Enhancing Leadership Capacity in ICTs in Education through technology enabled collaboration

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Abstract
Leadership is one of several critical components in the successful integration of ICTs in Education. The locus of leadership influences the degree to which ICT integration can become embedded in educational institutions as well as the role of leadership in championing ICT. A lack of leadership capacity is often an attributable factor in the failure of education institutions to systemically integrate ICT into the curriculum and mindsets of teachers. There are many challenges inherent in cultivating distributed leadership in and across educational institutions. However, the effective utilisation of technology to engage educational leaders at all levels in collaborative learning and knowledge sharing can enhance leadership capacity which can contribute to the successful integration of ICTs in Education.

Introduction
Integrating ICTs in Education is an extremely challenging undertaking, whether it be at the school level or system-wide. The grammar of schooling (Tyack & Tobin, 1994) provides an apt metaphor to convey the rigidity of the education system manifest in assessment focused teaching, segregation of subjects and other grammatical ‘rules’ that teachers themselves struggle to describe (Condie & Munro, 2007). This rigidity, coupled with the need for several other enabling factors, and an underestimation of the systemic nature of ICT integration (Condie & Munro, 2007) presents innumerable barriers to effective ICT integration in educational institutions. While recognising that no one factor influences integration in isolation, it is beyond the scope of this paper to examine all such factors. This paper will focus on leadership as one critical success factor in the integration of ICTs in Education. It will also examine the role of technology in cultivating collaborative learning and knowledge sharing to build leadership capacity which can contribute to the successful integration of ICTs in Education.

Limitations of the Review
It is beyond the scope of this paper to consider, in any depth, the many multifarious factors that influence ICT integration in educational institutions. However it will be useful to bare these factors in mind when considering the degree to which leadership alone can influence the
integration of ICT in Education. Some of the more constraining factors include lack of access to ICTs (Hayes, 2007; Tondeur, Valcke, & van Braak, 2008); lack of access to ongoing professional development and training (Davis, Preston, & Sahin, 2009; Tondeur, et al., 2008); lack of availability of technical support (Hayes, 2007; Kearney & McGarr, 2009); poor infrastructure (many students to one computer for example) (Kearney & McGarr, 2009), and an institutional culture that is not conducive to change and innovation (Hammond, et al., 2009; Hess & Kelly, 2007). Another overarching factor which exercises great influence on the ability of leaders to influence ICT integration is policy and good practice. Groff and Mouza (2008) claim that national policy documents that fail to make clear recommendations for practice make it hard for staff to interpret policy in practice. Comber et. al (2006) describe policy in terms of its insistence on ‘narrow technical plans’ which remove opportunities for discussion among educational leaders about pedagogies, school structures and the curriculum. Before barriers to effective leadership building are addressed, the locus and role of the leader must first be considered.

**Locus and role of leadership in ICTs in Education**

Leadership is regarded as a critical component in the successful integration of ICT in Education (Haynes, 2007; Kearney & McGarr, 2009; Kirkland & Sutch, 2009). While some evidence suggests that the locus of ICT leadership centres on the principal (Kearney & McGarr, 2009), much research supports the proposition that distributed leadership throughout an educational institution or system enables successful ICT integration to take place (Farrell & Isaacs, 2007; Giltinan, 2006; Hadjithoma & Karagiorgi, 2009; Hayes, 2007). Fullan (2005) makes clear that for any initiative to become embedded in an educational institution distributed leadership and shared responsibility are required. Leadership can take the form of pioneer teachers (Midoro & Admiraal, 2003); everyone in the school (Goddard, 2003); senior management (Lawson & Comber 1999) mentors or supervisory teachers (Hammond, et al., 2009), ICT coordinators (Wong, 2008), Principals (Schiller, 2002), and even network administrators (Hayes, 2007).

Professor Thomas Sergiovanni’s description of leadership for schools and communities is
presented for the purpose of situating leadership in the context of education. Sergiovanni is an advocate for schools as communities and for constructivist teaching and learning.

Leadership for meaning, leadership for problem solving, collegial leadership, leadership as shared responsibility, leadership that serves school purposes, leadership that is tough enough to demand a great deal from everyone, and leadership that is tender enough to encourage the heart – these are the images of leadership we need for schools as communities (Sergiovanni, 1997, p. 3).

Leadership supports the creation and articulation of a shared vision of ICT use which is key to driving and managing a change in use of ICTs in teaching and learning (Hughes & Zachariah, 2001; Otto & Albion, 2002). Leadership harnesses commitment to improve teaching and learning through ICT integration and leverages available skills to utilise ICTs effectively (Hayes, 2007). Leaders who are close to the curriculum and teaching are well placed to influence pedagogical change through ICTs (Kearney & McGarr, 2009). Leadership establishes a culture that enables innovation as well as a shared sense of responsibility for innovation (Kirkland & Sutch, 2009). However, sufficient leadership capacity cannot be assumed in a time when conventional 20th century education systems are struggling to meet the demands of a 21st century society. There are many barriers to the cultivation of effective leadership for ICTs in Education.

