

School Leadership and Classroom Uses of Technology

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In spite of huge investments in the emerging technologies, current evidence suggests that the anticipated change to technology-enabled, student-centered teaching and learning has been slow. In that context, we sought to identify examples of classrooms perceived by district personnel and school principals to have exemplary teachers who employ technology regularly in their respective classrooms in an effort (1) to identify the perceived sources of leadership that have either facilitated or inhibited implementation of the emerging technologies in the teaching and learning processes and (2) to determine participants' perceptions of how the emerging technologies have affected their respective roles.

Methodology

Toward achieving the above noted purposes, we collected data through interviews with selected teachers and their school principals in all English school districts in Newfoundland and Labrador, Canada. At our request, senior district educational administrators in each school district, in consultation with school principals, selected elementary and intermediate teachers whom they deemed to be exemplary teachers who employ technology regularly in their respective classrooms. Of those nominated, 10 teachers from eight schools (at least one from each school district) agreed to participate in our study. Following the selection of the participating teachers, we invited the school principal in each of the selected schools to participate in our investigation as well.

Each interview of 30-60 minutes was recorded, labeled with assigned pseudonyms for each school and interview participant, and subsequently transcribed by a professional transcriptionist. We analyzed the transcribed data through the application of a qualitative data analysis program, QDA Miner (Provalis, 2011). Using this program, we coded separate but matching data segments for school principals and teachers. Subsequently, we retrieved these coded segments and saved them as separate reports that facilitated the development of specific themes.

Summary of Results

Teacher Leadership

Although all teachers who participated in this study had been recommended as exemplary teachers who employ technology regularly in their classroom, our interviews revealed they have varied levels of formal education relating to either teaching and learning with technology or student-centered learning. Some teachers are largely self-taught while others have a graduate degrees focused on teaching and learning with technology. The majority, however, indicated that their undergraduate degree in teacher education provided little insight into how the emerging technologies might be employed to create student-centered learning environments.

Respondents collectively identified multiple factors that they believed reduced the potential of the emerging technologies to facilitate meaningful change. The following appear to be the most salient of the identified inhibitors: inadequate focus in teacher education programs on the application of the emerging technologies in support of student-centered learning, limited access to technology hardware and software, limited professional development opportunities, insufficient access to resources and expertise, limited planning time, and professional isolation. Contrastingly, the factors perceived by our teacher interviewees to positively influence an increase in the application of the emerging technologies in classroom teaching and learning processes relate to either specific sources of leadership (i.e., school principals and pioneer teachers) or to various leadership activities (i.e., teacher collaboration, collegial activity through a school district online forum, and action research projects sponsored by a specialized division of the provincial department of education).

The majority of school principals in our study acknowledged the important leadership role played by teachers within their own school, either as individuals or as team members, who willingly support their colleagues with their expertise, act as key decision-makers regarding hardware and software acquisitions, provide

professional development for others, or have sought partnerships and various sources of funding for technology-related acquisitions. It appears, however, that teacher leadership was not supported at one of the selected schools. In this school, the acting principal (previous vice-principal) indicated that although in past years they have had a teacher committee to assist in making decisions relating to technology; currently, the administrative team makes most decisions relating to technology purchases based on requests from individual classroom teachers. Confirming this shift in approach, a Grade 4 teacher at this school expressed concern that this top-down decision-making approach has inhibited teacher leadership and slowed classroom innovation.

With the exception of the views expressed by the previously noted school principal, all other study participants (teachers and school principals) identified and acknowledged the important role of teacher leaders in transforming classrooms from being primarily teacher-directed to technology-enabled, student-centered learning environments.

School Principal Leadership

In respect to their own role, all principals noted that technology had enhanced communication with teachers, parents, and the larger school community. Although each principal indicated that the enhanced communication was positive, two principals expressed concern that the increase in expectations of an immediate response caused stress and had the potential to interfere with the instructional leadership component of the principal's role.

In spite of the previously noted concerns raised by two of the eight principals, the majority of principals expressed commitment to their active engagement in the implementation process and to providing the necessary supports to facilitate increased use of the emerging technologies by teachers in support of teaching and learning. The following are among the most common leadership supports suggested: access for individual teachers to emerging teaching and learning technologies in their classrooms, the provision of quality differentiated professional

development for teachers at differing levels of expertise and the creation of collaborative across-school teacher networks.

