# COMPUTER USE AND JOURNALISM TEACHERS: HOW OKLAHOMA'S SECONDARY JOURNALISM TEACHERS USE COMPUTERS FOR CLASSROOM INSTRUCTION

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INSTRUCTION

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# Chapter I

## Introduction

As communications and computer technologies become more prevalent in everyday life, they also become more important to the American education system. The knowledge, experience and use of these technologies have become requisite to the ability to perform in a global environment.

This axiom poses a two-pronged problem in American schools: teachers must be able to use communications and computer technology effectively, and in order for students to progress smoothly into the working, collegiate or trade school world, teachers must help students learn this knowledge. Although the idea of computers in education is not new, rapid changes in technology and communications in the past decade have created a need for more rapid diffusion of computer technology and communications into the public schools.

## Background

To achieve the objective of integrating technology into the classroom, funding must be present to buy the hardware and software. School districts must also train teachers to use the technology appropriately, and districts must evaluate the physical infrastructure of schools to accommodate technology. Older schools are incapable of

supporting new technology, and schools that may be capable of supporting technology in some respects may need to reassess their classrooms' capabilities.

While those in education now wrestle with how to create the infrastructure for technology or maintain the technology that they have, the U.S. government's role in education has become increasingly important to what occurs in school districts across the country. NCLB has been described as a "common platform" of educational standards (Schoenberg, 2003), and these standards involve technology's integration into the classroom (NCLB, 2001). The "Enhancing Education through Technology Act of 2001" directs the U.S. Department of Education to formulate the country's third National Education Technology Plan (EETT, 2001). The requirements included in NCLB apply to this plan.

Released in 2004, "A National Technology Plan: The Future Is Now" outlines seven action steps, along with recommendations for schools, districts, and states. Included in these steps are: strengthening leadership to help build leadership at every level; consideration of innovative budgeting so schools and districts take technology into account; improving teacher training to assure teachers can use technology effectively in instruction; encouraging broadband access to help teachers and students "realize the full potential of this technology and broadband technology needs to be properly maintained"; moving toward digital content, rather than relying upon textbooks; and finally, integrating data systems to help states, districts and schools improve allocation of resources, management, and student assessment. The technology plan acts as a support for NCLB.

The premise behind NCLB includes four principal components: stronger accountability; expanded flexibility and local control; expanded options for parents; and emphasis on teaching methods that are supported by research (NCLB, 2001). Stronger accountability requires states to devise a system of assessment that will measure student achievement and submit it for scrutiny by the U.S. Department of Education. States must meet not only the minimum standards -- vis-à-vis standardized scores, graduation and dropout rates, and attendance -- but improvement in student performance as well. NCLB requires all students to pass their state's test by 2014. Federal funding will depend on these statistics (NCLB, 2001). Some argue the legislation may be a slight disadvantage for those who are mentally handicapped or poor for obvious reasons – they literally lack the resources needed to achieve these goals (Associated Press, 2003).

The legislation allows for expanded flexibility and local control, which means local school districts will decide where the federal money is spent. Also allowed in the act are expanded options for parents. This allows parents to choose a better performing school, if the school that the student attends is on a "needs-improvement" list (NCLB, 2001).

NCLB is the culmination of reforms in education. As Secretary of Education Rod Paige told a Labor, Health and Human Services, and Education Senate subcommittee:

> President Bush and I are especially concerned about the persistent gaps in the achievement between poor and minority students and their more advantaged peers…This disappointing performance comes after nearly two decades of national attention on education reform and a dozen years of rapidly increasing Federal spending on elementary and secondary education. Simply spending more

> money in the same way is not the answer. We need to do things differently, to adopt a culture of achievement in our schools and school systems, and to demand results for our growing investment in education (Paige, 2001).

NCLB encompasses subjects such as math, science, and reading. A great deal of discussion about the legislation includes funding, standardized tests and accountability. However, little discussion revolves around technology and NCLB. On the local level, districts "must develop a process and accountability measures to evaluate effectiveness of integrating technology into curricula and instruction" (NCLB, 2001). On the state level, NCLB requires states to outline their long-term technology plans. This requirement would include how the state will fully integrate technology into the curricula and instruction of the schools by 2006. This plan must also detail how it will evaluate the technology programs and their integration statewide. The state plan must include strategies for parental involvement.

In order to adopt these state measures, goals and plans, school districts must include technology in their curricular framework. Marsh and Willis (2003) define curriculum as "an interrelated set of plans and experiences that a student undertakes under the guidance of the school" (p. 13). NCLB requires local districts to seek state approval for their curricular plans. States, which approve these local plans, must seek federal approval on how they evaluate and assess local districts to receive federal funds.

The push behind the next National Technology Plan is not only to implement technology across disciplines but also to create real-world learning experiences for students (International Society for Technology in Education, 2003; State Educational Technology Director's Association, 2003). These organizations, such as the

International Society for Technology in Education (ISTE) and the State Educational Technology Director's Association (SETDA), argue technology must be integrated into teacher preparation. They also argue students must be able to use technology to research, create and present information. For example, SETDA identifies guidelines for assessing teacher technology competence, which includes statewide snapshots, feedback from individual teachers, schools, districts and states for professional development, and certification/accountability for individual teachers. ISTE's National Technology Educational Technology Standards (NETS) gives standards for students, teachers, and subject areas. The technology foundation standards for students seek to introduce, reinforce and illustrate mastery of technology. These standards build a framework for linking performance indicators within the profiles for technology literate students. They also identify conditions that are essential for teacher preparation. These are "certain prerequisite factors" or "combination of essential conditions" required "for teachers to create learning environments conducive to powerful uses of technology" (ISTE, 2003). These conditions include access to technology, skilled educators who know technology and how to teach it, professional development, content standards and curriculum resources and assessment. Knowledge of technology alone fails the standards of adequacy; teachers as well as students must possess these tools to compete in the 21st century. The movement for schools to integrate computers into classroom curriculum is strong, and federal legislation now sets the standard by which this is accomplished. The need to understand accessibility and availability as well as use in the classroom could help integration into the classroom.

## Statement of the Problem

Previous studies of computers in education have primarily aimed to define the best practices of using computers in a technology-rich classroom or surveyed teachers concerning their roles or efficacy in classrooms with computers. Although these studies add to the growing body of knowledge about computers in education, they fail to address serious problems currently facing education. Because the *No Child Left Behind Act of 2001* now requires technology to be fused throughout curricula (NCLB, 2001), integrating technology into every classroom creates questions about how and when this will happen. These questions involve funding, physical infrastructure, professional development and the technology, among many others. With a shift in policy, examining present use could help implementing technology in the classroom.

## Purpose

This study will explore Oklahoma secondary journalism teachers' use and attitudes toward use as well as the availability of computers in the classroom. Scholastic journalism is a good subject area to study because teachers must use technology to teach. Technology has become an integral part of journalism, from use of word processing and digital photography to pagination and publishing. Secondary journalism teachers more than likely use technology to teach their students. Moreover, the lack of resources in a classroom has been shown to curtail the integration of technology into the classroom. Understanding how Oklahoma teachers view computer technology and its adoption might help expedite the integration. Oklahoma is ranked 42$^{nd}$ in the country in per pupil spending, according to the Oklahoma Department of Education. Since few studies of this type have examined a specific state, this study could serve as groundwork for future

studies nationwide, contributing to the body of existing knowledge as well as aiding in development of curriculum and professional development.

## Methodology

The study will use a three-fold approach to reach this goal. It aimed to discern the availability of computers in journalism classrooms, to determine differences among the teachers' use of computers, and to investigate the attitudes of Oklahoma secondary journalism teachers toward the use of computers in the classroom. The study will investigate four areas of current computer use: integration; support; preparation, confidence and comfort; and attitude toward computer use.

This study adopted its questionnaire from Hogarty, Lang, and Kromrey (2003), which sought to develop a series of subscales to measure the level of integration of computer technology into classroom instruction in Florida. The present study seeks to add to this research. Understanding how these teachers integrate technology will allow for further study not only of teachers in other subject areas but teachers across grade levels, as well.

## Rationale and Theoretical Framework

Marsh and Willis (2003) point to several levels of curriculum development. Along each stop of the development continuum, many, including teachers, must support the changes in order for successful implementation. At the macro level, curriculum planning involves general policy. Typically the state and local districts plan curriculum. At the

micro level, teachers would become involved because this level involves lesson planning. Teachers and lesson plans are the last stage in curriculum planning: other levels help shape this last stage of planning.

These levels include the federal level and also encompass school administration as well as parents (Marsh and Willis, 2003). Teachers not only will implement the changes into the classroom but will also add their own individual texture to curriculum. Understanding which individual factors affect a teacher's use of computers in the classroom could facilitate integration and implementation.

