
The Insider: School Librarians as Part of a Blended Professional Learning Community for Student Teacher Development in Technology Integration

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In the last decade, state professional teaching standards and federal mandates have required teachers to enter the field proficient with technology integration skills. Concurrently, the American Association of School Librarians urges collaboration between teachers and school librarians. Based on previous research recommending teacher-school librarian collaboration begin as early as student teaching, this study looks at the contributions of school librarians as members of a blended professional learning community established to mentor student teachers as they prepare for a technology integrated lesson.

Introduction

The American Association of School Librarians (AASL) have revised and published standards and guidelines over many decades with the most recent revisions in 1998 in *Information Power: Building Partnerships for Learning* and again in 2009 with *Empowering Learners: Guidelines for School Media Programs* that addresses the technological advances of the 21st century. Doll (2005) documents the early development of the standards and how the school librarian's role in education has evolved over time. The research of collaboration between school librarians and teachers has created a significant body of literature that examines the role school librarians play in the planning, implementation, and evaluation of the curriculum. (e.g., Buzzeo, 2002; Bush, 2003; Montiel-Overall; 2005; Haycock, 2007; Kimmel, 2012). The constant urge toward collaboration between teachers and school librarians is not unique. For the past 30 years or more as efforts for school reform have evolved, a school change strategy often cited is to create professional learning communities among educators (Barth, 1990). Professional learning communities, as defined by Mitchell and Sackney (2000), are "an active, reflective, collaborative, learning oriented, and growth promoting approach toward the mysteries, problems, and perplexities of teaching and learning (p. 5).

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The purpose of this investigation is to examine the interactions of school librarians within a blended professional learning community to assist pre-service teachers with technology integration while student teaching. These results are a part of a larger study conducted to examine student teachers' technology integration during a capstone technology integration experience guided by a blended professional learning community that includes school librarians, cooperating teachers, peers and university faculty.

Review of Related Literature

School Librarians and Teacher Collaboration

Much of the research in school librarianship is surrounded by the need for school librarians to follow the AASL standards and guidelines (2009). Within the guidelines there is a need for school librarians to collaborate; be an instructional partner; and act as leader. The earliest of the research began with school librarians and teachers working together as a team. Van Duesen's (1996) case study examined school librarians and their consulting role in a team approach to curriculum development. The study was initiated at a time when there was little research in the area of school librarians being a part of this type of collaboration in schools. The results of this study revealed that school librarians play a significant role as an "insider;" being a part of the team contributing significantly to the development of the curriculum. The school librarian was also considered an "outsider" in that she was not a classroom teacher, nor an administrator. "Her regular attendance and participation enabled her to be perceived as an "insider" by the teachers. They accepted her as part of the team. However, she was an "outsider" in that she was not a classroom teacher" (p. 243-244). Van Duesen posits, "This study also offers implications for the pre-service preparation of teachers and school administrators. Both groups need to know more about the work of the library media specialist" (p. 247). This study was among the first to demonstrate the need for school librarians to be a part of pre-service teacher education.

More than a decade later, with the ideal of school librarians and teacher collaboration realized in the professional standards, Montiel-Overall (2008) states, "There is a need to understand what collaboration is before studying its impact on student learning" (p. 145). Qualitative research was conducted to examine the definitions of collaboration that teachers and librarians have. Data was collected through interviews, observations of scheduled collaborative planning sessions, and field notes. Results revealed that the definition of collaboration was consistent between librarians and teachers. Briefly stated, collaboration was defined as "shared thinking, shared planning, and shared creation of something new" (p.150). Using this definition, this investigation explored how school librarians and pre-service teachers might collaborate in a blended professional learning community during student teaching.

The Role of School Librarians in Student Teacher Education

Two more recent research reports explore the potential of school librarian and student teacher collaboration. By initiating library-classroom collaboration early in a teacher's development it is possible that student teachers will embrace the school librarian as an instructional partner throughout their career.

Asselin (2000) states that research shows teachers have little knowledge about information literacy and the “teacher-librarian.” This report is the second year of a project that continues to examine pre-service teachers’ perceptions and knowledge of school library programs and the role of the school librarians. Asselin’s (2000) focus for the second year is information literacy, resource-based learning, and critical thinking. Data including pre- and post- writings were analyzed. The results revealed new insights to the role of the school librarian as a teacher, instructional partner, and information specialist. Asselin (2000) posits, “When new teachers understand the role of the teacher-librarian, it is likely that the amount and quality of collaboration between teachers and teacher-librarians will increase” (p. 85).

