

FINAL NARRATIVE REPORT

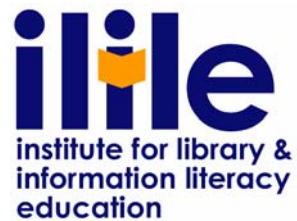
National Research Grant

Preparing pre-service teachers to use library and information resources to enhance teaching: Studying the collaboration between an education faculty member and school library media specialist

Niagara University

Karen M. Dutt-Doner, Ph.D.

February 2004-December 2004



**Institute for Library and Information Literacy Education (ILILE)
Kent State University**

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**PROFESSIONAL DEVELOPMENT GRANT – FINAL NARRATIVE REPORT
 February 2004-December 2004**

**Preparing pre-service teachers to use library and information resources to enhance teaching: Studying the
 collaboration between an education faculty member and school library media specialist**

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BUDGET REPORT:

Date	Budget Item	Amount	Total submitted to ILILE
	Submitted to ILILE		
	Project Total:	\$4999.86	

EVALUATION COMPOSITE

Provide the Total Number of Participants involved in the project:

- ~2961 Students – specify grade level or academic level:
 - Undergraduate pre-service teacher candidates (n=23)
 - Graduate pre-service teacher candidates (n=118)
 - Students in Teaching Assistantship Classrooms (K-6) benefited indirectly from pre-service candidate teaching - but were not participants in data collection (n=~2820)

- 2 Teachers/Faculty – specify grade level, content area and/or academic discipline:
 - Graduate Teacher Education Faculty (n=2)

- ~51 School Library Media Specialists
 - Director of Libraries and Academic Technologies worked directly with the students during the semesters for information literacy workshops (n=1)
 - Each pre-service candidate worked with the School Library Media Specialist from Teaching Assistantship Site – but were not participants in data collection (n=~50)

- 0 Administrators
- 0 Support Staff
- 0 Other (specify) _____

NARRATIVE REPORT

Description of Program

A faculty member in Niagara University's Department of Education and Nichols School Director of Libraries and Academic Technologies studied the efficacy of a collaboratively delivered teacher education curriculum that integrates experiential based knowledge-building aimed at increasing pre-service teachers' library and information technology skills in order to transform pedagogy. This action research project was ultimately aimed at answering the following research questions: How does modeling the collaboration between an education faculty member and school library media specialist impact pre-service teachers' own practice? How does embedding systematic instruction on information literacy into teacher education curriculum and applied classroom experience impact pre-service teachers' own practice? How do pre-service teachers perceive the importance of information literacy in preparation to teach before and after their experience during the semesters? How do pre-service teachers perceive their knowledge about information literacy in preparation to teach before and after their experiences during the semesters?

The nature of this study employed an action research design to examine a curriculum model for effectively modeling and supporting the collaboration between classroom teachers and library media specialists. In order to increase the validity of the data, the researchers used a multi-layered data collection methodology. Data collection included: participants' completion of questionnaires at various points in the program to examine changes over time, interviews and observations of randomly chosen participants to get more in-depth data about how knowledge has translated into practice, and collection of teaching artifacts which incorporate skills of information literacy and/or collaboration with a school library media specialist.

Findings indicate that providing pre-service candidates with knowledge related to information literacy and its importance, information literacy skill development, modeling of collaboration between faculty members and school library media specialists, and expectations of field based application contribute to the development of information literate teachers. Moreover, pre-service candidates' attitudes and beliefs about the importance of becoming information literate are enhanced by these experiences. Only time will tell if these experiences impact their practice long term or if these findings are limited to candidates' experiences while in this teacher education program.

Purpose of the Program

Teachers no longer work in isolation, but need the support and guidance of many other educational professionals including the school library media specialist. They need to have the knowledge and experiences in order to function in this collaborative capacity. In our collaborative work with pre-service teachers we realized that they had limited training in using technology to transform their practice, limited exposure in information literacy skills for themselves or their students, and no knowledge about working with the school library media specialist. Dr. Dutt-Doner and Ms. Allen both felt that these were major oversights in the preparation of teachers.