Rogers (2003) has described the process of adopting innovations within a social group. Educational literature has used Rogers; however, the focus of study in educational innovation is implementation because it deals with the actual and regular use of the innovation. Examining integration gives educators an idea of how well computer technology is implemented in schools.

## Importance of the Study

The study is important for several reasons. First, it provides a window into the technology integration of Oklahoma's journalism teachers. Understanding both availability and use will give journalism educators an idea of what is happening in the state. It also provides baseline data for further research into the integration of technology for other subject areas in the state. Further, it contributes to the growing body of literature exploring teachers' integration of computers into curricula. Finally, it will allow a glimpse of how teachers are meeting federal and state standards for technology use and how students are learning to use computer technology.

## Scope

Journalism teachers, due to the subject area, could offer a unique perspective on the adoption of technology in Oklahoma. Professional journalists use a variety of technologies in their work; to teach students, journalism teachers will use some, if not all, of the same technologies. Understanding teachers' computer use and availability, their attitudes toward integration, confidence and support, as well as other factors that may help or hinder technology integration could aid computer technology's integration into the classroom.

Because this study focuses on Oklahoma's secondary journalism teachers, its results cannot be generalized to other subject areas. In addition, because it deals with teachers in Oklahoma, it cannot be generalized to teachers in other states.

## Organization of the Study

This present study is organized into five chapters. Chapter one provides an introduction and overview of the purpose of the study. Chapter two reviews the relevant literature, allowing the reader to become familiar with the topic. Chapter four explains the methodology used for the study. Finally, chapter five summarizes the conclusions and the recommendations.

# Chapter II

# Literature Review

## Summary

This chapter focuses on existing literature. First, a broad overview of the history of computer use in American schools is provided; this history gives both behaviorist and constructivist views on that use. Second, diffusion of innovations as well as literature on educational innovation is provided as the theoretical framework for the study. Further, literature concerning individual factors and computer use are provided, as individual factors could either help or hinder the integration of computer technology into instruction. These factors include confidence, experience, gender, and age. Next, recent literature on the development of integration scales is provided. Finally, the research questions for the study are given.

## Computer Technology in Education

As Cuban (1986) notes in his overview of educational technology of the 20th century, shifts in governance, programs, curricula, organization and instruction have

occurred within schools. He argues schools have been vulnerable to shifts in education fads, especially where new media such as radio and television are involved. Those proponents for change argue teachers are the stumbling blocks for change; they resist changes from "modern technology." The primary barrier for using educational technology lies not with teachers, but rather with the logistics of use, technical imperfections, and incompatibility with current programs or similar concerns.

However, "passing on knowledge to students is the force that drives the engine in instruction" (Cuban, 1986). Instructional technology can be viewed as practice and theory of designing, developing, using, managing, and evaluating the processes and resources for learning (Seels & Richey, 1994). It provides techniques for instruction that systematically strive for successful learning (Gagne, 1987). These techniques include existing media, such as computer technology. According to the Association for Educational Communications and Technology (AECT), instructional technology includes a subset of educational technology based on the concept of that instruction as a subset of educational technology. Throughout the years, researchers have explored the uses of computer technology in education (Atkinson & Wilson, 1968; Finn, 1960; DeCecco, 1964).

During the past century, as society became more technologically advanced, the elementary, middle and high schools had to adjust in order to encompass and disseminate the skills needed to survive and compete in that environment. In regards to this, researchers in the 1950s and 1960s began developing more advanced educational technology. The technology served not only to develop skills in students but also teach them through "auto-instruction" (Finn, 1960; DeCecco, 1964). Programmed learning and

using computers as "tutors" continued through the 1960s (Atkinson & Wilson, 1968). In the 1970s, some saw the computer as an integral part of instruction, especially for language and readings for drills and practice (Ellis, 1974). In fact, computers began to infiltrate secondary schools in the early 1970s in the form of terminals connected to a mainframe via telephone lines (Kepner, 1982).

While some (Atkinson & Wilson, 1968; Finn, 1960; DeCecco, 1964) of the studies focused on the behaviorist perspective, others (Cobb & Steffe, 1983; Sigel, 1978) began looking at constructivism to explore teaching as well as the use of computers for instruction. Constructivism differs from behaviorism in many ways; constructivism supports argue behaviorists tend to ignore an individual's mental (cognitive) activity (Stigel, 1978). Rather than programming individuals, constructivists believe an individual's behavior derives from how that individual organizes experiences and that individual's impression of those experiences.

In constructivism, the students' interests and needs become major factors in the design of the program (Shapiro, 2000; Duffy & Jonassen, 1992). More recent study of computer use noted pedagogical change with sustained use of computers (Becker & Ravitz, 1999). Teachers who have changed their teaching practice to a more constructivist perspective are those who have integrated computers into their instruction. Further, use of computer technology aids to provide an environment where students can construct their own knowledge (Honebein, 1996).

As availability grew, the study of computer use broadened as schools began to explore a variety of uses of microcomputers (Anderson, 1981). Among many of the uses

touted were for classroom management and instruction. Microcomputers were compared to other instructional media, like films and books, but computers could "present certain content material very well and in new, exciting ways." Between 1981 and the end of the 1980s, schools in the United States acquired more than 2 million microcomputers. The number of schools owning computers increased from roughly 25 percent to 100 percent. More than half the states began requiring – or at least recommending – preservice technology programs for all prospective teachers (Cotton, 2001).

By the late 1980s, schools nationwide had and used microcomputers in the classroom. Educational technology involved three things, including children and entertainment media, children and instructional media (audio-visual aids), and computer-assisted instruction (Chen & Paisley, 1985). The popularity of microcomputers ballooned at this time for three reasons: the development of instructional uses for computers; technological advances and financial accessibility through the microcomputer revolution; and extreme student interest in and curiosity about interacting with computers (Kepner, 1982). Kepner contended, "A computer can become a medium of instruction or instructional support in a variety of ways." Although some argued computers and computer technology would ultimately become a part of elementary and secondary education, the potential for integrating technology into the classroom remained unknown (Holden, 1989). Moreover, while research has been conducted on all aspects of computer integration, "the task of successfully integrating computer technology into regular instruction still appears daunting." Holden also noted experimental programs scattered throughout education would not help transform American education.

As computer use broadened, uses within the classroom have also broadened (Cotton, 2001). Thus far, there are four types of computer uses in the classroom: computer-based education, computer-based instruction, computer-assisted instruction and computer-managed instruction. Computer-based instruction and computer-based education can refer to any kind of computer use in educational settings, including drill and practice, tutorials. Computer-assisted instruction encompasses drill and practice, tutorial or simulation activities. Computer-managed instruction refers to administration purposes and uses (Cotton, 2001).

Finally, computer-enriched instruction involves learning activities in which computers aid students in learning (Cotton, 2001). Computers evolved from their roles in testing skills through basic multiple choice to aiding the student in constructing their learning experiences. Cotton defines the computer-enriched instruction as learning activities in which computers generate data at the students' request to illustrate relationships in models of social or physical reality, execute programs developed by students or provide general enrichment in relatively unstructured exercises designed to stimulate and motivate students. Computer-enriched instruction appears to describe, at least partly, the move toward integrating computers into the classroom.

As computers have become more accessible and user-friendly, they have become a larger part of school administration and instruction. In 2000, Scott and O'Sullivan reported, "[S]chools throughout the United States are developing online networks at unprecedented in the history of education reform." Cattagni and Westat (2001) indicated that virtually all schools have some computers on the premises. "The popular measure of success for technology in schools has become Internet access. By the fall of 2000, 98

percent of all U.S. public schools were connected to the Internet" (Cattagni & Westat, 2001). However, Cattagni and Westat cite Quality of Education data from 2001 to illustrate that spending for instructional technologies in U.S. schools actually dropped from $6.7 billion in 1998-1999 to $5.6 billion in 1999-2000 while overall expenditures grew in the same period.

As some argue (Cuban, 1986; Molenda & Sullivan, 2001), the push to integrate computer and communication technologies is similar to other movements to integrate other technologies into classroom instruction.

> What is becoming clear is that we are experiencing a déjà vu regarding educators' responses to today's new media, comparable to the patterns of previous media, such as film, radio, and television. The new media emerges…Public pressure builds to employ it in education…eventually grows to substantial proportions before plateauing (Molenda & Sullivan, 2001).

To summarize, before the 1990s -- before technological advance and communication breakthroughs with the advent of the Internet – some used the behaviorist perspective and the use of computers existed primarily as a tool to "tutor" students. The use of educational technology operated on assumptions of learning adopted from behaviorism, and its focus on students was meant to engineer specific behavior: Students used the machines for rudimentary exercises. Others have adopted the constructivist approach: an approach that allows learners to construct their learning experiences in authentic environments. Computer technology allows teachers to construct these learning environments; in fact, sustained use of computers in instruction has lead to pedagogical changes toward a more constructivist perspective. However, with technological and

communication changes, uses of computers in the classroom have broadened to explore individual factors affecting use.