Moreillon (2008) based on her strong beliefs of classroom-library collaboration, conducted a study of pre-service teachers to investigate their prior experiences with school and college libraries; what activities influenced their thinking about school library media programs and the instructional role of the school librarian. Data were collected and analyzed through three online surveys and one pencil and paper survey. The results provide positive but varied experiences for the pre-service teachers. “The findings of this case study suggest the interventions offered in this study were positive influences toward classroom-library collaboration” (p. 8).

The research on pre-service teachers’ understanding of the role of school librarians and prior experience with school librarians yields recommendations for initiating school librarian – teacher collaboration during teacher preparation. Too few teacher preparation programs facilitate teacher-librarian collaboration consistently, either by modeling the power of such relationships with in-service teachers and school librarians or by encouraging collaboration between the student teachers and school librarians during initial preparation.

Using a professional learning community to support student teachers in integrating technology during their culminating field experience is not well researched. Professional learning communities as a mentoring/support model has typically been applied and researched with in-service teachers. There is also a large body of literature on challenges for integrating technology in student teacher preparation programs. To frame our research, we examined literature in the following areas: Use of mentoring models for technology integration support and general challenges and strategies for integrating technology in teacher preparation programs.

Use of Mentoring Models for Technology Integration

Research has been conducted with teachers using different mentoring models to monitor the effectiveness of mentors providing technology assistance in the classrooms. The models include a systems based model, one-on-one instruction, and professional development program. While each mentoring model is different, the results were quite similar. The participants saw the value of integrating technology into their classrooms, there was an increased use of technology in instruction, teachers were willing to share their technology skills with their colleagues, and the degree of support for technology use increased.

Kopcha (2008) proposed a systems-based model of technology integration that uses mentoring as the main approach. The model specifies four stages of technology adoption and includes the negotiation of barriers such as time, beliefs, access, and professional development.

The four steps of the model are: (a) initial setup, (b) teacher preparation, (c) curricular reform, and (d) community of practice. The model is recursive. Implementation of the model requires an assessment and evaluation as an integral part of the process. The model is designed to create a community of practice for the participants involved along with a set of long-term and short-term technology integration goals. Using this approach to technology integration creates an environment that is centered on the teachers, and the mentors provide support and modeling that is unique to the teacher's classroom.

Swan & Dixon (2006) provided similar support in their research of mathematic teachers. The study used a mentor-supported model of professional development to study the attitudes and performance of mathematic teachers using technology in their classrooms. The training took place in five one-hour sessions over a three month period. The results yielded an increased desire to use technology, requests for ongoing training, and time to share and collaborate with their colleagues.

Wu & Kao (2008) studied peer assessment using streaming video technology. Thirty-six pre-service teachers responded to questionnaires and evaluated their peers teaching sessions using streaming video. The results found pre-service teachers spent more time in preparing their lessons, they found the use of the streaming video convenient, and peer assessment proved to be a reliable assessment tool. The researchers concluded that this type of assessment could be tailored to meet a variety of training and learning environments.

Franklin, Turner, Kariuki, and Duran (2001) observed a one-on-one mentor teacher relationship to integrate technology in the classroom. The mentors were instructional technology doctoral students and the teachers were from a local elementary school. The mentors modeled the use of technology in the classroom, provided models for teachers to use to integrate technology into their lesson plans, and assisted with technical support of hardware and software. The results showed that one-on-one mentoring helped the teachers to integrate technology in their classrooms. It provided the teachers with a focal point in which to begin future instructional planning using technology. Teachers felt very strongly that the one-on-one mentoring program should continue in the school.

Bullock (2004) describes the experiences of two pre-service teachers as they integrate technology into their instruction based on factors that affect the successful integration of technology. The findings suggest that effective mentoring, clear expectations, access to technology, support, and positive experiences allows the pre-service teachers an opportunity to use technology effectively and regularly in their instruction.

Each of these studies demonstrates the promise of mentoring and communities of practice as a means for supporting teachers in technology integration. The following section highlights the potential challenges.