School Boards and School District Leadership

Two teachers acknowledged the positive leadership role of their school district. One teacher was pleased with her school district's articulated plan to transform classroom teaching and learning away from teacher-directed to student-directed learning through the use of the emerging technologies. A teacher in another school praised his school district for their leadership relating to the acquisition and support of emerging technologies for classroom use. He observed they have a planned approach to the purchase of appropriate technology hardware and they have focused on the professional development needs of teachers who will be tasked with implementation in their classrooms.

With the exception of the positive observations of the two previously noted teachers, the majority of respondents were critical of their school board's governance role relating to the implementation of technology in school classrooms. They perceived many school board policies were overly restrictive, thereby resulting in limiting students' access to the Internet and restricting students' use of personal wireless devices. As well, several respondents from differing school districts noted that their school board had been slow to respond to essential upgrades to school building infrastructure (e.g., increased electrical capacity, additional internet access points, and the provision of classroom furniture designed to support student-centered learning).

Government and Other Leadership Sources

Few interviewees perceived either the provincial or federal government has having provided an acceptable level of leadership relating to the provision of the required infrastructure to support the anticipated transformation of classroom teaching and learning processes. As well, many teachers and school principals expressed deep concern that provincial curriculum guides (provinces are responsible for k-12 public education in Canada) were outdated and expressed a view that even if

updated, these guides would have limited usefulness unless published electronically and subject to regular updates.

On a more positive note, several respondents acknowledged the leadership role of the department of education in support of the increased access to the emerging technologies in public schools. They were particularly pleased with a recent provincial initiative that would result in the addition of hundreds of interactive whiteboards distributed to schools throughout the province. As well, several respondents acknowledged the Federal government sponsored Computers for Schools program as a valuable source of leadership in the provision of low-cost computer hardware to schools. This organization, “co-founded in 1993 by Industry Canada (a department of the Government of Canada) and the TelecomPioneers” refurbishes used computers donated by businesses and governments and distributes them to schools” (Computers for Schools, 2012).

Summary and Conclusions

We began this study with a view supported by the scholarly literature, including some of our own research, that in spite of huge investments in the acquisition of technologies for public school classrooms in many jurisdictions around the globe, its impact on routine teaching and learning processes has been nominal. Wanting to better understand this apparent slow pace of classroom innovation, we sought to identify elementary and intermediate classrooms where this was not the case, and where technology was a regular part of the teaching and learning process. In each of those identified schools, we interviewed the school principal and those teachers deemed to be exemplary and recognized as using technology in support of the teaching and learning processes. We anticipated that the perspectives of these individuals would provide valuable insight into the various distributed sources of leadership that have contributed to their success.

During our interviews, several teachers and school principals described examples of innovative uses of the emerging technologies in support of classroom teaching and learning in their classroom or school, and highlighted a number of facilitating

conditions. Several of the interviewees recognized the provincial department of education as providing important leadership to facilitate the increased use of technology in teaching and learning through (a) establishing a centre for distance learning and innovation that provided professional development and technology hardware to selected teachers in all school districts to support classroom innovation, and through (b) a special initiative whereby the department of education provided a number of interactive whiteboards and new computer systems to all schools in the province (Newfoundland and Labrador, 2011). Other interviewees acknowledged the importance of a technology special interest council of the provincial teachers association. They observed that through their membership in this council, they have experienced excellent professional development opportunities and have maintained a strong support network. As well, many respondents acknowledged the important leadership role of the Computers for Schools program. As a result of this program, schools were able to access affordable computer hardware for their classrooms and other learning spaces that otherwise would not be available.

When our interviewees' attention was focused on school leadership, the majority acknowledged that their schools have established a teacher technology committee that provides leadership relating to the acquisition of technology resources, the provision of professional development and teacher support relating to classroom uses of technology. Also, we learned that several of our study schools have designated a classroom teacher to provide classroom support to those teacher colleagues who are novice users of technology. It appears, however, that few schools have the flexibility to reassign teachers in this manner, and in schools where it does exist the support function composes only a small portion of the designated teacher's daily schedule. More typically, technology leadership within a school is informal and collegial and occurs through various sources: teacher colleagues, school principal, vice-principal and school-based leadership teams, etcetera.