Currently, education literature looks at an assortment of aspects of computer integration. Many studies examine attitudes and how they affect use, experience of computer use, or factors that lead to innovation with computer technology in classroom instruction. While these past studies have been insightful, they generally fail to describe the process of integration. Rogers' diffusion of innovation is a theory long overlooked in this literature; it helps describe how social groups adopt innovation and will lend understanding to how secondary journalism teachers use computers in classroom instruction.

## Diffusion of Innovations

As previous literature illustrates, most attention concerning use of computers in the classroom has focused around how teachers and students use this technology, on personal characteristics that might indicate innovativeness, or changes in the perceptions of technology use and instruction experienced by teachers. However, recent studies have opted to explore the process of integration of computer technology into classroom instruction. Federal and state policy makers have created the laws and state technology plans, legislating what students should know about computer technology.

The theory describes the process of adoption within a social group, from first learning about the innovation to the consequences dealing with the adoption of the innovation. The adoption of these innovations involves changing a social structure, a decision-making process of those adopting or rejecting the innovations, and a rate of diffusion. Although the adoption of innovation has undoubtedly existed for some time,

social scientists only began to study the phenomena in the 1920s. Ryan and Gross (1943) first documented the social pattern in their Iowa hybrid corn study. However, two forerunners, before Ryan and Gross, set the stage for the diffusion of innovations theory. Ogburn (1922) developed the cultural lag hypothesis, and F.S. Chapin (1928) documented the "s-curve."

The roots of diffusion of innovation are in sociology. In the cultural lag hypothesis, Ogburn (1922) theorized cultural material accumulates through cultural inertia. Cultural forms derive from invention and discovery, and they persist due to their utility. Ryan and Gross (1943) identified diffusion through observing the adoption of Iowa hybrid corn seed. Much later, studies sought to describe the innovation process in academics. Lindquist (1974) identified barriers that pose difficulty for innovations. These could include threats to the status quo, abilities to measure of comparative advantages, and prevalent values that oppose the innovation. Kozma (1979) also identified possible points of resistance among faculty members. Formal and informal networks, as well as possible rewards and available, played a role in whether a faculty member adopts an innovation.

Rogers is one of the most influential diffusion theorists. His work on diffusion is widely used as a theoretical framework. He (2003) described diffusion as a process in which members of a social system communicate. Members create and share information to reach a mutual understanding. Since the ideas are new, diffusion involves a degree of uncertainty. Members use information to reduce uncertainty about the consequences of the innovation, so that ultimately the idea results in social change, or the structure and function of the system. The process of diffusion is an information-seeking and

information-processing activity that reduces the uncertainty about the advantages and disadvantages of the innovation (p. 14).

Moreover, the diffusion is comprised of elements that will help members determine adoption (Rogers, 2003). Among them are relative advantage, compatibility, complexity, trialability, and observability. Also, the innovation adoption process happens over a period of time, during which the innovation-decision process occurs. Following the point at which the person receives knowledge of the innovation, the adopter seeks out information until the decision to accept or reject. If the adopter accepts the innovation, the adopter will reinvent the adoption to suit particular needs.

These decisions to adopt occur within a social system, rather than adoption by an individual. The process is more complex, according to Rogers, because of the number of people involved. A member of the social system will fit into one of five categories: innovators, early adopters, early majority, late majority, and laggards; the relative time of adoption will determine the category for individuals within the system (Rogers, 2003). Social systems consist of sets of interrelated units that are engaged in joint problem solving to accomplish a common goal. As such, the system constitutes boundaries by which the innovation diffuses. The structure provides regularity and stability, as well as allowing for prediction of behavior with some degree of accuracy. Because it comprises a structure that regulates behavior, the system also has a structure for communications. Insofar as the system provides a structure for communications, it also has an effect on behavior. An individual's can influence other individuals' attitudes or over behavior informally in a desired way with relative frequency (p. 27). Thus, opinion leaders can lead in the spread of new ideas, or they can head the active opposition.

Rogers (2003) argues an individual's character and the nature of the social system will affect an individual's innovativeness. Within the system, norms create the established behavior patterns for the members, and opinion leadership determines the degree to which an individual can influence other individuals' attitudes or overt behavior informally in a desired way with relative frequency (p. 27). Thus, Rogers argues these opinion leaders can lead in the spread of new ideas, or they can head an active opposition.

There are different types of innovation decisions, depending on how the decisions are made. The optional decision implies an individual independent of the decisions of other members made the choice to adopt or reject an innovation (Rogers, 2003). The collective decision implies members gained a consensus among members and made the choice to adopt or reject an innovation. The authority decision implies relatively few individuals who possess power, status and technical expertise made the choice to adopt. With this type of decision, individual members of the system have little or no influence; they simply implement the decision. As Rogers (2003) argues, the authority decisions tend to diffuse more quickly depending on how innovative the authorities are. Although these occur more rapidly, members of a system can circumvent decisions during the implementation.

The final piece of diffusion of innovations involves the consequences. These are changes that occur to an individual or to a social system as a result of the adoption or rejection of an innovation. Rogers (2003) cites three outcomes: desirable or undesirable; direct or indirect; or anticipated or unanticipated. Consequences, like individual characteristics and shifts in social behavior, are among the many variables explored in studies on diffusion of innovations. In addition, many studies in education examine

individual characteristics as a way to explore how teachers use computers in the classroom. Many of these studies focus on students' use, rather than teachers' uses.

Although many have adopted diffusion of innovation as a way to explain the adoption of technology in education, the focus should actually involve implementation (Hord, 1987). Most thing of change within this framework; the most crucial stage involves the "actual, regular and proper use of an innovation in a school" (p. 25). Use may not follow an adoption. People will travel through seven stages, from awareness to refocusing. These evolved into the Levels of Use, two categories that involve seven stages, beginning with nonuse and ending with renewal. The categories describe technology users as either nonusers or users. These provided the basis for the Levels of Technology Implementation (LOTi), which outlines eight stages to the process of implementation, beginning with nonuse and ending with refinement (Moersch, 1994).

Moersch (1995) provides a framework for understanding the levels of technology implementation through classroom technology use. Technology users go through seven levels of implementation, including nonuse to refinement. In lieu of these levels, teachers also enter three levels of instructional practices; in each case, areas such as learning materials and teaching strategy, as well as learning activities and technology use, would evolve through these levels.

Others (Ely, 1990; King, 2002) explore different models for adoption, as well. Ely defined eight conditions that must be met in order for adoption, implementation and institutionalization to occur. King, (2002) on the other hand, defined her model for adoption as a Journey of Transformation. According to King, teachers pass through four states, including fear, exploration and affirmation, as well as 10 perspective

transformation stages. Sherry, Billig, Tavalin, & Gibson (2000) described the process of innovation as a cyclical process. It was a trajectory of learning and adoption, and technology users would begin as learners and evolve into leaders. With respect to the use of computers, integration requires planning and support (Brush, 1999). While some have examined diffusion and implementation, others have examined individual factors that could either help or hinder use of computers in classroom instruction.

## Introduction to Individual Factors in Computer Use

To determine what factors influence computer adoption, research has examined a number of areas, such as gender, age, confidence in use, and computer experience. More recent exploration of computer use in the classroom has built upon past research and has developed an instrument to examine the concept of integration (Hogarty, Lang, & Kromrey, 2003). Many studies that examine individual characteristics and computer use note a variety of findings and conclusions. Some argue characteristics such as age and gender actually play a part in a teacher or student's attitude toward computers, and attitudes toward computers are related to innovativeness (van Braak, 2001). Some illustrate no significant difference or no difference at all in regard to characteristics such as these (Cates & McNaull, 1993).

However, most literature shows an integral link between attitudes and computer usage (Cates & McNaull, 1993; Dupange & Krendi, 1992). Those with a positive attitude about computers usually use computers with more confidence or with more frequency. Although many studies fail to prescribe any conclusive cure-all for anxiety and negative

attitudes of some teachers, they illustrate training helps improve teachers' attitudes toward use of technology as well as their ability to use it in the classroom.

Attitudes and use provide insight to the process of adoption; attitudes are connected with how people behave (Bandura, 1986). Much of the literature illustrates a connection between positive attitudes and use in the classroom. Moreover, examining parts of integration, such as support, confidence and comfort, and technological aversion/affinity, provides a more detailed picture of the integration process. First, the concepts of confidence and comfort are examined; literature on confidence has also included concepts of confidence such as self-efficacy and anxiety.

