive in creating productive 21st century schools.
... school and system leaders: raise awareness ... connect new knowledge and technologies... provide teachers with necessary resources ... connect teachers ... engage teachers ... leverage students’ expertise ... foster shared beliefs ...

Moyle (2006) found six inter-connected organisational conditions as necessary for supporting teaching and learning with ICT: (1) Strategic plan; (2) Vision; (3) School culture; (4) Whole school approach; (5) School infrastructure; and (6) Organisational structures. Each of these is dependent on school leadership, from vision and planning through to the fostering of school culture and buy-in to the provision of infrastructure and organisational structure. A report from the UK stated similar findings, “Schools making progress in using technology to support learning in sustained ways are those where there is strong vision and leadership for ICT from senior management, needs-related centralised resources allocation and whole-school strategies which focus on how ICT can enhance teaching and learning.” Implementing the effective use of ICT in schools is a complex task usually requiring school leaders to facilitate significant organisational change. Research in CSaLT has tended to show that typically in schools critical decision-making concerning ICT rests with one or two people, usually the Principal and/or the coordinator(s). Some schools, such as JWC, institute a form of distributed decision-making, such as through committees that involve staff in policy development and commitment to new practices.

Vision and Strategic Plan

Without a vision and resulting strategic plan for the use of ICT in a school it is likely that only enthusiast teachers battle to implement effective use of ICT to support learning (Lee & Gaffney, 2009). For many decades warnings have been given that organisational decisions concerning the deployment of ICT should be driven by pedagogical not technological requirements. For example, Papert (1987) warned of the dangers of technocentric thinking where features of the technology drive decisions about its use in schools. School leaders can reduce the chance of technocentric thinking by enunciating a clear vision, grounded in pedagogical understanding, and reflected in well constructed, short-term and long-term, strategic plans. As Lee and Gaffney put it, “The power and potential benefits of digital technology, as well as its substantial resource demands, mean that it must be considered in relation to the other elements of school and system planning” (Lee & Gaffney, 2009, p. 10). Research at CSaLT has found that schools such as JWC that have done this tend to have a more integrated use of ICT in classrooms.

School Culture and Whole School Approach

In a small study in the UK Tearle (2004, p. 21) found that the whole school culture and ethos was a critical component for a “well motivated staff” in the facilitation of ICT use to support learning. The leadership in a school plays a critical role in motivating staff and encouraging such a whole school culture and ethos. The fostering of such a culture needs to involve both teachers and students. Donegan (1999) alludes to the need for teachers to have a sense of ownership of the initiative and Moyle (2006) argues that the leadership in a school needs to foster this sense and then support teachers in implementation.

Research in CSaLT has found that leaders in schools such as JWC foster a school culture of inquiry, innovation, excellence and participation. They may do this through involving all staff in developing the vision and strategic plan, providing school-based professional learning opportunities, providing opportunities for showcasing, using publicity opportunities both inside and outside school, and generally leading by example (e.g. being seen to use the technology themselves). In so doing communities of practice are established to support teachers across a school. The use of more formal mechanisms such as performance management and mentoring programmes is also used to maintain whole school approaches and a conducive culture.

School Infrastructure and Organisational Structures

Clearly the leadership in a school is responsible for the provision of ICT infrastructure that is critical to the successful implementation of ICT use in classrooms. However, organisational structures that
leadership puts in place also has an impact on the use of ICT with, for example, some structures better facilitating peer support amongst teachers. Research in CSaLT has found that leaders in schools such as JWC establish sustainable structures to ensure the maintenance of adequate ICT infrastructure and organisational features. For example, to combat the effects of staff turnover JWC developed resources for staff induction into facilitation of one-to-one computer use. Such schools also have long-term plans for ICT infrastructure upgrading and replacement and have developed routines to regularly check the operation of workstations and networks.

Principals Leading Leadership Teams

Research conducted within CSaLT has confirmed the findings of researchers such as Tearle (2004, p. 21) who found that the Principal’s “vision, belief and commitment for ICT use across the school” is critical to positive outcomes in the use of ICT. Lee and Gaffney (2009) underline the importance of the Principal’s role “There are simply too many decision to be made, variables to be addressed and hurdles to overcome to do so without the full support of the principal” (p. 9). In her report Moyle (2006) explains the importance of the role of Principals as pivotal in establishing and maintaining learning environments compatible with ICT use and as being seen by local communities as curriculum and pedagogy leaders. Research at CSaLT has found that the Principal usually needs to possess some ICT technical competence and/or training and/or experience in using ICT in teaching, as suggested by Lee and Gaffney (2009). Professional learning for school Principals and other leaders is critical and needs to be available in an ongoing manner.