All teachers acknowledged that they had attended professional development sponsored by their school district. Teachers from two of our four study school

districts perceived their district-level professional development to be quite useful as it was focused specifically on the application of technology in support of student learning. Teachers in the other school districts were less enthusiastic about their in-district professional development experiences, noting that sessions were focused primarily on the application of specific technologies.

In spite of the aforementioned facilitating conditions, even schools where our interviewees were most excited about their progress, neither teacher nor principal interviewees perceived any pervasive shift within their school toward technology-enabled student-centered learning classroom practices. The major inhibiting factors identified are as follows:

(1) Limited access to hardware and software. Many teachers who aspired to be innovative expressed frustration that their students had access to computers and the Internet only through a computer laboratory or the school library. Several complained that school board policies and outdated school infrastructure limited the potential of any transformation of teaching and learning processes in their school or school system. Others expressed frustration that most provincial curriculum guides were available in paper format only and were outdated. They believed that these guides should be published exclusively in electronic format and should be updated regularly.

(2) Teacher education program limitations. The majority of our interviewees commented that during their teacher education program they had little exposure to learning how to apply the emerging technologies to facilitate teaching and learning in their classrooms.

(3) Pace of change. Similar to findings in previous studies (e.g. Anthony, 2012), even the most enthusiastic users of technology identified the rapid pace of change in technologies as challenging. Some noted the inhibiting costs associated with the required upgrades to school infrastructure (e.g., electrical power) and the purchase and ongoing maintenance and repair of the constantly emerging technology hardware and software. Others noted that the pace of change and limited onsite

expertise created challenges for school board policymakers. For instance, several teachers opined that their school board's acceptable-use policy was ill informed, as it unnecessarily limited students' in-school access to meaningful learning opportunities. They believed that if the policymakers had access to more expertise and were better informed, they would likely develop and approve more enlightened policies.

(4) Access to professional development. Several teachers noted that they had been exposed to excellent professional development opportunities that have helped them develop some expertise in their use of the emerging technology in support of student learning. They indicated that they were privileged to have been able to avail of such professional development and lamented that their colleagues had not had similar opportunities. In fact, the majority of our interviewees indicated having only limited access to quality professional development relating to either the application of the emerging technologies or student-centered learning pedagogies.

(5) Teacher leadership. The majority of our interviewees acknowledged the growing dependence on emerging technologies in their personal and professional life. Each acknowledged being considered leaders in the application of technology in teaching and learning in their particular school. In spite of this recognition, most were quite frustrated that they were expected to perform this role with little release time from their own classroom teaching responsibilities. As well, several expressed concerns relating to the availability of relevant, ongoing professional development for their colleagues.

(6) School principal leadership. Each principal in this study perceived the impact of technology to have both positive and negative consequences for his/her work and personal life. Most observed that it enabled improved communication with teachers, parents, other community partners, school district personnel, and other school principals, but several complained that the increase in communication has made it difficult to separate their work and personal life, thereby, resulting in increased stress levels. As well, several expressed a feeling of being somewhat

overwhelmed by apparent expectations of parents and school district personnel of near immediate responses to email, text and twitter messages. For instance, one principal complained that the workload imposed on him, as a result of the increase in stakeholders' communication expectations, prevented him from being engaged as an instructional leader: "There is just no time to visit classrooms!"

Overall, we found that a great deal of effort has been directed toward equipping classrooms with the emerging teaching and learning technologies. Also, we confirmed that the teachers selected for this study were for the most part as we had requested, "exemplary teachers who employ technology regularly in their respective classrooms." Our findings reveal, as well, that most of these exemplary teachers provide leadership support for the implementation of technology in the teaching and learning processes in their respective schools. Somewhat disappointingly, however, we found little evidence that their efforts were well supported by formal leaders at their school or school district. There appeared to be no planned approach to the provision of ongoing professional development that most of our interviewees identified as essential, and we found no evidence that any meaningful consideration had been given to the extensive well-developed scholarly literature relating to distributed leadership, change, and implementation.

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