Challenges and Strategies for Integrating Technology in Pre-Service Teacher Programs

The integration of technology in K-12 classrooms as a part of instruction has been an ongoing topic of research. Hew & Brush (2007) identifies the barriers that affect technology integration and outlines strategies to overcome them. The barriers are: (a) resources, (b) institution, (c) subject culture, (d) attitudes and beliefs, (e) knowledge and skills, and (f) assessment (p. 223). The following strategies were suggested to overcome the barriers: (a) having a shared vision and technology integration plan, (b) overcoming the scarcity of resources, (c) changing attitudes and beliefs, (d) conducting professional development, and (e) reconsidering assessments (Hew & Brush, 2007, p. 223). Additionally the researchers discuss the knowledge gaps related to technology integration and provide suggestions for future research.

In support of a professional community around technology integration, Ertmer (1999) identifies first and second order barriers teachers encounter when using technology in the classroom. The first order barrier is defined as “extrinsic” in which there is a lack of computers and software; insufficient time for planning; and lack of technical and administrative support. The second order barriers are defined as “intrinsic.” This includes the teacher’s beliefs about instruction, computers, established classroom practices, and an unwillingness to change. The conclusions from this research suggest a change in teacher preparation that incorporates ways in which technology can be integrated into teaching and learning.

New teachers are expected to be proficient in technology integration despite the challenges they face as new teachers. Mentorship and communities of practice are researched strategies that have been shown to make a difference in teachers’ technology integration efforts. In addition to cooperating classroom teachers, school librarians may be a valuable resource in the community of practice as suggested by AASL (2009). The purpose of this investigation is to examine the interactions of school librarians within a blended professional learning community (BPLC) to assist pre-service teachers with technology integration while student teaching.

Methodology

At a U.S. mid-western university, student teachers are offered a unique and demonstrably effective online course, Technology Integration Field Experience that is coupled with their student-teaching experience. As part of the online course student teachers are required to prepare, implement and evaluate a technology integrated lesson. These student teachers are engaged in several mentoring relationships creating a professional learning community: peers, classroom cooperating teachers, school librarian, and university faculty. Student teachers are the hub of the professional learning community with university faculty and peers participating online and cooperating teachers and school librarians participating on site.

Four assignments use the ASSURE model, an instructional systems design process: Analyze learners; State standards & objectives; Select strategies, technology, media & materials; Utilize technology, media & materials; Require learner participation; Evaluate & revise (Smaldino, Lowther, & Russell, 2011). The ASSURE model guides the student teachers through their technology integration planning and implementation. The four assignments are:

Assignment 1) Technology Standards, Assignment 2) Technology Integration Lesson Plan, Assignment 3) Mentor Feedback on Technology Integration Lesson, and Assignment 4) Evaluation of Technology Integration Lesson. Each assignment requires the student teachers to participate in a blended professional learning community to seek peer and mentor feedback before submission to the university faculty for feedback. Assignment 3 requires the student teachers to seek guidance and feedback from their cooperating teachers and the school librarian in their clinical setting. And finally, in Assignment 4 the student teacher evaluates and reflects on the technology integration lesson using data collected as part of the implementation and feedback received throughout the assignments from peers and mentors.

The focus was to analyze the findings from an examination of the blended professional learning communities of student teachers during their student-teaching experience and the influence of the blended professional learning community on these student teachers' technology integration practice. Our guiding questions were: 1) What types of feedback are given to the pre-service teachers regarding the integration of technology into their lesson plan from each member of the blended professional learning community (peers, university faculty, classroom cooperating teachers, and school librarians), 2) Based on the feedback received, what revisions or changes to practice are made by the student teacher to the lesson plan prior to implementation, and 3) What revisions or changes to practice are made by the student teachers upon self-reflection for future implementations.

Data Analysis

Using cross-case analyses the mentor relationships in the blended professional learning community of the student teacher were examined (Miles and Huberman, 1994). Data were collected from online discussions and assignments to capture the mentor feedback (peer, university faculty, classroom cooperating teachers, and school librarians), the lesson revisions and student teacher reflections related to the technology integration lesson plan prepared by the student teachers. In this study, 42 student teachers enrolled in two online sections of the course participated in the research. Of the 42 participating student teachers, 14 were identified as representative cases for examination based on feedback provided from all of the mentors in the school setting which included the school librarians. All other cases did not have feedback from a school librarian.