## Confidence and Comfort

One of the many factors that researchers have examined was confidence. Its study has included exploration of self-efficacy, anxiety, and comfort. The concept is important to integration because if teachers are not comfortable or lack confidence in the use of technology, their attitudes toward use of technology wanes. When teachers view technology negatively, they are less likely to use or integrate computers into their instruction.

Recent literature illustrates teachers' confidence in teaching various uses of computer technology has increased from previous study (Ross, Hogaboam-Gray, & Hannay, 1999). When teachers' access to information technology is greater, the opportunities for more successful teaching experiences are greater. These successful experiences affect teachers' confidence. In addition, teachers' attitudes toward computers have been positive, as was their attitudes toward integrating computer technology into the

classroom and the curriculum (Dupagne & Krendi, 1992). Teachers have also raised concerns about hardware and software, time to integrate computers, and the lack of training programs. Training has a positive relation to computer use, and teachers who use computers frequently have more confidence about using computers in instruction. In addition, those who have the highest level of both university and inservice training have expressed significantly more favorable attitudes toward computer use and greater use for computers than those who report low levels of training (Cates and McNaull, 1993). In fact, not only does training increase positive attitudes toward computer use, it also decreases anxiety.

Computer anxiety can include a number of issues, including damage to hardware, inability to perform computer-related tasks, and exposure to social embarrassment (Bradley and Russell, 1997). Anxiety can be helped when teachers know how things work; training empowers people to act in situations that might otherwise frustrate or baffle teachers. In addition, computer training can help negative attitudes toward computer use. Computer anxiety can be reduced through formal computer instruction (Orr, David, & Poindexter, 2001). Those who express confidence with computers are less anxious than others, as well (Ropp, 1999).

Anxiety is not the only idea that can be considered when exploring confidence. Self-efficacy and performance has also acted as a signpost in understanding how confident teachers are in their computer and technology use (Brosnan, 1998). Self-efficacy can be defined as the person's perception of how well that person can act given a prospective situation. While computer anxiety was directly related to performance outcome, self-efficacy related to how teachers achieved outcomes using computer

technology. Some argue relevant computer experience, not self-efficacy, was the best predictor of computer performance (Karsten and Rex, 1998). While self-efficacy and computer performance are related, the relationship was not strong.

Competence has also been studied. Competency and previous computer training are strong predictors of use (Dusick and Yildirim, 2000). While nonusers may show concern over anxiety and other issues, experienced users were more focused on improving skills. One of the requisites for acceptance and integration is a positive attitude of both teachers and students toward use (Subhi, 1999). Moreover, attitudes and computer use are directly related and mediated by "technological innovativeness." Those teachers with positive attitudes will more likely favor the possibilities of enhancing the quality of education with the use of technology (van Braak, 2001).

When teachers are confident about their knowledge and use, they will view technology more positively; they will be more likely to use technology more frequently, as well. However, confidence and comfort are not the only factors that have been explored. Teachers' experience with computers is also important. Without experience or training, teachers may not understand technology, its use, and the integration of computers into instruction.

## Experience

While experience is a separate issue, experience is related to confidence and comfort. Those with more experience usually have more confidence and positive attitudes toward computer use. Experience might also relate to attitudes in that research illustrates a link between use and attitudes. For example, those computer-using teachers who are

considered exemplary usually spend more time using computers at school than their colleagues; they might also have more formal training and teaching with computers (Becker, 1994). The more experience people have with computer use, the more positive their attitude is (Yildrim, 2000). Those with more experience also illustrated less anxiety and greater ease in computer classes.

Computer experience tends to influence teachers' attitudes toward and use of computers in the classroom (Yildrim, 2000). Computer training leads to computer use (Guha, 2001). In addition, teachers who have a great deal of experience in using computers have described themselves as teachers first and as technology users second (Kerr, 1991). In fact, they described technology as a tool. These teachers indicated time was essential; teachers should have time to learn what technology is for and to develop a way to integrate it into their personal teaching style. They also indicated the advantage of technology use for students was its utility; technology use allows for more individualized instruction.

Many teachers have sufficient knowledge of computers, when combined with training and knowledge of students, allows them to evaluate their computer needs (Woodrow, 1991). In fact, training in technology and instruction increases positive attitudes because it combines technology skills as well as the strategies needed to integrate technology into instruction (Abbott & Harris, 2000). However, sometimes teachers who have the most experience possess the poorest skills (Matthews, 2000). Those who do not use computers with their students typically have less experience than those who use computers in the learning process with their students. Also, those who are veteran teachers might have less experience with computers than their younger peers.

Unlike Matthews, van Braak (2001) found experience is related to a general openness to introduce technology into the classroom as well as innovativeness. He argued those teachers who use computers in the learning process of their students have significantly more experience than those teachers who do not use computers with their students. More than 75 percent had more than four years of computer experience. In fact, those with more experience have been more confident (Orr, et. al., 2001). Self-reported expertise has also been shown as a strong predictor in whether teachers use computers to prepare instructional materials as well as reporting student progress (Chiero, 1997). While literature shows both confidence and experience relates with positive attitudes and computer use in the classroom, the influence of other variables like gender and age are not clear-cut.

## Gender and Age

Neither age nor gender has been predictable as influences in attitudes and computer use. Some studies indicate age and gender influence use or ability (Baack & Brown, 1991; Cates & McNaull, 1993; Matthew, 2000). However, other studies show these variables are not influential.

Younger people sometimes see computers as a necessary and familiar part of their environment, since they have grown up with them. While older people see the value in computer use and expressed motivation, they have been less eager to use computers (Baack & Brown, 1991). In fact, age and years of teaching experience have not been significant influences on either attitudes or reported use (Cates & McNaull, 1993). While age has not mattered in some situations, it has revealed its importance in others. For

instance, older students have expressed more enthusiasm for use than younger students (Durndell, Glissov, & Siann, 1995). In some cases, age is indirectly related to education (DeOllos & Morris, 2004). Educational achievement directly affected computer use, and those who are older might have less education.

Like age, gender has revealed no significant differences in some situations (Orr, et. al., 2001). Some situations have noted no explanatory power with age or gender (Parry & Wharton, 1995), though educational field, or subject area, did influence use. However, some found socialization might play a role in attitudes and usage. Differences between males and females were noted in gender roles and stereotyping, albeit those differences were small (Whitley, 1997). Other studies illustrate a more significant relationship with use. Females have reported significantly lower computer ability than their male peers (Matthews, 2000). In addition, differences between males and females influence teachers' ability to use as well as their perceived control over computers (Kay, 1993). Altogether, gender, computer literacy, and school level (grade taught) was positively correlated with computer ability. Although some regard using computers as a "male activity," gender differences have had no "significant predictive power for class use of computers" (van Braak, 2001). Further, gender influences how members of technical support staff perceive their roles (Hawkes & Brockmueller, 2003). Males tend to install more hardware and software, whereas females tend to train peers in the use and integration of computer technology. Males in technical support roles also tend to have more background in technology, and while they might belong to the coaching staff, fewer belong to the certified teaching staff. However, their female colleagues are usually either come from or are a part of the certified teaching staff. Although demographic variables help understand

differences that exist in use and attitudes, subject areas also help provide information on computer use in the classroom. Literature indicates differences among different subject areas play a role in computer use.

## Computers in Subject Areas

As Holden (1989) argued, examples of computer use in the classroom exist, but fail to illustrate widespread use. Included in the factors that have been cited as an obstacle for integration is subject area. Teachers in social sciences, like language arts and history, have not adopted technology as teachers in hard sciences have (Willis, 1992). In addition, teachers in subject areas such as chemistry or math are more geared toward the use of technology, whereas the others are not. Moreover, teachers in subject areas such as language arts or history might not receive support from technical staff because technical staff members fail to understand soft sciences and their needs.

The uses of computer technology in math and science are apparent; teachers can help students to collect, organize, and analyze data with computers (Browning and Channell, 1992). Use of technology also helps students investigate patterns, as well as provides a basis for activities that extend beyond what teachers previously used (Wiebe, 1990). Teachers' use of computer technology in language arts instruction has been exploratory. Sometimes teachers give students an assignment and a computer, to see how students learn using the technology (Butler and Cox, 1992). The observations of this instruction found the students' turn taking indicated the collaborative effort of a composing team. The computer provided a focal point for talk between the two students

as they collaborated. Further, the teacher began finding other uses for the computer in classroom instruction.

