Networking Research, Policy and Practice: Designing a District Technology Plan through Collaborative Professionalism

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ABSTRACT

When examining technology implementation in schools, more research is available on the role of the school leader than on the significant leadership role that the school district fulfills in technology support and implementation. This paper reviews the practical, theoretical and policy considerations surrounding the scheduled renewal of one school district's technology plan. The authors outline steps undertaken in one school district that elected to create a collaborative professional learning team rather than hire external consultants to suggest improvements to the district technology plan. An internal team of district professionals collectively analyzed the outcomes of the district's previous technology plan. Next, they worked collaboratively to recommend future directions for technology implementation in the district. The team considered practical elements such as the allocation of personnel and resources. The theoretical elements considered included equity, capacity-building, innovative pedagogies, and connected learning. Policy was both a driver and an outcome of this process. The team supplemented their decisions with just-in-time research with a university partner in order to identify strengths and barriers affecting technology innovation in the district.

Keywords: technology leadership, collaborative professionalism, connected learning, innovative pedagogies

1. INTRODUCTION

As online technologies become ubiquitous in students' lives outside of school [1], the academy engages in assessing the impact of emergent pedagogies on student learning while they are in school [2]. School districts design policies and programs in order to develop students' 21st century digital skills in safe learning environments. Multiple practical, theoretical, and policy considerations underlie the formulation of a school district's technology plan. Optimal outcomes of planning can be realized through productive research-practice partnerships to share knowledge and broker stakeholder input into this collective and significant enterprise. In this paper, the authors describe the steps undertaken in one school district to create a collaborative professional learning team in a school district that partnered with a technology university for this process. The professional learning team analyzed the outcomes of the district's previous technology plan and planned forward for future technology-enabled learning for the district. Practical elements included allocations of personnel and resources. Theoretical elements were wide-ranging and included theoretical considerations of equity, capacity-building, innovative pedagogies, and connected learning. Policy was both a driver and an outcome of this process. For example, a provincial policy on collaborative professionalism [3] provided the model for the technology implementation plan process, so it was a driver. The research indicated a need to

review the digital privacy policies and that became one output of the process.

While research informs to some degree about the role of school leaders in the implementation of technology [4], [5],[6],[7] there is less research at the present time to help us better understand the role of the school district in technology leadership. When a school district reviews and then re-designs its technology plan, it begins with a review of the previous plan. This review could be contracted externally or internally, but generally includes stakeholder consultation. In the case of the review described here, it was decided to use an internal process and factor in available data to inform planning and decisions about future directions.

This paper describes, in brief, the steps that one school district undertook to review the outgoing technology learning plan and recommend future directions for technology learning. The existing technology implementation plan had been prepared by external experts who represented a large technology corporation. They had presented 84 specific recommendations such as a recommendation to move the school libraries in the district toward makerspaces.

The school district described here is a mid-sized urban and rural board that encompasses several regions: each with its distinct geographical and cultural differences, as well as small and large communities and rural and urban schools. Within the school district, there are just under 40 elementary and secondary schools with approximately 15,000 students.

When the technology-supported learning policy came up for review and renewal, the school district elected to acknowledge the collective expertise within the school district and invite district professionals to work on the design of the *technology-enabled learning plan (TELP)* for the next five years. In keeping with a recent policy directive from the province of Ontario's Ministry of Education on *collaborative professionalism*, the school district issued a general invitation to the committee to all district staff, including teachers, educational assistants, early childhood educators, and administration. The central committee selected teaching faculty to represent both elementary and secondary schools as well as the different regions of the board. The district also invited the unions and a research university to send representatives as well as the corporation that had authored the previous plan. The intent was to consult widely to design the new TELP.

First, the team collectively reviewed the previous plan and broke into groups to consider where the district had made progress on the 84 learning outcomes. It was noted that many terms related to technology that were previously referenced had become obsolete or had morphed into other terminology, making the review process, at times, difficult. The external consultants attended the meetings with the new committee and offered suggestions. Throughout this process, the team, which consisted mostly of members of various employee groups in the district, worked in small teams to complete the review. They supplemented their decision-making with the provision of just-in-time research from a university partnership. This research provided current data on technology use in the district, and also explored teachers' perceptions of digital privacy and other realities affecting technology innovation and implementation in the district.

2. REVIEW OF THE LITERATURE

This review of the literature has three segments that pertain to this study: a) changes in the nature of learning; b) educational leadership in web 2.0 schools; and c) communities of practice.

Key changes in learning have been precipitated by Web 2.0 which allows both the creation and the sharing of educational resources. To begin, learning has become *more personalized* with Web 2.0 use. The National Education Technology Plan in the United States explains that, "Personalized learning refers to instruction in which the pace of the learning and the instructional approach are optimized for the

needs of each learner" [8], p. 9. Learning in the past centered more around formal courses and schoolwork. Now personal learning often begins with an informal web search, and it is outside of the formal classroom [1], [9]. McBeath reports that 900 hours in school are overshadowed by almost 2000 hours in the virtual world [1]. There is, in addition, a renewed focus on *learning how to learn* in order to be flexible and adaptable in the workforce of the 21st century.