Following the selection steps noted above, data were cataloged according to grade level, content area, and technology selected. For each case, assignments 2, 3, and 4 were reviewed, including the associated feedback and interactions around the assignment from the members of the blended professional learning community including - university faculty, classroom cooperating teacher, school librarian, peer and student self-reflections. The data were organized around each assignment and open coded for type of feedback, outcomes from the interaction, change in practice or revisions the student teacher made to their lesson, the source of those revisions, and other emergent occurrences.

The unit of analysis was the interaction with each member of the blended professional learning community as represented in the online environment and student teacher assignments. Each interaction was coded for the type of feedback or revision. Within a single interaction with a member of the blended professional learning community, there may have been multiple

instances of a single code, but it was only tallied once for the frequency count as represented in the findings below. However, if there were multiple interactions representing the same type of feedback or revisions, those were counted per interaction. For example, Seth, a student teacher placed in a 7th grade classroom elected to create a technology integrated lesson on the Constitution for his social studies students using a web-based game. Feedback from his mentors was coded as follows:

Table 1. Overview of Participants, Data, and Coding

PLC member	Feedback	Code	Frequency
University Faculty	Nice lesson plan. Good alignment of objectives and assessment. Nice find on the game website. Just wondered how the teacher will obtain the score the student receives? Will students self-report?	General	1
		Superficial	1
		General	1
		Reinforcement	1
Classroom Cooperating Teacher	My cooperating teacher thought the lesson was well planned out. It is software that she has used in past years, but the formative and summative assessment used is different then what she used. She really like that I used a combination of the student's class work and homework to create a final grade for the students. However, she had some helpful tips to help create a more successful lesson. She said that it is necessary to have the students sit in the common area next to the computers to give them directions of my expectations for the day. She said that it would be very difficult to give directions to the class once they have a computer sitting in front of them as a distraction. She also said it would be helpful to write the website on the dry erase board. This would prevent the students from forgetting which website that they are expected to navigate to website that they are expected to navigate to.	Extension of Assessment	1
		General	1
		Reinforcement	1
		Corrective-Instructional Strategies	1
		Classroom Management	1
		Extension – Instructional Strategies	1
		Co-Create Media	1
School Librarian	She showed me the area and pointed out the smart board that was located in the classroom next to the lab. This is the area where my cooperating teacher said that I should have the class gather before the lesson. She said that many teachers bring their class laptop and utilize the smart board before and after their prepared lesson for directions and early finishers.	Training in SmartBoard	1
		Extension – Technology	1
		Extension – Instructional Strategie	1
Peer	Your lesson sounds great. I like how you were able to find an interactive activity for something like the Constitution; the kids will probably like this and learn more than just a regular lesson on the topic. You have a good use of technology and this is helpful to me because we also have the Constitution unit coming up in two weeks and this is giving me ideas. The worksheet seems like a good indicator to see if the students understood the 3rd article of the Constitution. Are you gonna use this to teach more of the Constitution if this goes well? Let me know how your lesson goes.	Extension – Referral	1
		General	1
		Reinforcement	1
		Sugestions for Implementation	1
		Suggestions for Assessment	1

Findings

Participant and Case Characteristics

Student teacher participant placements spanned grade levels Kindergarten through eighth grade. On site mentors included classroom cooperating teachers and school librarians. (See Table 2. Case Characteristics). The number of student teachers placed at each grade levels were: four - kindergarten, two - first grade, three - second grade, one - third grade, three - fourth grade, one – sixth grade, one – seventh grade, and one – eighth grade. The technology integrated lesson plans addressed a variety of content areas and employed a wide range of technologies. Content areas included Social Studies, Science, Nutrition, Language Arts and Reading. Technologies were typical of what would be found in many classrooms today.

