Efficacy of the Student Teaching Triad on Student Teacher Technology Use

By

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University of Nebraska, 2004

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The purpose of this survey study was to examine the impact that the student teachers' perception of the cooperating teachers' and the college supervisors' technology facilitation have upon the student teachers' self-reported use of technology. Four aspects of the student teachers' perception of the cooperating teachers' and college supervisors' technology facilitation were studied: (a) technology comfort level, (b) technology expectations, (c) technology knowledge and skills, and (d) technology mentoring. The population for the study included all students enrolled in the student teaching semester at two mid-western post-secondary teacher education institutions. Ninety-two percent of the student teachers completed the survey (N = 127).

Demographic findings from the survey suggest no significant differences ($p > .05$) on the basis of gender, post-secondary institutional affiliation, or cooperating school size. Significant differences were noted among the student teachers between 19 and 23 years old, and those 34 or over on their perception of cooperating teachers' technology knowledge and skills, $p = .035$. Additionally student teachers between the ages of 34 or over differed significantly from student teachers 19-23, and 29-33 years of age on their

perceptions of the cooperating teachers' technology mentoring, $p = .020$. Significant differences were also noted between secondary endorsements and (a) elementary, and (b) K-12 endorsements on student teacher technology use, $p < .005$.

Student teachers were asked to identify how many hours per week they spent using technology. Overall, student teachers reported using technology for 4.8 hours in the classroom ($SD = 4$), 6.4 hours for classroom preparation ($SD = 2.9$), 2.8 hours for professional development ($SD = 2.5$).

True stepwise multiple regression was used to analyze the four aspects of student teacher perceptions of their cooperating teacher and college supervisor. These variables suggest that a model including the student teachers' perception of the college supervisors' technology comfort level (CSC) and the cooperating teachers' technology expectations (CTE) accounted for 22.7% of the variance in student teacher technology use scores, $F(2, 116) = 18.36$, $p < .005$. These findings suggest that the student teaching triad does influence student teachers' use of technology.

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Chapter I

INTRODUCTION

Nationally we understand the significant impact that technology can have upon the classroom (CEO Forum on Education & Technology, 2001). Post-secondary institutions in their attempt to prepare pre-service teachers to become effective users of technology developed programs of study that incorporate technology courses and experiences. Experience tells us that we need to also place pre-service students with technology using educators or provide them with campus-based technology mentoring during their field experiences so students are able to make the theory to practice transfer of their technology skills (Grove & Strudler, 2003; Moursund & Bielefeldt, 1999). To date, however, we have not fully examined the degree to which field experience supervisors and cooperating teachers impact the use of technology by our pre-service teachers.

Context of Study

National accrediting agencies have developed standards for technology education for both K-12 students and their educators (International Society for Technology Education, 2000; National Council for the Accreditation of Teacher Education [NCATE], 2000). While within the field of education teacher education programs acknowledge these standards and continue to press toward integration of technology in the classroom, the actual incorporation of technology in the classroom is negligible (Springer, 2000).

One theory explaining low technology adoption is focused around the concept that technology pedagogy is not being effectively incorporated within teacher preparation. In response, teacher education programs have created a myriad of

educational technology integration models for creating, sustaining and assessing technology. These models, however, tend to focus on preparation of the teacher education students prior to the capstone student teaching experience. Teacher education programs faced with the overwhelming proposition of attempting to understand the diverse cooperating school situations that occur during student teaching have generally attempted to achieve educational technology goals prior to the student teaching period. Current practice regarding the preparation of student teachers to use technology in the classroom tends to leave technology requirements out of student teaching requirements (United States Department of Education, 2000a). While these teacher education institutions may in fact be achieving their standards, they may be falling short of moving the theoretical foundation of educational technology into the area of practice seen during the student teaching semester. Certainly this lack of technology application during the student teaching experience has been noted in prior research (Springer, 2000).

When focusing on the student teaching experience, several factors might limit the incorporation of technology into the Pre K-12 classroom. Lack of time during the student teaching experience (Zelazek, Williams, McAdams, & Palmer, 1998), the lack of technology resources and support (Fox, Thompson & Chan, 1996), and the preparation prior to the student teaching experience (Carlson & Gooden, 1999; Davidson, Burr & Eberlein, 2000; Halpin, 1999; Perkins, 1992) have all been cited as contributing to the lack of technology incorporation during the student teaching experience. While acknowledging the contribution of these factors, there remains a general lack of research regarding directions teacher education institutions can pursue without interfering in the administration and instruction in the Pre K-12 schools which host their student teachers.

