Blended Professional Development for Literacy and Numeracy Teachers: An Initial Evaluation of the Learning Connections Project

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Abstract: The paper presents the major findings and recommendations from a formative evaluation of the first phases of a pilot professional development program, Learning Connections, designed to enhance literacy and numeracy teaching in Ontario elementary schools. The program incorporates design elements that have been found in previous research to be essential to successful professional development. The teachers' literacy and numeracy professional development needs and the project's effectiveness in meeting these needs over its first year of operation are analyzed, and a number of recommendations for improving the program's impact are discussed.

In the past decade, literacy and numeracy have been the focus of many reform initiatives in K-12 education—for example, the National Numeracy and Literacy Strategies in England (Earl, Watson, & Torrance, 2002), standards-based reform in the US (Dutro, Fisk, Koch, Roop, & Wixon, 2002), and literacy and numeracy strategies in Ontario (Campbell & Fullan, 2006). Effective professional development programs focusing on implementing the reformed curriculum have been shown to have a critical role in promoting change (Earl et al., 2002). But what makes professional development to support literacy and numeracy reform effective? It should be consistent with state standards and assessments (Garet, Porter, Desimone, Birman, & Yoon, 2001); involve active learning for teachers, bringing a strong theoretical knowledge base alive in teacher practice (Hiebert, Gallimore, & Stigler, 2002); and be embedded in the context of work in schools and classrooms (Campbell & Fullan, 2006; Kinnucan-Welsch, Rosemary, & Grogan, 2006). The continuous and ongoing nature of professional development is another key to its success (Garet et al., 2001). Teacher training programs should promote inquiry, allowing teachers to become reflective practitioners (Kinnucan-Welsch, 2005). Finally, professional development should emphasize collaboration among teachers in order to foster a learning community (Levin & Rock, 2003). Many have emphasized the importance of content in professional development, especially with regards to literacy and numeracy – not only should professional development focus on teaching practices, but it should also give deep content knowledge, and develop teachers as literacy models (Dutro et al., 2002; Hill, 2004).

This paper presents the findings and recommendations from a formative evaluation of the first phases of a pilot professional development program, Learning Connections, designed to enhance literacy and numeracy teaching in Ontario schools. The program has been designed to incorporate the attributes outlined above that have been found to be essential to successful professional development—it is standards-based, job-embedded, focused on building a reflective and collaborative learning community, and delivers content knowledge critical for changing practice.

Learning Connections

Learning Connections (LC) is an ongoing teacher professional development project that blends face-to-face and online components. Its focus is on the improvement of student achievement in literacy and numeracy in grades four to six through job-embedded professional learning. The community participants include lead numeracy and literacy teachers, other teachers, supervisory officers, principals, district literacy and numeracy trainers, and information technology managers from nine schools, one in each of nine school districts (six Anglophone, three Francophone) across the province of Ontario. The intent of Learning Connections is to build capacity within the participating districts and schools to further student literacy/numeracy learning and achievement and to support the participants as they implement the Ontario Ministry of Education's Foundations program to advance literacy and numeracy (Ontario Ministry of Education, 2004a, 2004b).

Learning Connection's online presence makes use of a Web community portal, broadband networks, and ICT applications to provide activities and resources for professional development and community building. Live videoconferencing and streamed media are used to provide access to literacy and numeracy experts who make presentations and lead discussions on teaching and assessment strategies. The portal is used to deliver professional development activities and assignments in literacy and numeracy that are grounded in classroom practice as well as mentored discussion groups on critical topics and questions in numeracy and literacy education. The web-based portal also provides access to a calendar of upcoming events, ICT tools, and multimedia-based professional development resources such as videos of expert classroom teaching, teaching guides, and LC research summaries.

For participants the program began with a three day Summer Institute to familiarize new members with the goals, activities, and technologies of Learning Connections, and to make it possible for participants to establish the personal contacts that are vital to sustaining the online life of a learning community. Over the summer each school was provided with two laptop computers, a powerful desktop computer, webcams and a projector. Some teaching release time was provided for participants working on literacy and numeracy activities. In the fall staff visited each district to meet with participants and resolve technical problems.