Consequently, we began to introduce the role of the school library media specialist into their preparation, working with them on technology integration and information literacy skills. Throughout this introduction we discussed, modeled and assigned collaborative work with a library media specialist. The goal, of course, was to provide expectations and experiences of successful collaboration even before the pre-service teacher enters the school so that this would become an integral part of their everyday practice. This study provided us with the opportunity to test our model through a structured research plan. Data allows us to make research-based recommendations to other educators about the efficacy of this model of teacher preparation.

Goals and Objectives

This action research project was aimed at answering the following research questions:

- How does modeling the collaboration between an education faculty member and school library media specialist impact pre-service teachers' own practice?
- How does embedding systematic instruction on information literacy into teacher education curriculum and applied classroom experience impact pre-service teachers' own practice?
- How do pre-service teachers perceive the importance of information literacy in preparation to teach? Before and after their experience during the semesters?
- How do pre-service teachers perceive their knowledge about information literacy in preparation to teach? Before and after their experiences during the semesters?

This research project is aligned with several of the Institute for Library and Information Literacy Education (ILILE) goals. In teacher education, a combined course-based knowledge development approach and classroom-based application approach seems the most effective way to actually impact the practice of pre-service teachers in the classroom. This project was aimed at impacting their classroom practice as well as developing pre-service teachers' knowledge about school libraries and information literacy. Primarily, this research was focused on better understanding how integration of school library awareness and information literacy instruction into pre-service

teacher education curriculum impacts the instruction and practice of those teachers. The assignments given to the Pre-service teachers were given assignments regarding the use of internet resources, technology information and integration models along with an opportunity to work with databases found within the library media center of a school. These assignments **integrate library awareness and information literacy instruction into the pre-service teacher education curricula**. In addition, this study was aimed at better understanding how a collaborative and integrative approach to teacher preparation impacts how pre-service teachers use the library and information resources. By modeling the work of the library media specialist in the pre-service classroom, collaborating with them on a Library of Congress / Canadian history lesson plan, and requiring them to work with a library media specialist in the practicum and student teaching experiences, pre-service teachers are given many direct opportunities to become **more effective library and information resource users**. And, finally, this project **demonstrates a model for effective collaboration between a school and college of education** that will be examined.

Activities/Methods

Niagara University is an NCATE accredited institution that prepares both graduate and undergraduate students to become elementary teachers. In the undergraduate program, students simultaneously complete their liberal arts degree and New York State certification requirements in a four- year program. In the one-year graduate program, students have already completed a liberal arts degree and complete certification requirements to teach in New York State and/or the provinces of Ontario. The core education curriculum for each program is similar providing nine courses including: multicultural education, human development, special needs, foundations of education, reading methods, language arts methods, general methods, methods of math, science and social studies, student teaching, and a student teaching seminar. Because the graduate certification program culminates in a master's degree, students are required to take an additional research course and measurement and evaluation course. During these courses, students are taught methods for research, including the use of library resources.

Undergraduates are taught these skills during their academic major courses. Because of the compact nature of these programs, additional content that prepares them for the complex nature of elementary classroom teaching must be infused into this curriculum including preparation for: the integration of technology into the curriculum, the action research skills, development of information literacy instruction, and the integration of arts in the curriculum.

This research was focused on pre-service teachers during the pre-student teaching semester and their subsequent student teaching semester. During the pre-student teaching semester, pre-service teachers completed 75 hours of a school-based practicum (grades K-6) focused on developing teaching skills. Student teachers each completed two full-time, seven-week school-based placements (grades K-6). During the first semester in the program, pre-service teachers are taught how to use the library and other information resources for the purposes of research. For undergraduates this experience occurred in courses related to their major and for graduate students, this occurred during their applied research course in the first semester of the program.