A second major change is that learning sources have become *more democratic*. Students (and the public) now go online to seek the advice of experts, to view the expertise of someone who has shared a how-to video, or to gain a general sense of how others are approaching a situation. Millions of individuals consult You Tube and Wikipedia now to study skills and concepts. Even more illustrative of knowledge sharing in the 21st century is the report that, every 6-8 weeks, more than 10 million edits are made to Wikipedia [10]. These are indications of what Sharples et al. [11] call *citizen science*. Learning is becoming more democratic as citizens report, for example, migration, flight and nesting patterns, and other science discoveries. Even teachers rely on the abundance of teaching resources that other teachers post online.

A third major change in education is the growth of *blended learning* which allows learners to personalize their learning and have more control over the time, place and pace of their learning [8]. There are still key roles for instructors and teachers in blended learning scenarios because students need to acquire critical thinking skills. Although online venues provide learning opportunities, some sites provide information that is inaccurate or misleading. In this new landscape, the role of the teacher has changed to be the guide and the facilitator. Teachers need to help students select reputable websites and critically assess their worth. There are still significant roles for teachers and instructors in guiding the learning explorations, helping students assess their learning using metacognition, and helping students consolidate their learning.

One of the core values of the Consortium for School Networking in the U.S. [12] is as follows,

The primary challenge we face in using technology effectively is human, not technical [12]. Research on technology implementation reflects this focus. Lemke [13] finds that school district administrators in the US view the advent of online learning in schools positively. This report includes the views of more than 3000 district superintendents, curriculum directors and technology directors. These administrators see that online learning will have positive effects on students' communication skills, interest in learning and self-direction. In fact, they see that online learning holds some promise to keep students interested in schools. Online learning has the potential to meet the needs of different learners and those who require alternative learning environments or non-traditional learning methods. The district supervisors see the extension of learning beyond the school day as positive, and a preparation for lifelong learning. They view online learning as having a negative impact on students' physical conditioning, however [13].

Lemke reports that, as a group, the majority (61%) of US district administrators believe that students' online participation in school should be limited to approved educational websites. While technology directors report that students are allowed to participate on blogs, wikis and games, most of the districts (70%) do not allow students in their districts to participate on social networking. Almost every school district employs an internet filtering system and 55% of the filters are more restrictive than the Children's Internet Protection Act requires. While 67% of districts report that their filtering is effective, they also report that things slip through or students find their way around the filters. Only 12% of districts find that their

filtering system is so strict that it impedes instruction [13].

The picture of the districts changes somewhat when they report on teaching and learning. While over 75% of the district superintendents and curriculum directors see the potential of the internet for teaching and learning, more than half (56%) report that they have not yet integrated Web 2.0 applications into the curriculum. Individual early adopters are those teachers who are most likely to use online tools in classrooms. There is an intent, however to integrate Web 2.0 into social studies, writing, science and reading at all grade levels. A finding of direct interest to the present study, however, is that 63% of school districts are using online technology to establish communities of practice for teachers and administrators, but a smaller percentage (38%) report that this results in more participatory decision-making. In addition, while district administrators took high responsibility for teaching web 2.0 safety, there was only a moderate level of responsibility reported for taking initiatives to leverage Web 2.0 for learning [13].

Another key shift in pedagogy in the 21st century is the re-emergence of co-operative learning, which was introduced over 40 years ago [14]. Online learning has created new spaces and opportunities for students to collaborate. vanOostveen and colleagues refer to these new learning spaces as *digital sandboxes* [15].

3. THEORETICAL FRAMEWORK

The framework employed to develop the new Technology-Enabled Learning Plan (TELP) was *Collaborative Professionalism.* The Ministry of Education, Ontario published a policy memorandum [3] that connects collaboration among professionals with increased student learning. Some principles of this policy state that all voices are valued in collaborative processes that take place in trusting environments. Through collaboration, exemplary practices can be shared for the benefit of students. This process recognizes both formal and informal types of learning and leadership. It allows for grassroots and democratic processes to shape change. Theoretically, this type of collaboration supports innovation and can address complex problems [3]. Collaborative professionalism as a policy and as a philosophy formed the framework for the development of the new TELP.

To begin the process, a memorandum of invitation was sent to all employees of the district school board. From there, and with an eye to regional, panel, special education, and indigenous education input, a committee of approximately 25 people was assembled.

The committee met five times during the school year, on one occasion through a virtual classroom application. As staff evaluated the previous TELP and its success, a number of key areas emerged that required additional research and investigation: BYOD and blended learning; e-learning; learning commons; privacy, security, parent communication and pedagogical documentation; and robotics and coding.