Three structured activities were posted in the portal in the 2005-06 school year. They were: *Reflections on the Literate and Numerate Citizen* (in the fall), *Focusing on the Student* (over the winter) and *Continuing the Conversation* (in the spring). A book study also ran in the winter term of 05/06. All activities had supporting resource materials and discussion forums for facilitating collaboration. In the second year the community was opened up to all of the Junior Division (grades 4 to 6) teachers in the nine districts. The facilitators developed and posted several new literacy and numeracy activities in the portal. Two participants posted videos they had created. One was on use of the "Learning Carpet" and the other on a fractions unit.. A "Library" in the portal provides a repository for reference materials, videos, meeting notes, and other related resources. Live webcasts featuring experts and keynote speakers were presented during the year and captured and placed as streamed video in the portal. Online training sessions are offered on the use of various portal components and software tools the project supports, such as videoconferencing and blogging tools.

Research Methods

This paper reports on the results of a formative evaluation of the first year of the approximately two year long project. Our goals for this first phase of our evaluative work were to (1) collect baseline data on school characteristics, including its literacy and numeracy resources; and (2) to understand the participating teachers' backgrounds and perspectives on literacy and numeracy teaching, as well as their actual teaching practices during the first few months of the project. To meet these ends, we interviewed school principals in fall 2005 and developed and administered a web-based questionnaire to classroom teachers in the same time period. In addition, the

designated lead numeracy and literacy teachers at each of the nine participating schools were observed teaching their respective specialties for at least two periods in April and May 2006. (Lead teachers were observed as they had been designated to be the initial teacher participants in the LC project over its first year). Observers rated teaching styles on either a nine dimensioned literacy teaching or numeracy teaching scale. Project managers were interviewed to tap their perspectives on the evolution of the project to date, including problems encountered and successes achieved. The levels of participation in LC activities, assignments, and discussions over the first nine months were assessed through in-person observation of Summer Institutes and videoconferencing events, interviews of project managers, and an analysis of online LC professional development discussions, activities, and assignments.

Findings

Initial Project Implementation

Delays in selecting participating schools until a few weeks before the first Summer Institute in July 2005 resulted in low levels of participation by school personnel in the 2005 Institute. In addition, an initial lack of clarity amongst project partners about both the project's budget status and the division of project responsibilities slowed down the creation and adaptation of professional development content for the LC portal and the hiring of online community facilitators. Both of these factors contributed to the low levels of participation in the online LC activities and discussions seen in the fall of 2005. The events and online activities received responses from only a fraction of the number of participants involved in the project. Most online discussion involved a subset of the same participants. In the November-December period there was very limited online participation from schools. All entries in the professional sharing discussion forum were in English. There were a couple of responses in the "En Français" space. However, this amounted to separate discussions for each linguistic group, where a more unified bilingual discussion would have perhaps benefited all participants. Participation in the video conferences was less than universal: six schools participated in November, five in December. Although Francophones did not take part in any of the English videoconference events in that time period, they did hold four French-language videoconference events.

Early Perceptions of the Learning Community Project

Thirty-two responses to the fall 2005 online teacher survey were received from a population of 49 Junior division teachers at the 10 participating schools, giving a response rate of 65%. A majority of teachers indicated that they receive broad support for professional development – information at staff meetings, group planning time for staff teams, time to participate and attend at conferences and workshops, and planned opportunities to share with colleagues. However, only 12% received financial support to cover the costs of attending workshops and conferences. Over one third of the teachers responding said that they liked the idea of the LC online professional community, valued being part of it, and wanted to continue being involved. Some commented on specific aspects that they liked such as the shared reading program, the resources, and the webcasts. Less favorably viewed were the lack of clarity regarding the expectations about teacher involvement, and a vagueness about the direction of the project, especially in the initial months of the implementation.