In an effort to increase the knowledge of pre-service teachers about information literacy and to better understand the ways to collaborate with library media specialists to enhance instruction, the instructor teaching the math, science and social studies methods course (EDU 529) during the pre-student teaching semester (Karen Dutt-Doner) collaborated with a library media specialist from a local school (Susan Allen). During this semester, along with coursework, students completed 75-hour practicum placements in two local elementary classrooms. In this collaboration, the team modeled collaboration between a classroom teacher and library media specialist during class sessions. In addition, the library media specialist worked closely with pre-service teachers helping them more effectively integrate library and information literacy resources into their classroom teaching. This was done through a series of three workshops during the semester focused specifically on using the Library of Congress (www.loc.gov) website for teaching with digitized primary source documents, utilizing information resources to enhance instruction, better understanding the role of a school library and library media specialist, and the integration of technological resources into learning experiences. Two of these workshops took place at a local school library and computer lab. As a result of the primary document experience, pre-service teachers were required to incorporate the Library of Congress into a primary source document teaching experience for their practicum classroom. This was intended to provide pre-service teachers with an opportunity to apply information literacy knowledge to their preparation for a teacher experience. In addition, pre-service teachers were required to collaborate with the school library media specialist from their practicum school in developing a math manipulative and science lesson plan which incorporated children's literature. These experiences were intended to provide pre-service teachers with an opportunity to closely work with a library media specialist in developing appropriate and effective lessons. Finally, pre-service teachers were required to incorporate appropriate technology into the instruction for one these lessons.

Research Outcomes

Methods of Inquiry

This study employed an action research design; that is, the researchers were also the instructors for the pre-service teacher candidates and were posing research questions aimed at improving their own instructional practice.

In addition, this research examined a curriculum model for more effectively modeling and supporting the collaboration between classroom teachers and library media specialists.

In any action research design model researcher bias must be addressed. To ensure the validity of data, an outside researcher (not part of the teaching team) collected data. Because part of this research included pre-service teachers' self-reports of their attitudes, experiences, and practices, a concern for validity exists. In order to ensure the validity of the data, the researchers used a multi-layered data collection methodology so that data could be triangulated. By employing an action research model, data collected can be applied to other educational settings and embedded in the existing literature.

Data Sources.

Participants for this study included pre-service teachers during their pre-student teaching semester in both undergraduate (n=23) and graduate elementary programs (n=118) at a private liberal arts college in western New York across two semesters (Spring 2004, Fall 2004). During the pre-student teaching semester, pre-service teachers completed 75 hours of school-based practicum (grades K-6) focused on developing teaching skills. Some participants from the Fall 2004 semester of this study also volunteered to participate during their student teaching semester (n=4).

Research Procedure.

A multi-layered data-collection approach was used in order to answer the stated research questions, so that multiple data sources could support findings.

Questionnaire Data. Questionnaires were given to all elementary pre-service teachers at the beginning of their pre-student teaching semester, at the end of their pre-student teaching semester, and at the end of their student teaching semester. Data from these questionnaires were used to determine the breadth of individuals' information literacy skills, their attitudes and beliefs regarding information literacy for enhancing classroom instruction, and their incorporation of information literacy into their teaching at different points in the program. To increase the response rate, questionnaires were distributed in class by an outside researcher eliminating any instructor influence on responses. Respondents remained anonymous, but a blind coding system was used so that individual pre-service teachers could be identified for follow-up interviews.

Teaching artifacts. On the last day of class during the pre-student teaching semester, students were asked to provide artifacts that demonstrated their use of library and information resources to enhance their teaching during their 75-hour practicum. These lesson plans provided us with another set of data that would provide evidence of integration of information literacy knowledge into their teaching experiences. In addition, the four student teacher participants will provide lesson plans that they developed with the help of a library media specialist in their school on the final day of seminar. These data will be analyzed upon receipt, but were not available for inclusion in this final report.

Instruments. The questionnaire designed to measure self-reported use of technology included Likert Scale responses as well as open-ended questions to get a breadth and depth of responses. The items on the questionnaire assessed respondents' information literacy skills and knowledge as well as use and integration of information literacy into classroom practice. The open-ended questions provided the respondents an opportunity to provide depth of experiences that could not be predetermined by the researcher. The questionnaire was developed using the latest indicators from national performance standards related to information literacy (Middle States Commission on Higher Education, 2003; ISTE, 2002; Ryan & Capra, 2001). Items on the questionnaire included attitudes towards the importance of preparing students with information literacy skills, abilities to use library resources, abilities to use technology as an information resource, teaching and communication tool, experiences in collaborating with library media specialists, and experiences in teaching information literacy.