Table 2. Case Characteristics

Student Teacher	Grade Level	Content Area	Technology
Paula	4	Science— Anatomy	Computer Projector Internet
Karen	6	Language Arts	Smartboard Internet Computers MP3/iPods
Alex	2	Language Arts	Smartboard
Cory	K	Science— Plants	PowerPoint Microsoft Paint Computers Projector
Alice	K	Science— Butterflies	Television/DVD Photographs
Vicky	1-2 split	Science— Geology	Overhead Projector Document Camera Realia
Heather	8	Language Arts— Poetry	Computers Internet
Frannie	3-4 split	Social Studies	PowerPoint
Seth	7	Social Studies— Constitution	Computers Web-based Game
Kara	2	Language Arts— Writing	Computers Microsoft Word
Elizabeth	K	Science Language Arts	Computers Internet Computer Game

Student Teacher	Grade Level	Content Area	Technology
			Photostory
Maura	1	Science	Computers Internet Website ArtPad
Lilly	K	Language Arts	Computers Web-based Game E-books
Melanie	4	Social Studies	SmartBoard

Feedback from the Members of the Professional Learning Community

Feedback from each student teachers' peer, university faculty, classroom cooperating teacher, and school librarian were examined to thematize the types and nature of the feedback and ultimately the revisions or changes in practice based on that feedback.

Peers. Thematized peer feedback for three assignments: ASSURE Instructional Plan, Mentor Evaluation, and ASSURE Implementation and Reflection is summarized in Table 3. Upon review of the frequency of the themes, reinforcement was the most typical type of feedback provided. Peers provided corrective feedback for the instruction and implementation of the integrated lesson plan. In several instances, corrective feedback included the use of technology and general content was noted.

Table 3. Peer Feedback

Category	Instances
Reinforcement—	19
General	
Reinforcement—	11
Specific	
Reinforcement—	1
Assignment Expectations	
Corrective—	6
Content	
Corrective—	5
Editorial	
Corrective—	1
Objectives	
Corrective—	3
Assignment Expectations	
Connection to Own Experience	6
Clarification	7
General Superficial	4
Suggestions for Implementation	7
Suggestions for Instruction	7
Technology Management	1
Technology Uses	5
Suggestions for Assessment	3
Suggestions for Extension	4
Classroom Management	2
Peer Reviewed All Media/Tech	1

Category	Instances
Corrective— Use of Data	1
No Response	3
Misinformation	1

University Faculty. Thematized feedback from university faculty across the three assignments: ASSURE Instructional Plan, Mentor Evaluation, and ASSURE Implementation and Reflection, shows that the most typical type of feedback focused on Corrective Content related to the ASSURE model and Corrective - Editorial. Reinforcement, both general and specific, was also used regularly. Less often extensions, suggestions, and referrals were offered.

Table 4. University Faculty Feedback

Type of Feedback	Instance
Corrective Content – ASSURE	5
Reinforcement— General	25
Reinforcement— Specific	13
Corrective— Editorial	8
Corrective— Objectives	2
Corrective— Evaluation	1
Suggestion of Instructional Strategies	2
Extension	1
Resubmit	2

Classroom Cooperating Teacher (CCT). Each pre-service teacher was assigned the task of seeking feedback from the CCT on the ASSURE Instructional Plan after feedback was received from the University Faculty. Feedback from the CCT as reported by the pre-service teacher shows suggestions for extension of instructional strategies and reinforcement were the most typical types of feedback. Additionally, classroom management and extensions of technology were also offered. There was also an instance when misinformation about the ASSURE model was offered. Also of note is an instance when the student teacher perceived the CCT to take the proposed lesson plan as a personal comment on the CCTs lack of technology integration efforts.

Table 5. Classroom Cooperating Teacher

Type of Feedback	Instances
Extension— Instructional Strategies	6
Reinforcement— General	7
Reinforcement— Specific	5
Classroom Management	3
Extension— Technology	
Corrective— Instructional Strategies	6

Type of Feedback	Instances
Additional Technology Resources Available	1
Co-Planned Lesson	1
Corrective—Assessment	1
Corrective—ASSURE (Misinformation)	1
Corrective—ASSURE (Evaluation)	1

School Librarians. Table 6 presents the feedback student teachers received from school librarians on their ASSURE Instructional Plan. Feedback from school librarians focused on technology management and extension. Of note is that the school librarian also offered opportunities for co-teaching, additional training, and extending the lesson beyond the classroom and into the library and technical labs.