**Leadership barriers**

Cultivating leadership in educational institutions to support the adoption and integration of ICT in Education presents many challenges for staff and principals unfamiliar with the ways in which ICT can support teaching and learning across the curriculum (Kearney & McGarr, 2009). Another frustration facing would-be ICT leaders is the policy and best practice deficit which leaves educational institutions struggling to understand how to integrate ICTs into the curriculum and what educational changes they should be making to accommodate ICT integration (Kearney &
Existing leaders often lack the practical knowledge and skills necessary to champion ICTs (Akbaba-Altun, 2004; Flanagan & Jacobsen, 2003) and a lack of ‘succession planning’ results in a loss of momentum when key change agents leave an institution (Hayes, 2007). In order to cultivate a sense of distributed leadership for ICT integration in and across educational institutions, people in various positions of responsibility must be brought together to develop a shared sense of ownership for ICT integration.

Cultivating Leadership through Collaboration

In order to build distributed leadership capacity in educational institutions it is necessary for educational institutions to encourage collaboration (Carnell & Lodge, 2004) among staff, between principals and staff, and even across institutions such as a block of schools in a district. Trainee teachers, for example, consider collaboration and mentorship as essential to their adoption of ICT in the classroom (Haydn & Barton, 2007) and collaboration also counters the tendency to treat the classroom as an ‘independent republic’ cut-off from new practices and innovations at the school-wide level. At the national level collaboration models are emerging, the aim of which is to encourage stakeholder involvement in policy development and implementation, and to encourage investment in ICT development (Farrell & Isaacs, 2007). At the local level the involvement of multiple stakeholders in the process of ICT integration (Hayes, 2007) and the involvement of teachers in the ICT planning process (Kozma, 2003) aid the successful integration of ICTs into the curriculum. Technology can play a central role in facilitating collaboration among educational leaders and would-be-leaders of ICTs in educational institutions and across educational institutions.

Technology enhanced collaboration for educational leaders

Virtual Learning Environments (VLEs) can provide newly qualified teachers with a forum to consider their use of ICT in the classroom and to share their experiences, knowledge and good
practices with other teachers facing the same challenges (Andersson, 2006). As noted by Clarke (2009), trainee teachers are oft considered an important bridge between digital natives and digital immigrants. Clarke (2009) describes the effectiveness of online Communities of Practice (CoP) in the UK in preparing teachers for entry into the workforce and for influencing school improvement by situating their ongoing professional development in these CoPs, as the General Teaching Council for Northern Ireland has highlighted in its revised list of teacher competencies (GTCNI 2007). Similar results for teacher preparation are reported from Hong Kong (So, Hung, & Yip, 2008) and Dalgarno and Colgan (2007) affirm the effectiveness of virtual community-building for the professional development of elementary math teachers. The e-Yethu project provides an example of how multiple stakeholders from the tertiary, school, community and provincial department of education employed a CoP model to encourage the take-up of ICT in schools in the Grahamstown district of South Africa (Hodgkinson-Williams, Slay, & Siebörger, 2008). Research carried out into leadership building in the New Zealand Early Childhood Education sector (ECE) revealed that leadership development can be cultivated virtually through the use of blended action learning, which involves the use of ICTs such as online reflective journals, forum discussions, chats and emails (Thornton, 2009). Some offer caution as they see the burgeoning online discussion groups for educational leaders as part of a growing trend to ‘online anything’ and suggest that further research needs to be carried out to find out what works best (Crawford, 2002). The emphasis this review places on distributed leadership for ICTs in Education does not negate the importance of the principal in supporting ICT implementation. Gokce (2009) supports this premise in an interview-based study of Turkish elementary school principals and teachers, who, despite their differences all agreed on the importance of effective principal leadership in managing change.

**Conclusion**

There are a number of models being adopted for online collaboration among educational leaders including community of practice, action learning and professional online districts. These models can be used to bring educational leaders out of isolation in the case of principals and can also be used to cultivate distributed leadership for ICT in and among educational
institutions. However, as Hess and Kelly (2007) note higher education programmes spend less than 5% of instruction in graduate-level school leadership preparation on the use of technology for data-driven administration. If trainee teachers are not even being trained sufficiently in the use of ICT for management, the likelihood of them being in a position to lead the integration of ICTs into the curriculum seems less likely as Le Baron et. al (2009) also warns. This review supports Clarke’s (2009) recommendation for further research into best practice for virtual learning in teacher training, in an effort to cement effective learning behaviors among incoming teachers in the education system at every level.