While in most schools Principals tend to espouse support for the use of ICT to support teaching and learning for sustainable positive outcomes the vision needs to be operationalised. This means that the Principal includes others in a leadership team, including a Curriculum Director role. With the complexity of implementing ICT systems in schools it can no longer be a one-person operation. A leadership team is required with a range of types of roles. This will also support greater ownership by the school community, it is not seen as owned by one person.

Exactly how the leadership team is structured and what types of people are required will depend on school characteristics, the stage of development (e.g. school with little use of ICT c.f. one with a mature one-to-one programme), and the skills sets of the individuals. For each school it is a matter of “getting the ‘right’ people to do the ‘right’ jobs by matching expertise and interest to the tasks” (Moyle, 2006). Moyle (2006) suggests a variety of different leadership roles and levels and suggests key positions for supporting the incorporation of ICT into teaching and learning: Principal; IT Systems or Information Systems Manager; Curriculum Coordinator; Professional Development Coordinator; Learning Area/Subject Coordinator; Teacher-librarian; Teachers; and Technical support officers. Research conducted at CSaLT has identified the value in having complementary leadership roles related to the use of ICT in a school and in particular the valuable roles that may be provided by administrative assistants and librarians. For example, at JWC these people take on tasks such as managing student accounts, managing access to online sites (e.g. unblocking URLs) and finding resources for teachers and making them available online. However, the most critical role is that the executive team of a school includes someone who holds the responsibility and oversight for ICT issues across the school – any initiative needs someone to champion and manage it (Stuart et al., 2009).

The Curriculum ICT Leadership Role

Increasingly research is showing that for sustained positive outcomes in the use of ICT in a school there needs to be a strong curriculum leader in the school with adequate ICT knowledge and skills, well supported by the Principal and visible throughout the school community (Becta, 2006). Typically this person has a formal part in the leadership and decision-making structures of a school (Moyle, 2006). This is a necessary but not sufficient condition. The effect of a strong curriculum leader can be thwarted by other factors such as inadequate ICT infrastructure. Such a leader may be a leading teacher in the facilitation of ICT use by students but not be able to provide adequate leadership in a
school. A major component of the role is to foster a sense of ownership across the school staff that may be assisted by structures such as ICT committees and ICT integration becoming a part of the performance management of teachers and leaders.

The Nature of the Role

The effectiveness of the role depends on its connection with the leadership team in the school, the range of personal characteristics brought to the role, and the status of the person or persons in the role. A person in the role needs to be viewed as a leader in the school by teachers either on the basis of personal attributes, longevity at the school or position in the school (e.g. Deputy Principal). A report from the UK noted “… the need to appoint staff at a senior level to facilitate change, are essential for the successful implementation of e-learning.” (Becta, 2006, p. 5). It should be noted that leadership in this area is always going to involve change management as the technology is constantly changing. Therefore the person also needs interpersonal and organisational skills and an ability to network, communicate and work well with a range of teachers. The most successful also have a combination of curriculum understanding and competence in the use of ICT (Lee & Gaffney, 2009; Stuart et al., 2009). However, the role is not for technical support and where this occurs the curriculum support role is compromised.

The “Learning with ICT” project in Western Australia provides a model for this leadership role in its Curriculum ICT Coordinator position. Funding is provided to a school for a coordinator “to provide teacher relief to any staff to enable collaborative planning, team teaching, work shadowing or mentoring” (http://www.det.wa.edu.au/education/curriculum/socs/support_2008.html). Perhaps one of the best examples of the role is provided by JWC to support the student notebook programme. A Deputy Principal position was allocated to a ‘Curriculum Director’ role with the position selected on the basis of competence as a curriculum leader as well as understanding for the role of ICT to support teaching and learning in school. The role included responsibility for all curriculum-related projects and activities in the school as well as for the implementation of the student notebook programme. This ensured that the notebook programme was highly connected to all curriculum-related activity in the school, something that does not necessarily occur when the curriculum ICT leadership role is divorced from responsibility for other curriculum initiatives in a school.