However, the student teachers' perception of the technology expectations imposed upon them during their student teaching assignment is one avenue that warrants exploration.

Purpose of Study

Several factors have been associated with the frequency and type of technology use in the classroom. This research builds upon the work of Veal and Rikard (1998), who determined that the relationships that develop during student teaching between the student teacher, cooperating teacher and college supervisor have a great deal of influence upon the actions of the student teacher. Taking into account the unique relationships that exist during student teaching, and the fact that frequently post-secondary institutions are being asked to place student teachers with technology-using teachers, this study will attempt to delineate to what degree the attributes of the student teaching triad influence the student teachers' use of technology.

The purpose of this survey study was to examine the relationship that (a) the student teacher's perception of the cooperating teacher technology facilitation and (b) the student teacher's perception of the college supervisors technology facilitation have upon the student teachers self-reported use of technology.

Research Question

What is the relationship between the attributes of the student teachers' perception of the cooperating teachers' and college supervisors' technology facilitation and student teachers' self-reported use of technology?

Definition of Terms

The following definitions are provided to ensure uniformity and understanding of these terms throughout the survey study.

Call backs. Call backs are meetings hosted by a post-secondary institution for current student teachers. These meetings focus on issues specific to student teaching such as institutional requirements, certification processes, job application procedures, education ethics, etc.

College supervisor. A college supervisor is a representative of the post-secondary institutions who frequently serves in the capacity of a faculty member, who visits, consults with, and evaluates the progress of a student teacher during the student teaching field experience in the cooperating school (Peru State College, 2001). This person may also be referred to in literature as a field supervisor.

Cooperating school. A cooperating school is a fully accredited public or private school that works jointly with the post-secondary institution to direct the teaching activities of the student teacher (Peru State College, 2001). Within the context of this study, cooperating school and Pre K-12 school are synonymous.

Cooperating teacher. A cooperating teacher is a fully qualified, state certified teacher in a public or private school who guides the development of, and assists with the supervision and evaluation of a student teacher (Peru State College, 2001).

Field experience. Field experiences are a period of directed teaching experience under the guidance of a cooperating teacher (Peru State College, 2001).

In-service teacher. An in-service teacher is a fully credentialed teacher who is currently responsible for students within a public or private classroom.

Instructional technology. Instructional technology is the theory and practice of design, development, utilization, management, and evaluation of processes and resources for learning (Seels & Richey, 1994).

Pre K-12 students. Pre K-12 students are the students who are currently enrolled in a preschool, elementary, middle, or high school setting within a classroom where the student teacher has been placed

Student teacher. A student teacher is a student who under the guidance of a fully accredited teacher education institution who has been assigned to a cooperating school by the administration of the teacher education institution to acquire practical teaching experience during a specific period of time, under the direction of one or more cooperating teachers and college supervisor (Peru State College, 2001). Within the context of this study, student teacher and pre-service teacher education student are synonymous.

Student teaching. Student teaching is a period of directed teaching experience under the guidance of a cooperating teacher and a college supervisor (Peru State College, 2001).

Student teaching triad. The student teaching triad consists of the relationship that develops among the student teacher, cooperating teacher and college supervisor within the student teaching experience.

Technology. For the purpose of this study, technology will be defined as the use of a distance learning facility, personal digital assistant, computer hardware and software as well as computer related peripherals or graphing calculators.

Assumptions of Study

Within this study, four assumptions were made.

1. As administration of the survey occurred at the student teacher call backs at accredited teacher education institutions, all participants were actively student teaching in

at least one Nebraska teacher certification area. Within Nebraska, student teachers pursuing one endorsement area are required to student teach for a minimum of one full semester. Student teachers pursuing more than one endorsement area are required to student teach for fewer weeks based upon the type of endorsement (field or subject).

2. Since state student teacher placement requirements include placement of student teachers with cooperating teachers who hold a current teaching certificate (Nebraska Department of Education, 2001), all student teachers participating in the study were student teaching under the supervision of a certified teacher.

3. Since state student teacher placement requirements include placement of student teachers with college supervisors who have at least three years of teaching experience and hold a minimum of a masters degree (Nebraska Department of Education, 2001), student teachers who participated in this study were student teaching under the supervision of a qualified college supervisor.