In addition, language arts teachers have had access to telecommunications technology, or the ability to send information from one place to another, for a while (Rickelman and Henk, 1990). Also, through the telecommunications technology, language arts teachers have resources such as online forums available. Although use has occurred in many classrooms, the common perception remains that the language arts is a "technology-free" subject area (Rose and Meyer, 1994). Even though the aim is to teach children to communication effectively, language arts' teachers still remain heavily entrenched in print media. The potential for using digital media in language arts is unrealized. They argued language arts "must be defined as an expanding set of communicative skills, and instruction must begin to encompass competencies in the use of varied media." Some have begun to explore the ever-expanding uses of technology and communications; these uses include online discussion technology, desktop publishing software, and database management for not only evaluating students and organizing instructional materials (Merkley & Schmidt, 2001). The Internet also provides teachers with the ability to teach students how best to use the technology for research as well as the appropriateness of reading material (Karchmer, 2001).

Scholastic journalism falls under the category of language arts; it is a shown to impart good communication skills. Although some school districts have begun to abandon traditional journalism classes, multimedia classes and information literacy classes have begun to appear (Dvorak, 1999; Manzo, 2000). Scholastic journalism's uses have shown to improve the quality of education received by many through its popularity

as a viable part of curriculum nationwide shows decline. Changes within the industry, the technological advances, have made it difficult for scholastic journalism to keep up with its senior counterpart.

As mentioned earlier, technological advances create problems for schools that struggle already with budget woes. Many argue scholastic journalism is an easy target for those holding the purse straps; others argue that these technological advances coupled with scheduling structures for classes create difficulties in offering journalism (CPSAA, 1997; Dickson, 2001; Stokes, 2002). Other districts simply consider scholastic journalism as a co- or extracurricular. CPSAA found technology ranked atop the list of anxieties and woes for journalism teachers and advisers. However, general funding for technology appeared as the lowest ranked concern (CPSAA, 1997). Examining scholastic journalism teachers in Oklahoma would provide information that is beneficial for both the subject area and the state.

## Oklahoma's technology

Previous literature covered a number of topics, from teachers' confidence to factors that indicate innovativeness. Also, some studies focused on specific states. Hogarty et al. (2003) built a questionnaire in an effort to address previous literature; it focused on four domains of current computer use of teachers. However, that study was conducted in Florida. To build upon this research, more examination is needed in other states. Oklahoma is ideal for this study: Oklahoma has revamped its technology plan but has struggled with budget problems in respect to education.

As stated briefly, Oklahoma ranks 42nd in the nation in per pupil spending (ODOE, 2003). This is important because many concerns about funding and budget cuts have begun to arise as local districts begin to implement the requirements of NCLB (Cooper, 2003; Dillon, 2003).

Due to financial problems, such as budget shortfalls, Oklahoma City closed seven schools and dismissed 600 teachers in 2003 (Dillon, 2003). Birmingham, Alabama, closed nine schools, and 38 of the states 129 school districts were on the verge of bankruptcy. Boston closed five schools and eliminated 400 teacher positions. In Toledo, Ohio, Norwich, Connecticut, and Vista, California, teachers lost positions (Dillon, 2003). The National Education Association argued school districts nationwide now struggle with the worst budget shortfall since World War II.

In May 2003, DOE Secretary Rod Paige approved Oklahoma's accountability plan required by NCLB; it was the 26th plan to receive approval (DOE, 2003). However, many states have begun to explore state legislation, which would allow districts to ignore federal regulations if the federal government fails to fund NCLB (Dillon, 2003).

If districts struggle with these types of concerns, districts also will struggle with the impending technology requirements. Some indications exist that school districts are experiencing difficulty with state-imposed guidelines. For instance, the Lowell school district lost half of its technology support staff to budget cuts (Luttrell, 2003). Easthampton, another Massachusetts district, trained 20 teachers to use new computers with "advanced graphics software in K-12 classrooms." However, the district cannot buy new equipment due to a $400,000 budget cut. "Nearly half of Massachusetts public

schools are falling short of state targets for the number of computers available for student use and the number of technical support staff."

Oklahoma's original technology plan, implemented in 1996, outlines the goals for the state, why the state should invest in technology, methods of assessment, technology evaluation and a timeline for integration. The Oklahoma State Department of Education (ODOE), Instructional Technology/Telecommunications and the Oklahoma Technology Administrators (OTA) helped develop the plan. The plan "outlines the future of Oklahoma public school technology and the funding mechanism(s) which would allow K-12 public schools in Oklahoma to implement modern technology at the district, school, and classroom levels" (OTA, 1996).

Technology, defined by the plan, includes computers, networks, all components of networks, and communications technologies that include distance learning, satellite instructional systems, modems, the Internet, and others. Instructional technology aims to facilitate the learning process for all of the state's public school students (OTA, 1996). The justification of the plan was to move the state from antiquated teaching methods into the age of communications.

The vision statement for the plan describes three promises for curricular reform and improvement. First, students must be trained in both computer and telecommunications technologies. Second, using computer technology "has been shown to be the greatest change agent in improving how students learn and how teachers teach." It describes teachers as "conductors to worlds of knowledge" and describes a change in the role of the teacher, from dispenser of knowledge to directors of learning. The final

promise revolves around students acquiring skills in accessing and applying information (OTA, 1996).

Deriving from the vision are four goals that involve not only students but teachers, as well. In order to meet this vision, teachers must receive adequate training and support necessary to teach students. Public school teachers need access to effective software and online learning resources. All classrooms in Oklahoma will have access to computers for both student and teacher use. Finally, all classrooms will have access to the Internet and/or other forms of telecommunications (OTA, 1996).

The plan also provides a framework by which the state will evaluate technology, in addition to assessing student, school and district. The Oklahoma Student Testing Program was created to measure student achievement "through mandated criterion-referenced, and national norm-referenced tests. All students enrolled in the public schools of Oklahoma are required to participate in this testing program." Through the Oklahoma Educational Indicators Program, a measurement system was created by which the performance of public schools and districts in the state will be assessed upon indicators (OTA, 1996).

These indicators include dropout rate, financial results, graduation rate, employment of high school graduates, test results by grade and subjects, among others. In addition to this assessment, the ODOE instituted a yearly survey of technology usage. This usage includes equipment, Internet connections, teacher training activities and the numbers and description of the computers at the school sites. Also, schools must describe the location of the computers and the numbers of hours that students use these computers.

The survey also aims to evaluate the type and frequency of education technology training activities (OTA, 1996).

Oklahoma revised and released its technology plan in 2004. The "Oklahoma Plan for Instructional Technology/Telecommunications" gives an overview of the current state of computer technology in Oklahoma's schools. For example, the plan states the public school student-to-computer ratio is currently 3.46 students to each computer, and roughly 95 percent of the state's classrooms are connected to the Internet. In addition, the state has ensured measures to expand teacher training and the availability of online instruction. The plan seeks to move students toward computer technology proficiencies outlined in the Priority Academic Student Skills (PASS). Students must reach three levels of technological proficiency: introductory level, which includes the use word processors and describe the role technology plays in society; intermediate level, which includes the use of a wide variety of application software and use of telecommunications to access, synthesize and use information; and advanced skills, which include knowledge of computer use for problem solving and use of technology including word processing, database, spreadsheet, and/or graphics software.

The plan outlines five broad goals for students and educators. Goal one states all public school students must be technologically proficient by the eighth grade. Goal two includes the increase access of technology, particularly in "high-need" schools. Goal three specifies Oklahoma's public schools will have access to distance learning technologies and online instruction "to support the curricular needs of their students and the professional needs of their faculty and staff." Goal four is geared toward educators; it specifies they will know how to use computer-based and online resources as tools for

instruction. Finally, the last goal states the staff of the state's Instructional Technology/Telecommunications will provide resources to the public schools that will promote technology use as "an effective tool of instruction, administration, and communications."

Overall, state and federal legislation now dictates a level of proficiency of computer use for students. Moreover, teachers must be able to use computers and teach these uses to their students. Individual factors have been studied and illustrated a gap among some demographic variables in regard to computer use. Age and gender are among those variables. In addition, years of experience and attitudes, like attitudes toward technology and comfort level, are linked to increased use. Studying the demographics, experience and attitudes helps to understand the context of use. Understanding provides information needed to devise strategies for promoting adoption, as promulgated by state and federal policies. Studying individual factors help in examining gaps or differences in groups. Closing these gaps and promoting training, to increase experience and positive attitudes toward computers, will help with adoption and integration.

## Integration

While studies previously explored various factors affecting computer use, few have ventured to explore looking at domains as a window to integration. Using indicators of successful integration of technology and computers, Hogarty, Lang and Kromrey (2003) developed scales to explore four domains that indicate level of integration. These domains include: integration; general school and technical support, preparation, and

confidence and comfort; and attitudes toward computers. Their study found gender differences, school-level differences, and differences in response rates.