Table 6. School Librarian Feedback

Type of Feedback	Total Instances
Technology Management	3
Corrective	1
Instructional Strategies	
Extension—	4
Instructional Strategies	
Extension—	8
Technology	
Developmentally Appropriate Technology Use	1
Co-teaching	1
Reinforcement – General	6
Reinforcement – Specific	4
Additional Training	1
Corrective—	0
Technology Knowledge	
Additional Resources	2
Curricular Connection Between Lesson and Library	1

Revisions and Changes to Practice and Sources of Influence

Student teachers were asked to implement and reflect upon the ASSURE Instructional Plan they developed. In their reflections they were asked what revisions they would make in future implementations. The types of revisions the student teachers made based on their self-reflection are presented in Table 7. Instructional Strategies and Classroom Management are the most typical types of revisions.

Table 7. Types of Revisions

Types of Revisions	Instances
Instructional Strategies— Differentiation	2
Instructional Strategies— Group Strategies	4
Instructional Strategies— Pre-requisite Technology Skills	1
Instructional Strategies— Lesson Objectives	2
Instructional Strategies— Extension Activities	1
Instructional Strategies— Software Selection	1
Classroom/Technology Management	3
Time Management	3
No Revisions	2

Discussion

The feedback student teachers received from peers, cooperating teachers, school librarians and university faculty shared similarities and differences. All participants in the professional learning community offered *reinforcement* to the pre-service teacher as type of feedback. Peers also consistently provided *corrective* feedback. Unique to the peers was the application of the feedback back onto themselves or their own situations. University faculty also tended to focus on corrective feedback more so than other participants in the professional learning community. CCTs directed focus of their feedback on *extending* the lesson plans/implementations, and uniquely raised issues of *classroom management*. The school librarians also focused extending the lesson/implementation, but they uniquely added value in the areas of technology management and curricular connections between the classroom and the resources and opportunities available in the school library. The student teachers' revisions and changes in practice as a result of this experience focused in the areas of instructional strategies and classroom/technology management.

In sum, our data showed the following trends in supporting student teachers with technology integration by bringing together their peers, university faculty, classroom cooperating teachers, and school librarians in a blended professional learning community. We learned that:

1. University faculty have a limited vantage point to offer consultation in the field from the university classroom. Our data show that university faculty seem to lack specific contextual factors such as knowing the learners and their unique needs, an awareness of the school resources to provide specific feedback.
2. Peers may need more training in participating in a professional learning community in terms of how to offer feedback in constructive and meaningful ways. Peer feedback ranged from superficial to highly critical, in some instances garnering defensive responses. Including peers in a blended professional learning community will require official training on how to give feedback in a proper manner.

3. Classroom Cooperating Teachers have powerful advantages in being situated in the context, knowing the learners, the school resources, and experience as a classroom teacher to offer support for these student teachers. Cooperating Teachers will continue to be the strongest influence for student teachers.
4. School Librarians offer a value added in the blended professional learning community by having the contextual advantages of the Classroom Cooperating Teachers; knowledge of curriculum requirements; and the skills to integrate technology into the curriculum, making them a potentially significant participant in the professional learning community.

These findings support Westheimer's (2008) recommendation that bringing together novice and veteran teachers around a common model of "teacher as learner" creates a strong professional learning community. Data from this study take this one step further, that school librarians can be key contributors to a student teacher's professional learning community. As Van Duesen (1996) posited,

Because library media specialists come to the team from a unique position in the school, their opportunity to play these roles as a member and yet as a nonmember of the team offers the team the benefit of a very knowledgeable "insider" who at the same time is an "outsider" (p. 231).

Directions for Future Research

Findings from the data show that this area of study merits further investigation. This study highlights contributions school librarians make in mentoring student teachers in the area of technology integration. Would we see similar findings in other areas of teacher preparation? By participating in a professional learning community with school librarians, are these future teachers more likely to collaborate with school librarians throughout their careers?

Future research could continue to explore these questions by interviewing the school librarians directly to gain a sense of their feelings about participating in developing student teachers in the area of technology integration and seeking their view of the impact a blended professional learning community has on student teachers. Future studies might also include applying the strategy of creating a blended professional learning community to support student teachers in all areas of their student teaching experience, including specific content areas, classroom management, assessment, addressing learner needs, etc. We also recommend a study that follows up with the student teachers to see if they have established a teacher—school librarian collaboration in their first years of teaching. The strength of this area of study could be enhanced by widening the sample size from this institution and perhaps identifying other education programs that have a similar format which includes school librarians as mentors or part of the student teacher's professional learning community.

References

American Association of School Librarians. (2009). *Empowering learners: Guidelines for school library media programs*. Chicago: American Library Association.