4. Student teachers responded to the survey truthfully and accurately and were not influenced by research, cooperating teachers or college supervisors as they answered the survey.

5. Student teachers can make accurate assessments of college supervisor and cooperating teachers technology facilitation.

Delimitations of Study

In order to assure manageability of the collected data, survey instruments used only multiple-choice questions, and did not include open-ended response items.

Limitations of Study

Within this study, the following limitations are anticipated.

1. As the population for this survey was limited to two small mid-western post-secondary teacher preparation institutions, results from the study are not generalizable to other types of institutions or student teachers from other states.

2. As the population for this survey was limited to student teachers pursuing teaching endorsements from Nebraska, findings may not generalize to student teachers pursuing endorsement areas not offered through the Nebraska Department of Education or not offered by any of the participating post-secondary institutions. One such example of the former would be endorsements in Computer Science. Computer Science currently is an added endorsement area in Nebraska and does not require pre-service teachers to student teach in the area of Computer Science. One example of the later would be Agricultural Education, which is an endorsement in Nebraska, but is not offered at any of the participating institutions.

3. It was assumed that during this study, the participant's ethnicity did not significantly affect their perception. Student teachers identified their ethnic origin for the purpose of defining the survey sample, however, ethnicity was not included as one of the factors for multiple regression purposes due to limited numbers of minority participants.

Significance of Study

The researcher has identified several specific target audiences that could benefit from this survey study: post-secondary teacher education institutions, student teachers, Pre K-12 cooperating schools, Pre K-12 cooperating teachers, Pre K-12 technology support personnel, and college supervisors.

Post-secondary Teacher Education Institutions

Post-secondary teacher education institutions are continually striving to improve their programs. Within these programs, field experiences play a large role in helping students to make the transfer of theory learned in their coursework to practice in the classroom. As such, post-secondary teacher education institutions strive to understand the relationships that exist within these field experiences and the impact they may have upon their program mission. Within the context of this study, post-secondary institutions will be able to better understand the following:

1. Student teaching triad relationships that exist during student teaching and the impact these relationships have on the student teachers use of technology.
2. Frequency of technology use in the classroom by student teachers.
3. Student teachers' perceptions regarding cooperating teacher technology use.
4. Student teachers' perceptions regarding college supervisor technology use.
5. Information, which might inform future technology policy development.

Student Teachers

The student teaching setting can frequently be both exciting and stressful for the student teacher. This study helps student teachers to define their roles within the student teaching triad and the efficacy of that triad on student teacher technology use.

1. A better understanding of the student teaching triad relationships that exist during student teaching and the impact these relationships have on the student teachers use of technology.
2. A better understanding of the frequency of technology use in the classroom by student teachers.

Pre K-12 Cooperating Schools

Pre K-12 cooperating schools host student teachers during their student teaching assignment. While a significant amount of study has occurred regarding the use of technology by Pre K-12 in-service teachers, cooperating schools need to be invested in understanding the mentoring role that cooperating teachers within the student teaching triad and the impact this role may have on the development of future technology-using teachers.

1. A better understanding of the student teaching triad relationships that exist during student teaching and the impact these relationships have on the student teachers use of technology.

2. A better understanding of the frequency of technology use in the classroom by student teachers.

Pre K-12 Cooperating Teachers

When the Director of Field Experiences makes arrangements with a cooperating school to place a student teacher, they frequently seek out cooperating teachers who work well with student teachers. Many aspects of the relationship between the cooperating teacher and student teacher have been studied, however, less is known about how this relationship impacts technology. Cooperating teachers are better equipped to work with student teachers if they have an understanding of the relationship that exists between them and the student teacher and how that relationship impacts every aspect of the student teaching assignment, including technology.

1. A better understanding of the student teaching triad relationships that exist during student teaching and the impact these relationships have on the student teachers use of technology.

2. A better understanding of student teachers' perceptions regarding cooperating teacher technology use.

3. A better understanding of the frequency of technology use in the classroom by student teachers.

Pre K-12 Technology Support Personnel

Cooperating schools develop plans for technology integration. Frequently these plans incorporate technology support personnel. These personnel have various degrees of training and their responsibilities may range from strictly equipment maintenance to the development of technology integrated lesson plans or units. Whatever the technology support personnel's role, it will impact the student teaching triad. If equipment is in poor condition, cooperating teachers and student teachers are less likely to utilize that equipment. If the technology support person is responsible for delivery of all technology integrated lesson plans, the technology support person may be perceived by the student teacher as assuming the role of cooperating teacher with regard to technology.