Examining just the teachers' instructional modes related to technology integration found teachers used technology as a classroom communication tool. A smaller number of teachers used technology as a productivity, research, or problem-solving tool. There are differences across school levels as well as differences across subject areas (Barron, Keniker, Harmes, & Kalaydjian, 2003). Teachers differ across school levels in respect to integration and how they use technology to communication. Science teachers also reported a higher level of computer integration, followed by math teachers.

## Summary of Literature Review

Computer technology has been incorporated as "tutors," devised to train students or engineer appropriate responses (Finn, 1960; DeCecco, 1964). Conversely, computers have also been used to create authentic learning environments in which students can construct learning based on their prior experiences (Duffy & Jonassen, 1992).

As uses in computer and communications technologies have broadened, so has the exploration of its uses in the classroom. Diffusion of innovations (Rogers, 2003) helps explain the process of adopting its use; other literature on educational innovation focuses more on implementation, or its regular, proper use (Hord, 1987).

Individual factors like confidence, experience, and demographic variables have served as guides in understanding the influences of adoption. Literature indicates both more confidence and experience influences attitudes as well as use. Moreover, age and gender have shown influence in some studies but not in others. Although some contend

language arts teachers will avoid computer use, others indicate how technology has been used in the subject area. As a part of language arts, scholastic journalism teachers could help illustrate use of technology in instruction because these teachers use technology to teach their students.

Integration of computer technology in the classroom can be divided into four domains: integration; general school and technical support, preparation, and confidence and comfort; and attitudes toward computers (Hogarty, et. al., 2003). Studying integration as a complete concept will provide information on how Oklahoma's journalism teachers have integrated technology into the curriculum; it will yield information useful for professional development, as well as the assurance that teachers are meeting state and national standards.

## Research Questions

Federal and state standards now require a certain level of integration into the classroom. However, as Rogers and others point out, individuals may sidestep the decision to adopt an innovation. To understand Oklahoma's situation better, it is helpful to understand the availability of technology use in the classroom.

**R1: What is the availability of computers in journalism classrooms in Oklahoma?**

**R2: How are journalism teachers using computer technology in their classrooms?**

**R3: Are there statistically significant differences in how journalism teachers use computer technology in their classrooms?**

**R4: What are Oklahoma secondary school journalism teachers' attitudes toward computers?**

**R5: Are there statistically significant differences in Oklahoma secondary school journalism teachers' attitudes toward computers?**

# Chapter III

## Methodology

The primary method for the study was the survey research method because it allowed for the exploration of not only the availability but also the use of computers by Oklahoma secondary journalism teachers within a realistic setting (Buddenbaum & Novak, 2001). The research helped illustrate how teachers use computers in their classroom instruction. The method has high external validity. It was especially appropriate for gauging the attitudes of such a specific group. The survey method allowed the researcher to administer the questionnaire online, and it enabled the researcher to reach educators throughout the state (Hogarty, et. al., 2003).

## Sample

Oklahoma journalism teachers were selected for this research for many reasons. Oklahoma ranked below the national average in some respects, two of which are student achievement and teacher salary. In per-pupil spending, Oklahoma ranked 42nd in the country. Examining this group's need and use of computer technology in the classroom provided baseline information for future studies in the state. Also, due to changes in both

state and federal law, determining both need and use provided understanding of the future needs as well as complication in meeting the goals of regulations and standards promulgated by government agencies and professional organizations.

Of the 151 teachers contacted, 52 of Oklahoma's junior and senior high school journalism teachers responded and comprised the purposive sample. Because journalism is a profession that demands its professionals to remain proficient in technology and its evolution, these teachers must also stay proficient in order to transfer that knowledge to their students. Moreover, like many other states, the Oklahoma state government has struggled financially with budget shortfalls. Teachers were chosen as subjects because the research concerns how those who will implement federal guidelines of integrating computer technology into classroom instruction felt about integration and how they accomplished these goals.

A mailing list of 107 journalism teachers was obtained from the Oklahoma Interscholastic Press Association (OIPA), a professional organization that includes secondary and postsecondary journalism educators throughout Oklahoma. The list acted as a base for the sample. In addition, a search for journalism teachers was conducted on the Oklahoma Department of Education (ODOE) Web site. Altogether, the names of 151 teachers were gathered. The e-mail addresses for many of those members were obtained from the ODOE Web site. For teachers who could not be reached vis-à-vis e-mail, a list of addresses was compiled from the school district database, available on the ODOE Web site. The link to the online survey was sent to those teachers in e-mail in October 2004. In addition, paper surveys were sent to teachers whose e-mail addresses were unavailable.

## Scales

The purpose of this study was to measured use, availability, and attitudes of teachers of computer technology in classroom instruction. Nearly all of the subscales were adopted from Hogarty, et. al. (2003), and they included a number of subscales that measured types of software used by educators and students, level of integration and computer support questions, (see Appendix A, survey questions). Scales measuring personal use and preparation, attitudes as well as comfort and confidence were also included. Demographic information was also collected. Questions concerning certification path and other subject areas taught were added, as Oklahoma offers alternative certification.

Research question one sought to determine Oklahoma secondary school journalism teachers' availability of computers. Availability of computers was defined as access to computers in classroom instruction. This availability was measured by asking respondents a myriad of questions. These questions was included questions about personal use and preparation, years used computers, and access to a computer lab. A 14-question *Types of Software Used to Complete School Related Activities* scale was used. Items were measured on a five-item Likert subscale. It sought to answer questions about activities for both students and teachers and measured availability by helping determine what software that teachers had and used in the classroom (Hogarty, et. al., 2003).

Research question two sought to determine how Oklahoma secondary school journalism teachers use computers. Computer use was defined as teachers' use of computers for class-related activities (Hogarty, et. al., 2003). Frequencies from the subscales used for availability was also be used to help determine how these teachers differ. In addition to those subscales, a 12-question *Integration of Computers into the*

*Classroom* subscale was used. The subscale used a five-item Likert scale to measure the level of integration. Also, an eight-question *Teacher Preparation for Computer Use* scale and a nine-question Confidence and Comfort Using Computers scale were used. Both these scales also used a five-item Likert scale. Computer uses included use of computers in the classroom, for personal, administrative or instructional uses (Hogarty, et. al., 2003).

Research question three sought to determine the differences in how these teachers use computers for class-related activities. These differences will include differences between male and female participants, web-based and paper-based surveys, as well as traditional and alternative certification, level of education, class size, and school size. The *Integration of Computers into the Classroom* subscale was used to determine these differences in use. Also, a technical support subscale and a general school support subscale were used to determine differences between groups. Finally, the instructional software subscale for both teachers and students and the application software use subscale for students were used.

Research question four sought to determine the attitudes of Oklahoma's secondary journalism teachers toward computers. Attitudes toward computers included how teachers feel about using computers for classroom instruction. Frequencies from certain scales helped indicate these attitudes. A 20-question, *Attitudes toward Computer Use* subscale was used, and it used five-item Likert scales. In addition, previously mentioned subscales measuring comfort and confidence, personal use and integration were also used to measure teachers' attitudes (Hogarty, et. al., 2003).

Research question five sought to determine the differences in these attitudes toward computers of Oklahoma's secondary journalism teachers. Subscales such as *Attitudes toward Computer Use* and *Confidence and Comfort of Computer Use* were used to determine the differences in attitudes. Moreover, the *Attitudes toward Computer Use* was divided into two subscales: technological aversion and technological affinity.

Finally, the study gathered demographic information, such as age, gender and school in which the teachers work. This information helped measure the three research questions and aided in understanding possible characteristics of adoption among Oklahoma's secondary journalism educators.

## Questionnaire

The online questionnaire contained the OSU logo at the top. Dillman (1978) argued use of a university logo helps to increase the response rate, (see Appendix A, questionnaire). In addition to the OSU logo, the questionnaire included a statement explaining the survey, contact information for the researcher and implied consent, as required by the Oklahoma State Institutional Review Board (Clark, 2004).

A 90-item questionnaire was adopted and adapted for the study. The present study added questions to determine if teachers had access to labs, computers in the classroom, and years of experience using computers. Hogarty, et. al., (2003) devised the study to explore integration of computers in classroom technology in Florida. The study used both paper- and Web-based surveys, as did this study. Using Web-based surveys offers researchers an easy, cost-effective means by which to conduct research, due to the World Wide Web's popularity and availability (Hogarty, et. al., 2003). The first section asked

general questions about the types of software used to complete activities in the classroom, integration of computers into the classroom, and general as well as technical support. The second section contained scales that measured availability and use on several scales: teacher preparation for computer use, confidence and comfort using computers, personal use of computers and attitudes towards computer use. The final section of the survey included demographic information, such as age, gender, education level and years of teaching experience. The survey also included a section for teachers to write their e-mail in order to request a copy of the executive summary from the researcher. The e-mail addresses were used to determine who responded to initial e-mails; these addresses were be removed so reminder e-mails are sent to those who have not responded. As for the paper-based survey, a copy as well as a stamped envelope was mailed to teachers. A letter, which accompanied the survey, explained the purpose of the survey and a copy of the link to the online survey, if teachers decided to answer the survey online.