Strengthening the Program

In response to feedback received through a survey of the first Summer Institute as well as an initial interim evaluation report that included data from the baseline teacher survey about participant needs, program modifications were made in the early winter of 2006. The LC portal's user interface was simplified to make access to content and activities easier, translation of English documents into French accelerated, and an email event notification system was implemented. A resolution of the budget uncertainties and a clarification of partner roles and responsibilities resulted in the hiring of part-time Anglophone and Francophone online mentor/facilitators and content/activity developers, the addition of new professional resources, and the initiation of new professional development activities such as several videoconferences/webcasts on literacy and numeracy topics. A new Francophone facilitator gradually built up a set of French-language professional development materials and resources in the portal. A new part-time math specialist started to facilitate numeracy discussions and activities and assist in numeracy material development. Participating schools were informed that they could request release time funding for lead teachers to engage in various project activities, and a number of teachers made use of this to allow participation in LC school

planning meetings, videoconferences, and PD resource development. A total of about 20 days of release time were requested over Phase Two by participating school districts. Participation levels rose over the winter and spring compared to the fall but not to the degree hoped, in part due to the relatively low numbers of classroom teachers who were selected to participate up to that point (one to three teachers from each of nine schools, plus several consultants and administrators).

Baseline Teaching Practices

Our observations and survey results indicated that as a group the participating numeracy lead teachers were already strong in several areas, including their conceptions of mathematics and ability to build student confidence. They were also moving towards some of the new pedagogical ideas such as use of open tasks, emphasizing student discovery, having students work together to explore ideas, and engaging in ongoing assessment in a variety of ways. They were less comfortable with using a variety of math learning tools (and allowing students to choose their own tool), making connections to other strands of mathematics, and having students look at different representations of mathematical concepts. They were also in need of deepening their own understanding of some mathematical concepts. In addition, although the observed teachers embraced the idea of having students explain their understanding this was usually at the level of individual response. There was much less awareness of the importance of having students communicate their understanding to one another.

Literacy lead teachers were strong in their use of a variety of literacy modes: in making cross-curricular links; in emphasizing process in literacy instruction; and in encouraging the expression of individual identity and voice in the classroom. Areas found to be needing attention for literacy teaching included: accommodating students who need specific language assistance; incorporating gender-sensitive practices; using media and technology in the classroom; promoting peer interaction; and the use of appropriate assessment techniques. Teachers are looking more to physical workshops than they are to the digital resources, such as those available through Learning Connections.

Phase 2: Perceptions of the Learning Community Project

Of the twelve teachers who had had some involvement with the LC program at the time their classrooms were observed in the spring of 2006, six made general comments about the program being useful—they considered it a good learning experience with benefits for participants. They valued being part of this community, and wanted to continue being involved in the program. More specifically, teachers appreciated certain materials, training, and resources offered by Learning Connections. They commented favourably on the shared reading program; on webcasts, in particular the fact that they are archived and accessible to teachers any time; on early learning materials on technology; and specifically on the webcast on the Tinkerplots statistical software. They saw teleconferences as useful and conducive to in-depth discussion. All teachers from the Francophone schools commented on the introduction of a French moderator and expect positive changes in the portal.

The largest number of less favourable comments focused on unclear expectations for the program, especially at the initial stages. Eight teachers commented on the lack of clarity of expectations around their participation and directions which they were expected to take in the program. Several teachers remarked on their lack of understanding of the project aims or inaccurate understanding at the initial stages of the project. Others felt there was lack of clarity as to their roles and the direction of the project, and felt that project goals and participants' responsibilities needed to be spelled out more clearly.

A second set of concerns dealt with the technical problems. Seven teachers indicated that frequent technical problems, especially with videoconferencing, served as an obstacle to more active and productive participation. Three teachers also commented on the issues connected with the portal being not very user-friendly. They saw the portal as difficult to use, especially to find discussion threads and materials.

Another project problematic that many teachers noted was a lack of time available for LC participation, and the unrealistic expectations that the project places on teachers. Six teachers commented that time is an issue for them, and that the project's demands on teachers are too high.