1. A better understanding of the student teaching triad relationships that exist during student teaching and the impact these relationships have on the student teachers use of technology.

College Supervisors

College supervisors have less contact with student teachers within the student teaching assignment, however, the student teacher may perceive this person as having the

most power within the student teaching triad. College supervisors may have less experience incorporating technology into the classroom and therefore be less knowledgeable than either the cooperating teacher or student teacher. College supervisors need to understand the student teaching triad and the impact of this triad on student teacher technology use to be more effective within the student teaching triad.

1. A better understanding of the student teaching triad relationships that exist during student teaching and the impact these relationships have on the student teachers use of technology.

2. A better understanding of student teachers' perceptions regarding college supervisor technology use.

3. A better understanding of the frequency of technology use in the classroom by student teachers.

Summary

Teacher preparation institutions and their accrediting agencies understand the significant impact that technology has on the classroom. As these institutions strive to incorporate technology standards into their preparation programs, they seek information concerning what factors are influential in the student's decision to use technology within their post-graduation classrooms. Programmatic changes have focused primarily upon what can be done within the post-secondary classroom as many institutions have felt it would be difficult to change aspects of field experiences without interfering in the administration of cooperating schools. The focus of this study however is on the student teaching triad. By further exploring the student teaching triad's impact on the student teachers decision regarding technology use, we move one step closer to understanding

avenues that post-secondary institutions can pursue toward comprehensive inclusion of technology standards within teacher preparation programs.

Chapter II

REVIEW OF LITERATURE

The review of related literature addresses three major topics. The first topic deals with the impact of technology on education and is intended to provide a general overview regarding current technology standards and the rationale behind adopting those standards, and secondly to provide an overview of how these technology standards have impacted the post-secondary teacher preparation programs. The second topic is concerned with student teacher use of technology and is intended to provide a general overview regarding how student teachers use technology in the classroom, how they use technology to prepare for the classroom and how they use technology to pursue professional development opportunities. The third and final topic entitled the student teaching triad is intended to discuss the relationships that develop and exist between the student teacher, cooperating teacher and college supervisor during the student teaching assignment. Additionally, this section contains a review of literature pertaining to the technology supervision and facilitation of college supervisors and cooperating teachers.

Impact of Technology on Education

The National Council for the Accreditation of Teacher Education (NCATE) defines technology as an essential teaching tool and as such incorporates the expectation that post-secondary teacher preparation institutions develop programs that prepare students to effectively utilize and teach technology in the classroom (Thompson, Bull, & Willis, 1998; NCATE, 2001). These standards, developed by NCATE, are largely dependent upon the recommendations of its member organizations. Within the field of technology, two organizations play a role in these recommendations, the Association for

Education Communications and Technology (AECT) and the International Society for Technology in Education (ISTE) (NCATE, 2000). The former has made extensive efforts to link together educators interested in using technology. The latter, ISTE, is the leader in developing national standards for teachers. ISTE's efforts have resulted in the National Educational Technology Standards for Teachers (NETS-T), which include standards for both in-service and pre-service teachers.

In 1993 ISTE developed the initial standards that included 13 indicators. Later in 1997, ISTE adapted these standards to include 18 indicators organized into three categories: (a) Basic Computer/Technology Operation and Concepts (b) Personal and Professional Use of Technology and (c) Application of Technology in Instruction. The current version, developed in 2000, was designed to align the standards for teachers with the standards for students, current research on teaching and learning with technology, and advances in technology (ISTE, 2002). The 2000 version of NETS-T includes 23 indicators organized into six categories: (a) Technology Operations and Concepts, (b) Planning and Designing Learning Environments and Experiences, (c) Teaching, Learning, and the Curriculum, (d) Assessment and Evaluation, (e) Productivity and Professional practice and (f) Social, Ethical, Legal, and Human Issues (ISTE, 2002).

In February of 2002, the NETS standards developed by ISTE were adopted by NCATE for use in accreditation of teacher education programs (ISTE, 2000b) and subsequently have been adopted or adapted by many state teacher education accrediting agencies (ISTE, 2003; Nebraska Department of Education, 2001; Smith, 2000). However, in order to understand how post-secondary institutions have adapted programs to meet the new technology standards, it is necessary to take a closer look at how the