Student Teacher Interviews. On the final day of seminar, student teachers will be interviewed to gain a deeper understanding of the impact of their experience in working with a library media specialist in developing and executing a lesson. The following questions will guide the interview: Why did you choose to participate in this part of the study? Tell us a little about your experience in developing the lesson plan and working with the library media specialist. How did this help you become a better teacher? What problems did you encounter? How did the lesson plan change when you worked with the library media specialist? Would you ask for the help of the library media specialist again? Why or why not? The interviews will be transcribed and analyzed for themes that emerge. This data is not available for inclusion in this final report.

Analysis.

Since a primary goal of this research was to understand participants' perspectives from a variety of experiences and background, and in order to triangulate findings, a combination of survey research and qualitative research was utilized. This was an attempt to bridge the domains of normative and interpretive knowledge.

Likert scale responses as well as open-ended response items were used to gather data on the questionnaire. Responses on Likert scaled questions were used to provide a better understanding of pre-service and in-service teachers' knowledge, confidence and attitude concerning their preparation to effectively use the library and information resources. For each of the variables identified on the student questionnaire, descriptive statistics were calculated. The study was limited to perceptions of growth, rather than measured growth in information literacy,

which could control for bias and provide greater reliability. As this instrument is only now being tested, reliability has yet to be determined.

Qualitative data transcriptions of open-ended responses, interviews, and observation notes were analyzed using emergent theme analysis, to gather multiple perspectives and to help answer questions with grounded theory whereby new knowledge is "inductively derived from the study of the phenomenon it represents" (Strauss & Corbin, 1990, p. 23). The goal was to gather more in-depth, descriptive data in order to gain an understanding of the pre-service teachers' experience and their deeply held convictions about curriculum and pedagogy in such a way as to contribute to the design and implementation of information literacy enhanced instruction. Teaching artifacts volunteered by participants were also analyzed in this fashion to triangulate findings.

Results.

First semester. Data from the questionnaires indicate pre-service teacher growth in each information literacy skills area from the beginning of the program until the semester prior to student teaching. A comparison of mean scores for each question showed that participants did perceive improvement in their competency levels. T-tests conducted on the means of each question yielded significant findings for all but two questions; all others yielded a significance of less than .001. Effect size calculations conservatively showed for all but two questions, a growth of between .43 and 1.53 standard deviations with moderate to high Pearson scores. The outlier, however, again came in the area of the students' ability to acquire and assess information through the use of technology, the results of which did not show significant growth. These data indicate that pre-service candidates are becoming more information literate; getting the skills they need using the "instructional outreach model" (Johnson, McCord & Walter, 2003), but analysis of qualitative responses on the questionnaire indicate that practice in their classroom teaching is not changing; their pedagogy is not transformed by learning these new skills. In addition, self reported questionnaire data indicate that pre-service candidates are learning their information literacy skills from a variety of sources including in-class workshops/curriculum and in some cases, on their own. In addition, analysis of teaching artifacts including reflections on their teaching indicated that:

- Pre-service candidates incorporated technology into their lesson plans, but observations of their teaching indicate that they often did not use it when teaching
- Technology and information literacy are viewed by students as additions to their "regular" teaching, rather than being incorporated into their teaching.