The role requires adequate support with time allocation and opportunities for professional learning and networking with leaders from other schools and school system central organisations and thus exposing them to ideas from beyond their schools and providing opportunities to add to their vision. Some research has shown that when this support disappears improved use of ICT in a school is gradually eroded. It is ideal to have an ‘associate leader’ involved in such professional learning opportunities, this assists the leader and also feeds into succession planning for the role.

Although there is a need for a school to have a Curriculum ICT leader the role may be more distributed, particularly in larger schools. For example, in a secondary school one person in each learning area may be allocated to take on this role for their learning area. They then form a team led by the school’s leader as a component of the leadership team for the school. At JWC this model was implemented with a leader for each sub-school to promote and support the integration of ICT use with teachers within the sub-school. This seems to fit the concept outlined by Moyle (2006) where a ‘key ICT person’ participates in each school committee to monitor the committee’s work in relation to including ICT in teaching and learning. Clearly the formalisation of the teacher curriculum leadership position is a powerful strategy to increase the leadership capacity linking curriculum and ICT. The following sections discuss major areas of activities for such a leadership role.

Providing Professional Learning for Teachers

For professional development in the facilitation of ICT with students most teachers rely solely on provisions at their school. For many the only other professional learning in the area occurred in their pre-service training that may have been many years earlier and therefore be completely out of date. Consequently a critical role for curriculum ICT leaders will be the provision of appropriate
professional learning opportunities for teachers and those supporting teaching at the school. Exactly how this should be structured is largely dependent on how well developed the use of ICT is at the school, what goals have been set within the vision and strategic plan, and the characteristics of the staff (e.g. ICT capability, pedagogical understanding, teaching experience). International research literature attests to the importance of teachers’ pedagogic beliefs, their alignment with the use of ICT, and connection to experience in explaining the extent to which they integrate ICT use in their learning environments. These beliefs and experiences are a more powerful determinant than the ICT skills and confidence of teachers. Clearly a long-term change process approach needs to be taken to improving the manner in which ICT is used to support student learning (Moyle, 2006).

Researchers such as Tearle (2004, p. 23) have found that there is a need for teachers to access “ongoing support and professional development to use ICT effectively and move beyond the ‘comfort zone’”. Most teachers know that they need to have continuing access to professional learning to support them in making better use of ICT infrastructure. They will not necessarily be able to identify exactly what type of learning they require, but typically they will understand that they need to develop their own ICT knowledge and skills, strategies for integration of ICT, and strategies for the development of student ICT skills. What most teachers tend not to identify is that they need implementation strategies modelled for them at relatively introductory levels. In particular teachers need support and professional learning on strategies to integrate the use of classroom-based computers into their curriculum. Therefore, curriculum ICT leaders need instruction on strategies to support teachers in implementing strategies.

The most effective professional learning strategy for teachers appears to be one-on-one support in the classroom. This can be provided by the curriculum ICT leader or through mechanisms such as teacher buddy and mentoring systems. Workshops either as special events, regular sessions or a part of staff meetings or professional learning days along with placing relevant resources on the school’s intranet may augment classroom support. These occasions may also involve other teachers sharing their own practice and skills with the staff. In secondary schools this could occur within learning areas or sub-schools or cross-faculty to share ideas and strategies.

Supporting Whole School Approaches and Integration

A report from the UK found that, “Schools making progress in using technology to support learning in sustained ways are those where there is strong vision and leadership for ICT from senior management, needs-related centralised resources allocation and whole-school strategies which focus on how ICT can enhance teaching and learning.” (Becta, 2006, p. 5). The use of ICT in schools has a history of ‘early adopters’ who were champions for ICT but usually had to battle away on their own to implement effective use of ICT. With the increasing investment in ICT in schools and the increasing sophistication of ICT systems it is clearly ineffective and inefficient to have teachers working alone to implement ICT support for learning. The importance of leadership teams, setting a vision and constructing a strategic plan was discussed earlier. These support whole-school approaches to the integration of ICT use. Researchers such as Tearle (2004, p. 21) have found that there is a need to foster a “community of users” through informal support as part of the culture of the school.