This study changed the survey by including specific questions about computer ownership and use. Also, questions concerning national board certification and certification path were included. Not only does Oklahoma offer an alternative certification path, it also promotes national board certification for its teachers. The researcher also included the year that participants graduated from college.

## Procedure

The list of names obtained from the Oklahoma Interscholastic Press Association was used to find e-mail addresses vis-à-vis school Web sites from the Oklahoma

Department of Education Web site. A list of e-mail addresses was compiled and used to administer the survey.

Before administering the survey, a pretest was conducted to pinpoint problems with the questionnaire as well as data-gathering processes. The questionnaire was revised as needed. Oklahoma secondary journalism teachers, as well as journalism educators at a large, Midwestern university, provided the sample for a pretest. The survey instrument was administered online.

To increase the response rate, a preliminary e-mail was sent to teachers informing them of the survey and when an e-mail message with the link to the online questionnaire will be sent (Dillman, 1978). To avoid confusion, teachers received a link to the survey in e-mails; it allowed participants to go directly to the survey. One week after this initial e-mail, another e-mail was sent to teachers with the link to the Web site containing the questionnaire. The researcher monitored e-mail addresses of those responding and sent reminder e-mails to those who had not responded. Further, reminder e-mails were sent only to those educators who had not responded. A final reminder e-mail was sent two weeks after the link to the questionnaire had been sent to those educators who had not responded, informing them that it would be their last chance to participate in the survey.

## Data Analysis

When respondents clicked the submit button on the questionnaire, data was sent to a text file. The text file was then imported into an Excel file. The researcher added the variable names and imported the data into SPSS for analysis. The data was screened for accuracy and checked to assure the data meets the assumptions for statistical tests. After

descriptive statistics were generated, frequencies, t-tests, and ANOVA were used to analyze the data.

Research question one will be analyzed using the frequencies of availability. These frequencies involved counting and describing availability to computers. Tables were generated to illustrate these frequencies.

Research question two will be analyzed using the frequencies of use. These frequencies involved evaluating integration, software use both for students and teachers, and technical support as well as general school support.

Research question three delved deeper into the relationship between the differences among and between various groups of journalism teachers. Items on each subscale were added together forming, creating a new variable for the analyses. The subscales for integration, software use both for students and teachers, technical support, and general school support were used. A series of t tests was used to compare two means, whereas one-way ANOVA was used to compare more than two means. Alpha was set at .05 for all statistical tests.

According to Shavelson (1996), the purpose of t tests is to help the research determine whether the observed difference between two sample means arose by chance or represents a true difference between the populations (p. 344). The purpose of using one-way ANOVA "is to compare the means of two or more groups in order to decide whether the observed differences between them represent a chance of occurrence or a systematic effect" (p. 371). One-way ANOVA was used to determine whether there are significant differences on a dependant variable across two or more groups. The purpose is to examine the variance among groups – such as gender, age, and education and

certification path – on the attitudinal scales. Scheffe's post hoc test was used following the ANOVA analysis because of unequal cell sizes. It was used to determine which means were significantly different.

Research question four used frequencies to determine teachers' attitudes toward computers. Items on each subscale were added together forming, creating a new variable for the analyses. The technological aversion and technological affinity subscales, in addition to the confidence and comfort subscales were used.

Research question five measured the differences in teachers' attitudes toward computers. To accomplish this, the researcher used a series of t tests and ANOVAs; however, the question looked at differences among these teachers according to how they score on the attitudinal scales.

The data were screened; most of the data met conditions of normality and homogeneity of variance. Levene's test was used to assure data met the condition of homogeneity of variance. If conditions of normality were not met, Mann-Whitney, a nonparametric test, was used to determine the level of association between the variables. If the conditions for homogeneity of variance were not met, the significance value for the category, equal variances not assumed, was used.

## Reliability

The 11 subscales used for this study were developed to measure integration of computer technology in instruction; the subscales measure instructional and application software use, confidence, integration, personal use, technological aversion and affinity, technical support and school support (Hogarty et al, 2003). The reliability analyses were

conducted to assure the scales were reliable. Chronbach's alpha was set at .70, which was the acceptable level for the scales used (Shavelson, 1996). The personal use scale **(**$\alpha$ = .610) and teacher use of application software scale ($\alpha$ = .622) were both dropped due to unacceptable levels of reliability. Items were removed from the scale when Chronbach's alpha if item deleted showed a level of reliability was below an acceptable level. On the integration scale, reliability was acceptable ($\alpha$ =.813). Reliability for school support was acceptable ($\alpha$ = .730). Reliability for technical support was also acceptable ($\alpha$ = .872). Reliability for teachers' instructional use of software was acceptable ($\alpha$ = .725). Some items were deleted from the original scale to obtain the appropriate level of reliability; before integrated learning, games, programming and Web publishing were deleted, the reliability of the scale was low ($\alpha$ = .466). The personal use scale was dropped from further analyses, as well as teachers' use of teachers' application software, because the desired level of reliability could not be reached. Reliability of the students' application use of software was acceptable ($\alpha$ = .722), and reliability for students' instructional was also acceptable ($\alpha$ =.702). Reliability on the aversion scale was acceptable ($\alpha$ = .7), and the reliability was also acceptable for the affinity scale ($\alpha$=.701). In order to increase the level of reliability on the aversion scale, items such as helps solve problems, make demands on time and creates a gap among students, were eliminated from the scale. Before these items were deleted, the reliability was not an acceptable level ($\alpha$ = .505). Also, one item, computer use changes role, was dropped from the affinity scale because its elimination increased the level of reliability. Again, before this item was deleted, the reliability was not an acceptable level ($\alpha$ = .628). On the confidence and comfort scale, reliability was acceptable ($\alpha$ = .923).

# Chapter 4

# Results

## Introduction

The purpose of this study was to explore Oklahoma secondary journalism teachers' use and availability of computers in the classroom as well as their attitudes toward that use. Frequencies were used to determine teachers' attitudes and the availability of computer technology as well as its use. To determine the availability, use, and attitudes toward computers, a set of nine subscales measuring integration of computer use in the classroom were used. These subscales included instructional both for students and teachers, application software use for students because as indicated previously, the application software use for teachers could not be used, integration of technology in instruction, confidence and comfort in using the technology, technology aversion, technology affinity, school support and technical support. Hogarty, et. al. (2003) created 11 subscales that aim to determine the level of computer integration in instruction. The scales previously listed were adopted from the study to determine the level of integration of Oklahoma's secondary journalism teachers. Frequencies were used on for all the items to examine to what extent teachers used computers, software, and

different types of teaching modes. In addition, further analysis was needed to understand differences between and among groups on the nine subscales. For these analyses, t-tests and one-way ANOVA were used.

## Sample

A total of 53 Oklahoma teachers responded to the survey from the 151 surveys sent, an overall response rate of 46%. As Table 23 in Appendix B indicates, of the 76 e-mail surveys sent out, 41 teachers filled out the survey. In addition, 75 paper surveys were mailed because participants' e-mail addresses could not be determined, and 12 responses were received. Of this sample, one participant's response was not used because the paper survey that was returned was incomplete. Also, a second participant's paper-based response was not used because the participant did not finish the survey. Further, it is unknown how well this sample represents the larger population of secondary teachers in Oklahoma, as that information was unavailable.

Of the 51 usable responses, most (n = 41, 83.7%) were from females, and a few (n = 8, 16.3%) were from males. The ages of the participants ranged from 24 to 59. Most (n = 22; 43%) of the participants were 40 to 49 or (n = 13; 25.5%) were 50 to 59. However, only a few (n = 4; 7.8%) were 20 to 29, and a few more (n = 7; 13.7%) were between 30 and 39. Of those who responded, only four were National Board certified. Teachers can obtain National Board certification from the National Board for Professional Teaching Standards, a nonprofit organization dedicated to the improvement of teaching. The state of Oklahoma DOE offers incentives for teachers who gain National Board Certification. Most were certified traditionally (n = 34, 66.7%), and the rest were certified alternatively

(n =14, 27.5%). Teachers who gain certification traditionally finished an accredited teacher education program and were certified following state testing. Those who are alternatively certified obtained a bachelor's degree outside of teacher education, but they gained certification through the state. Of those who responded, most have earned or are earning graduate degrees (n = 27, 52.9%), and the others have bachelor's degrees (n = 20, 39.2%). Four participants did not respond to this question. Many of the participants (n = 21, 41.2%**)** reported the last year of college attended between as 1986 and 2000. Many (n = 7, 13.7%**)** reported the last year they attended school as between 2001 and 2005. Fewer of the participants (n = 8, 15%) attended school from 1970 to 1985.