Second semester. Pretest surveys were distributed to 142 students in 4 sections of a graduate elementary cohort. Of the 142 surveys distributed 31 (18%) were returned. Of the 31 respondents 21 were female, 3 were male and 3 were unidentified. The mean age of respondents was 26.67. The post-test group was comprised of 74 students in 2 sections of a graduate elementary cohort. Of this group, 49 surveys (66.22%) were returned. The mean age was 28.25 and the group included 31 females, 9 males and 9 unidentified participants. Twenty-eight questions using a five point Likert scale were posed and the mean scores for each calculated. The data have been summarized using Remark Scanning Software and Statistical Package, and imported into SPSS, and MS Excel for further analysis. A comparison of the means of the pretest and post-test was made using single and double tailed T-Tests for independent samples with unequal variance yielding significant results $p < .001$ and effect sizes ($ES > 0.6$) in all cases but the questions referring to copyright and plagiarism. In this case students reported that they had knowledge of this prior to the course of instruction. In all, there appears to have been significant growth over the course of the semester with respect to the student's understanding and application of information literacy skills. Analysis of teaching artifacts indicates that pre-service candidates provided more detailed descriptions of technology integration and connections to national standards (e.g. NETS for Teachers and Students). Improving from the first semester, pre-service candidates actually integrated the technology into their teaching when executing the lessons. In addition, observation and artifacts data indicate that graduate candidates were more likely to integrate technology as a supplemental activity (e.g. homework, practice, learning center) rather than actually utilizing during instruction. Undergraduate students on the other hand demonstrate more transformation of their pedagogy by incorporating technology right into student learning during the lesson. Upon reflecting on their teaching, graduate students indicated that they did not feel "technologically competent" enough despite the workshop training provided to actually "take a leap of faith" by teaching with the technology. They indicated concerns that "something might go wrong" that they would not be able to handle during the lesson.

Importance of study

Findings from this study add to the recent knowledge base regarding best practice of preparing teachers to be effective library and information resource users. Findings support those of Johnson, McCord & Walter (2003) that indicate the effectiveness of using a collaborative model for infusing information literacy into teacher preparation curriculum. Teacher education faculty, classroom teachers and library media specialists must all play a role in infusing information literacy into teacher preparation. In addition, findings from this study indicate that simply teaching pre-service teachers information literacy skills will not ensure transference into practice. Structured and supervised classroom experiences must embed opportunities for pre-service teachers to incorporate information literacy into their teaching. While pre-service teachers were expected to do this in our study, findings indicate that

more structured opportunities are needed to impact practice. Opportunities for collaboration with library media specialists by pre-service teachers must be supported and expected, so that they can begin to understand the important role the library media specialist can play in improving instruction.

Other Results

While we were not intending to find differences between undergraduate and graduate pre-service teacher candidates, it was apparent from our experience and data that undergraduate pre-service teachers were more focused on pedagogical application of technology integration than graduate students. During workshop sessions, graduate students seem to have much more difficulty navigating through the technology; often not able to problem solve when technological problems arose. Undergraduates' technological skills allowed them to easily "get through" technological problems and focus on the teaching aspect of technology integration.

After the first semester of implementation we were concerned that data indicated pre-service candidates were integrating technology in lesson plans, but not in execution. As a result, during the second semester of implementation, we required pre-service candidates to provide more detailed descriptions of technology integration into lesson plans and connect them to the National Education Technology Standards (NETS) for Teachers and for Students. Findings from this modification are presented above in the Research Outcomes section of this report.

Anecdotal Information

While findings from this study indicate that pre-service candidates' information literacy skills are developing across the program, integrating these skills into pedagogy has proven much more difficult. If pre-service candidates are learning these skills during the program, do they have enough time to "practice" in order to make their teaching more information literate before they are in classrooms of their own? In addition, there seems to be a disconnect between what pre-service candidates know is good teaching and what they actually practice. When pre-service candidates are required to teach with technology, they will. But, when they have a choice about methodology, they often don't incorporate information literacy in their lessons. It has become apparent that "training" teachers to integrate information literacy requires a great deal of practice and expectation during their teacher education program. As a result, teacher education programs must infuse systematic information literacy instruction and application in classroom settings across all courses, not just a select few.

Being able to use findings from the first semester of the program to make modifications for the second semester was very helpful in refining both curriculum and requirements to better integrate information literacy into our teacher education curriculum. It would have been helpful to be able to communicate with other grant recipients during the process of data collection and analysis to share findings and discuss possible alternatives.

Appendices