Each of these themes became a subcommittee that was asked to research and bring their findings back to the working group. Most of the discussion, ideas, and planning were captured and shared in a digital application that could be accessed synchronously and asynchronously. In this context, the working group began to build the capacity necessary to investigate, make recommendations on, and finally create the new TELP. As no one committee member identified themselves as an expert, the five investigative groups began to research and report back to the larger working group, growing the expertise of all in the process. A critical part of this process was in determining the relationships between pedagogy, the learning space, and student learning.

The university was a member of the collaborative team and undertook research to inform the process. The TELP committee advised the research process, and the research

findings then advised the TELP committee in the process of inquiry. This is described in the next section.

4. RESEARCH METHODOLOGY

A survey was sent to all teachers in the district. Of the approximately 1000 potential respondents, there was a return of 404 responses (n=404, or 42% of the district's teachers). The survey was conducted online using Google Forms. The survey had sections such as: demographics; use of digital tools, digital privacy and teachers' understandings of digital privacy. The survey was a mixed-methods design, asking quantitative as well as qualitative, open-ended questions. The survey was analyzed using convergent design. The survey aimed to understand how decisions about digital tool selection are made within the classroom, and how the digital privacy of students is protected when online digital tools are used. Representation of the respondents to the survey showed an even distribution of respondents across the school district and was reflective of the number of teachers in the elementary and secondary school groups. This showed that the responses gave a good representation of the district's teachers. Approximately 64% of the teacher respondents were in their first half of a teaching career.

5. FINDINGS

As a result of this research, we find that school districts who enter into a collaborative and consultative process can focus the experience and expertise of the staff toward planning technology enabled learning. The work of the TELP team and its final three year plan is an indication of this.

Secondly, we find that "just-in-time" research efforts that are developed through collaborative professionalism and supported by the district can yield reliable and valid findings that can lead to a more robust consultation and new directions. Additionally, just-in-time research efforts mean that those who have participated have the results within a month and can see their input in school district decision-making.

Some of the findings of the survey on teacher use of digital tools match earlier findings and some were contradictory to earlier findings across US districts. For example, overall, the survey findings indicate that a wide variety of digital tools are being used in this school district and for a variety of purposes. This contradicts earlier findings [16] that technology is mostly underutilized and is not being implemented in creative ways. In the present study, which was representative of the district, 67.1% of the teacher respondents report that students use online tools for creative purposes. This is a new finding that has implications for curriculum planning.

Some of the findings were not surprising. For example, the finding that many teachers use technology for recording attendance and marking is not a surprising finding.

Another finding was that almost 75% of the teachers report that students are working online through the Google classroom apps, designed for information creation, sharing and communication. This finding presents a different picture than the earlier US findings where administrators report that most of their schools (more than half) have not moved to integrate Web 2.0 technologies into their curricula.

Other findings from the research partnership with the university presented issues of digital privacy in their complexity. More than half of the teachers in the district reported the use of online applications for purposes of communicating student information to parents. The qualitative findings from the survey also indicated that teachers were struggling with understanding the complexity of digital privacy. This led to the development of a digital literacy K-12 learning continuum for this school district, as well as clarification on earlier policies with respect to digital privacy and the roles of students, teachers and school and district administrators.

An overall finding of this study, however, is that school districts are in strong positions to assess, support, and innovate the work connected to technology-enabled learning using processes that can utilize expertise from within and from partnerships.

6. DISCUSSION

This paper describes the process of creating a technology implementation plan for a school district through the collaborative efforts of members of the district community and partnership with a university. This included school administrators, teachers, librarians, subject experts, the ICT team and members of other staff groups such as custodians. The process yielded the development of a three-year Technology-Enabled Learning Plan (TELP) that was markedly different from the previous plan. The new TELP borrowed heavily on similar planning models used to develop the board improvement plan for student achievement and school improvement plans. This model would be more readily accessible and monitored as it represented a schema that was familiar to all employees. Having a readily recognizable format meant that its distribution to board staff – from trustees to principals to school staff – was easier as the format was readily understood, an outcome of an in-house professional collaboration.

Interestingly, the process for the development of the technology review and technology implementation plan utilized Web 2.0 technologies in support of the review and the development of new directions. All of the proceedings were shared through the Google suite for education. At least one of the meetings was held fully online, while others took advantage of the affordances of virtual meetings as needed. This form of collaboration and democratization was supported by innovative uses of technologies. It modelled technology's applications for new and creative purposes, rather than using technology to replicate the more traditional ways of working.

Earlier findings with respect to the integration of technology into the curriculum have been reported to be dependent on teacher behaviour and commitment to new technologies. The present study indicates that the use of collaborative professionalism, supported by technology, can provide a more democratic model of decision-making for a school district, and one that more closely matches professional learning communities and the processes for school improvement planning. The findings of this study demonstrate the potential of collaborative professionalism to support technology implementation in school districts.

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