A number of teacher critiques focused on the materials that the portal provides. Three teachers believed that in addition to the theoretical documents put out by the Ministry there was a need for practical materials that they could use in the classroom. Three teachers from the francophone boards wanted to see more materials in French. Two teachers also commented on the fact that their school was ahead in their training compared to other schools, and many of the practices that the portal is focusing on are already in place in their school.. Three teachers talked about the lack of active participation from other teachers and cited that as a discouraging factor in their own participation. Finally, two teachers commented on the lack of computer support for the project from their school.

Recommendations

Six recommendations were made for program improvements intended to strengthen participation in the learning community and increase the project's capacity to help teachers improve their literacy and numeracy teaching:

1. In collaboration with participating school districts, facilitate information sessions for new participants coming into the project. The sessions should involve current members of the community from the school district who can share experiences and understandings with new members, helping them to acculturate and develop social bonds with the existing group. This introduction for new participants should help build the critical mass of active members necessary for an effective learning community.
2. Assist schools in initiating school-to-school projects in which teachers could apply new pedagogical approaches in the classroom in collaboration with LC colleagues. Some teachers in LC have expressed an interest in such an undertaking. These projects can provide classroom-situated opportunities to try out new pedagogical practices with the collaborative support of a colleague rather than simply "on their own," which should reduce the level of psychological risk teachers experience.
3. Maintain an ongoing dialogue with supervisory officers and principals to ensure the necessary levels of administrative commitment to the project. Some participants have lacked the administrative support needed to encourage greater participation. Regular meetings or teleconferences between project management and administrators at participating schools can ensure that institutional obstacles to participation are dealt with before they become insurmountable.
4. Plan new activities and develop new resources to meet the teachers' literacy and numeracy teaching needs that were identified in the teaching observations and teacher survey. Steps have already been taken in this direction, but more can be done. For example, numeracy teachers need to know how to use a variety of mathematics tools and allow students to choose their own tool, learn to make connections to other strands of the mathematics curriculum, teach different representations of mathematical concepts, make student mathematics work more visible on classroom walls, and have students communicate their mathematical understandings to one another. In the literacy domain, teachers need help incorporating gender-sensitive practices into their teaching, using media and technological tools in the classroom, promoting and supporting peer-to-peer interaction, and using appropriate assessment techniques. Although these needs were identified by snapshot classroom observations, they are likely fairly representative of other teachers since the teachers were nominated by their principals to exemplify pedagogical practices at their schools.
5. Continue to improve the project portal by simplifying access to key material. Despite the considerable enhancements made to the portal during the spring of 2006, the portal still needs improvement. The developers must keep in mind our survey results indicating that many of the community members have only rudimentary computer skills. Our usability review showed that some content is still difficult to access, discussion forums are not always easy to locate, some webcasts link from the calendar while others do not, and directions are often confusing. Developers may want to do basic usability studies to see which areas need improvements.
6. Pursue the goal of supporting the project an additional year beyond the current school year so that the investment in resources made thus far can potentially have a greater impact on literacy and numeracy teaching. Online community building takes considerable time—more time than face-to-face communities. Due to the many start up difficulties and delays in the first 18 months of the project and the relatively low participation rate, we believe that the concept of having an online community to support teacher professional development for literacy and numeracy will not have been properly assessed by the end of the 2006-2007 school year. Moreover, it may be difficult to garner sufficient commitment from the teachers who are new to the project in Phase Three if they know it will not last longer than the current school year.

Future Plans

The final phase of the evaluation will be conducted in the spring of 2007. It will include a new set of classroom observations, a second participant survey, an analysis of online participation levels, and a second round of teacher and administrator interviews. When analyzed in conjunction with the baseline information already collected, the additional data allow us to address five central questions about the project:

1. How successfully does the project support district-wide trainers and lead teachers?
2. To what extent does a learning community emerge?
3. How are teacher professional practices affected by participation in the project?
4. How is students' learning affected by their schools' participation in the project?
5. Can the model be used to support literacy and numeracy professional development across the province?

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