Whole-school curriculum approaches may include the use of systems such as Mathletics™; the use of an ICT integrator role within teaching teams; programmes for ICT skills development; and/or whole-school policy initiatives such as ‘lighthouse classes’. Once again high staff turnover makes whole-school approaches to integration difficult. The development of whole-school approaches to ICT integration requires resources (e.g. teacher capabilities and organizational capacities), which can be attempted in a variety of ways making such an approach possible in all schools. This includes supporting teachers to work together and support each other (e.g. sharing skills and experience) and starting with a focus on particular, if limited, critically significant areas of the curriculum.

In most schools at any time there are usually a number of short-term and long-term curriculum initiatives. With the increasing power and flexibility of ICT systems in most cases it is likely that some use of the ICT infrastructure available in a school would enhance the effectiveness of these other
initiatives and also ensure students made more use of the technology. This is more likely to occur where there are explicit connections between the use of ICT with students and these curriculum-related initiatives that would benefit from such a connection. Links between curriculum-related initiatives need to be explicit at the teacher, school and system levels (Moyle, 2006). An important example for Australian schools concerns the focus of the curriculum on literacy and numeracy where whole-school approaches to the integration of ICT should be developed.

Where a school has a curriculum leader who oversees all curriculum initiatives, including the integration of ICT use, these connections are likely to be made, and can be connected to the strategic plan for the school and supported through the professional learning programme. At JWC the ‘Curriculum Director’ had such a responsibility and the connections were typically clearly made. Where each initiative is separate with separate leadership it is unlikely that the leaders associated with these initiatives will possess an appropriate level of knowledge and understanding about the integration of ICT, as related to these initiatives.

**Liaising with Technical Support**

Most teachers and school leaders cite the need for some professional local technical support. Even in situations where they have access to a remote Help Desk facility they believe this needs to be augmented by local support. This gives flexibility in providing infrastructure tailored to the needs of teachers and students taking into account the school environment. It is important to recognize that to some extent the agenda of IT technical support and curriculum ICT support are at odds. The former wants a standardized very limited system while the latter wants a very flexible extensive system. It is therefore important that the curriculum ICT leader has a good working relationship with all facets of IT technical support and has a strong voice in decisions made about the structure of technical support. Ideally the leader of technical support will be part of the leadership team at a school. Many schools have an IT manager who attends school executive meetings and liaises with the Curriculum ICT leader, at JWC this person reported to the curriculum leader.

Secondary schools tend to employ at least one technician. Primary schools have difficulty because they usually don’t need a full-time technician and at best have either a casual or regular contract with a local company for some technical support. In many primary schools there is little or no professional technical support with reliance on teachers or the leader, typically with some limited level of expertise. Most Curriculum ICT leaders lack the skills and knowledge for technical support, and this role severely limits their effectiveness for their substantive role. However, some involvement with technical support, in a supervisory or collaborative sense, is necessary to ensure support is appropriate and to increase their understanding of system potential. The curriculum ICT leader will also have a role to play in setting up practices to coordinate communication with Help Desks.

**Conclusions**

Successful integration of ICT will require teachers in a school having a sense of ownership of the initiative and then adequate support for implementation. The leadership in a school needs to foster this sense and then support teachers in their endeavours. This starts with the Principal’s vision, belief and commitment for ICT use across the school but then needs to involve a wider range of personnel in decision-making and policy-making. Unfortunately in most schools decision-making concerning ICT tends to rest with one or two people. The formation of school ICT committees, the empowering of learning teams to develop policy and decide on practice, and the involvement of teachers in showcasing practice at staff meetings are examples of attempts to address this requirement.

The inclusion of a curriculum ICT leadership role within a school leadership team has been shown to be a critical component in the effective integration of ICT to support learning in schools. It is important that the right type of person be selected for this role, with both leadership status and credibility, ideally responsibility for curriculum initiatives in the school, and that the role be adequately supported. This support will include personal support from the Principal, involvement in decision-making processes, adequate time allocation and budget, and provision of on-going
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professional learning. The leader is a ‘Curriculum Director’ with enhanced skills and understanding in the use of ICT to support teaching and learning. The development of such a role will ensure that visions come to fruition and a community of users is fostered rather than just isolated enthusiasts. Without this little impact on the learning of most students can be expected.

References