- American Association of School Librarians & Association for Education Communications and Technology (1998). *Information power: Building partnerships for learning*. Chicago American Library Association; Washington, DC: Association for Educational Communications and Technology.
- Asselin, M. (2000). Poised for change: Effects of a teacher education project on preservice teachers' knowledge of the school library program and the role of the teacher-librarian. *School Libraries Worldwide*, 6(2), 72-87.
- Bullock, D. (2004). Moving from theory to practice: An examination of the factors that preservice teachers encounter as the attempt to gain experience teaching with technology during field placement experiences. *Journal of Technology and Teacher Education*, 12(2), 211-237.
- Bush, G. (2003). *The school buddy system: The practice of collaboration*. Chicago, IL: American Library Association.
- Buzzeo, T. (2002). *Collaborating to meet standards: Teacher/librarian partnerships for K-6*. Worthington, OH: Linworth.
- Doll, C. A. (2005). *Collaboration and the school library media specialist*. Lanham, MD: The Scarecrow Press, Inc.
- Ertmer, P. A. (1999). Addressing first- and second-order barrier to change: Strategies for technology integration. *ETR&D*, 47(4), 47-61.
- Franklin, T., Turner, S., Kariuki, M., & Duran, M. (2001). Mentoring overcomes barriers to technology integration. *Journal of Computing in Teacher Education*, 18(2), 26-31.
- Haycock, K. (2007). Collaboration: Critical success factors for student learning. *School Libraries Worldwide*, 13(1), 25-35.
- Haycock, K. (1996). Research in teacher-librarianship and the institutionalization of change. In L.A. Clyde (Ed.), *Sustaining the vision: A collection of articles and papers on research in school librarianship* (pp. 13-23). San Jose, CA: Hi Willow Research.
- Hew, K. F., & Brush, T. (2007). Integrating technology into K-12 teaching and learning: Current knowledge gaps and recommendations for future research. *Educational Technology Research and Development*, 55(3), 223-252.
- Kimmel, S. C. (2012). Seeing clouds: Teacher librarian as broker in collaborative planning with teachers. *School Libraries Worldwide*, 18(1), 87-96.
- Kopcha, T. J. (2010). A systems-based approach to technology integration using mentoring and communities of practice. *Educational Technology Research and Development*, 58(2), 175-190.
- Miles, M. B. & Huberman, A. M. (1994). *Qualitative data analysis: An expanded sourcebook*, 2nd ed. Thousand Oaks, CA: Sage Publications.
- Mitchell, C., & Sackney, L. (2000). *Profound improvement: Building capacity for learning communities*. Lisse, The Netherlands: Swets and Zeitlinger.
- Montiel-Overall, P. (2005). A theoretical understanding of teacher and librarian collaboration (TLC). *School Libraries Worldwide*, 11(2), 24-48.
- Montiel-Overall, P. (2008). Teacher and librarian collaboration: A qualitative study. *Library & Science Research*, 30, 145-155. doi: 10-1016/j.lisr.2007.06.008.
- Moreillon, J. (2008). Two heads are better than one: Influencing pre-service teachers understanding and practice of classroom-library collaboration. *School Library Media Research*, 11(8).
- Smaldino, S. E., Lowther, D. L., & Russell, J. D. (2011). *Instructional technology and media for learning*, 10th ed. Upper Saddle River, NJ: Pearson/Merrill Prentice Hall.
- Swan, B., & Dixon, J. (2006). The effects of mentor-supported technology professional development on middle school mathematics teachers' attitudes and practice. *Contemporary Issues in Technology and Teacher Education*, 6(1), 67-86.
- Van Deusen, J. D. (1996). The school library media specialist as a member of the teaching team: "Insider" and "outsider." *Journal of Curriculum and Supervision*, 11(3), 249-258.

- Westheimer, J. (2008). Learning among colleagues: Teacher community and the shared enterprise of education. In, M. Cochran-Smith, S. Feiman-Nemser, D. J. McIntyre, & K. E. Demers (eds.), *Handbook of research on teacher education, Third Edition*. New York: Routledge and Association of Teacher Educators.
- Wu, C.C., & Kao, H.C. (2008). Streaming videos in peer assessment to support training pre-service teachers. *Educational Technology & Society*, 11(1), 45-55.

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