## School Demographics

Most participants taught at larger schools with 501 to 2,500 students, which include middle school and high school (n = 31, 63.3%). As Table 23 in Appendix B indicates, the rest taught at schools ranging from 83 students to 500 students (n = 18, 36.7%), sometimes within the same building. Most participants reported the average class size were 11 to 20 students (n = 26, 53.1%), whereas the rest had 21 to 30 (n = 22, 44.9%).

1. What was the availability of computers in journalism classrooms in Oklahoma?

Participants answered several questions about use and access of computers, including personal use and beneficial computer education, to determine the availability of computers in Oklahoma's journalism classrooms. As Tables 23 and 26 in Appendix B indicate, nearly all reported they own a computer (n = 46, 90.2). Nearly all said they were

connected to the Internet (n = 41, 85.4%). Virtually all the participants had a computer in their classroom (n = 50, 98%). Most participants said they had access to a computer lab (n = 44, 86.3%). Finally, most have used a computer for many years. Almost half said they had used a computer for 10 to 20 years, (n = 27, 54%), while about a third have used a computer for five to 10 years, (n = 16, 32%). Only a handful has used a computer for 20 years or more, (n = 7, 13.7%).

## Software Use of Teachers

Participants were first asked about how they and their students have used software. Although these were scales to measure the use of both application software, which is used for productivity, and instructional software, which is used to teach, for teachers and students, frequencies were also used to determine what kinds of software that participants use, as well as how often. Answers were rated on a five-point frequency scale, "1" for not at all to "5" for every day. As Tables 9, 24, and 25 in the Appendix B indicate, reported use for both teachers and students was similar. In one case, use was the same. Participants indicated how often they use software to complete school related activities.

Most participants reported they use word processors, desktop publishing, graphics and Web browsers most frequently. Most (77%) participants use word processors every day (Mean = 4.63), though less than one-fourth (15.7%) said they use word processors several times per week. Participants reported high use of desktop publishing, as well. Most (61%) used this type of software every day (Mean = 4.35), but more than one-fourth (26%) reported they used this type of software several times a week. For graphics

software, many (33.3%) participants reported they used graphics software every day (Mean = 3.53). More than one-fourth (26%) reported they used graphics software several times a week. Overall, participants reported highest use with Web browsers. Most (86%) use Web browsers every day (Mean = 4.75), but few (7.8%) reported use of several times per week.

On the other hand, participants used other types of software less frequently; these types of software included spreadsheets, databases, programming, presentation software, Web publishing, drill and practice, integrated learning, tutorials and games. For teachers' use of spreadsheets, many (31.4%) indicated they did not use spreadsheets at all (Mean = 2.55). However, one-fourth of the teachers (26%) used spreadsheets several times a week. Teachers reported they hardly used databases. Most (57%) did not use databases at all (Mean = 1.71); over a fourth (28%) used databases once a month or less.

For presentation software, many (39%) used it once a month or less (Mean = 2.14), and a third (33.3%) did not use the software at all. For Web publishing, teachers also reported low usage. Almost three-fourths (63%) did not use the software at all (Mean = 2.06). Few (13%) used the software once a week. For drill and practice software, teacher use was again low. Most (78%) do not use this type of software at all (Mean = 1.46). Overall, most (63%) said they did not use gaming software at all (Mean = 1.74). Few (20%) said they used it once a month or less.

The least used software was simulation software. Most (65%) teachers did not use simulation software (Mean = 1.37). Less than a fourth (24%) used this type of software. Use of tutorials was a little higher. Less than half (49%) reported using tutorials once a month or less (Mean = 1.64); again, almost half (43%) did not use tutorials at all. Use of

integrated learning systems was a little higher. Most (67%) did not use this type of software at all (Mean = 1.98). However, few (16%) used software of this type every day. Finally, the participants' answers for programming were the same as their students' use. Most (88%) reported neither they nor their students use this type of software at all (Mean = 1.27).

## Software Use of Students

Students' use of software was similar to teachers' use, and in one case the use was the same. Again, the participants were asked to indicate how often they use software to complete school related activities. Answers were rated on a five-point frequency scale, "1" for not at all to "5" for every day. As Table 10 in Appendix B indicates, students used word processors, desktop publishing and graphics less than their teachers; however, almost the same number of teachers use word processors either several times per week (Mean = 4.2); almost half (41%) said every day. For desktop publishing, more than half (55%) said students used software like this every day (Mean = 4.18). However, more than a fourth (26%) reported students used desktop publishing software several times per week. Participants also reported higher student use for graphics software. Over a third (35%) reported students used graphics software several times a week (Mean = 3.63), and more than a fourth (15%) reported every day. Most students (64.7%) use Web browsers every day (Mean = 4.39). Less than a quarter (21.6%) said their students use Web browsers several times a week.

In software use, students' use was similar to teacher use with other applications, as well. Most students (42%) did not use spreadsheets at all (Mean = 1.92), whereas

about a third (34%) used spreadsheets once a month or less. Database use was also low; most (70%) students did not use databases (Mean = 1.42). However, less than a quarter of the students (22%) used databases once a month or less. Reported student use of presentation software was not a lot. Almost an equal amount of the students (46% and 44%, respectively) use presentation software not at all (Mean = 1.72), or once a month or less.

For student use of Web publishing, students (62%) do not use the software at all (Mean = 1.88), and less than a fourth (18%) use the software once a month or less. Reported use for drill and practice was also low; most do not use it (58.8%). Students use this type of software (Mean = 1.86), though a few students either use it once a month (13.7%) or less or several times a week (13.7%). Many students (45%) also do not use gaming software at all (Mean = 2.39). However, less than a fourth (21.6%) use the software several times a week. Many students (64.7%) do not use simulation software at all. A fourth of the students (25.5%) used the software about once a month or less (Mean = 1.49). Student use was not much higher than teacher use for tutorials. Students (44%) use this type of software once a month or less (Mean = 1.68). The same number reported their students did not use this type of software at all. For students' use of integrated learning systems, teachers reported about the same use for both they and their students. Less than a fourth (15.7%) use this software every day. Most students (62.7%) did not use this software at all (Mean = 2.08). Finally, the participants' for programming were the same as their students' use. Most reported neither they nor their students use this type of software at all (Mean = 1.27).

## Personal Use for Teachers

In addition to software use, participants' personal use of computers lends understanding to availability of computers. To gauge personal use of computers, they were asked to respond to a list of computer uses by indicating their frequency of use, "1" for not at all to "5" for every day. As Table 2 in Appendix B, the highest personal use of the computer was for communication. Most (86.3%) said they used a computer for communication every day (Mean = 4.78); few said they used the computer for communication several times per week. Like communication, most (52.9%) reported they used the computer several times a week for research (Mean = 4.16). A third (33.3%) said they used the computer for research every day. Productivity and fun were the next most frequent uses. For productivity, nearly half (42%) said they used the computer for productivity every day (Mean = 3.74). Less than a fourth (22%) said they use it for productivity several times a week, and fewer (10%) said they use the computer for this purpose once a month or less. Also, most (23.5%) used the computer for fun several times a week or once a month or less (27.5%). Finally few use the computer for multimedia. Almost a fourth said they use the computer for multimedia once a week (Mean = 2.63). More than a quarter said they used the computer for multimedia once a month or less (29.4%), and fewer said they did not use the computer for this purpose at all (23.5%).

## Beneficial Skills

Participants were also asked about computer education that would be beneficial, "1" for not at all to "5" for entirely. When asked about what computer-related skills would be beneficial, almost half (49%) said the integration of the computer into classroom instruction (Mean = 3.25), while more than a fourth (27.5%) said the skills would be useful to a moderate extent. As reported in Table 5 in Appendix B, many participants said preparation for using specific types of software would be beneficial. A third (33.3%) said these skills would be greatly beneficial (Mean = 3.22). However, almost a third (31.4%) said to a moderate extent, and a few (19.6%) said to a small extent. Finally, most thought introductory skills would be least helpful. Most (62.7%) said these skills would not be helpful at all (Mean = 1.49). One fourth (25.5%) said these skills would be helpful to a small extent, and few (11.8%) said these skills would be helpful to a moderate extent.

2. How are journalism teachers using computer technology in their classrooms?

Like research question one, participants answered a series of questions, to determine how journalism teachers are using computers in the classroom. While frequencies were used to determine access to software and how much teachers used particular types of software, the analysis used scales for application and instructional software. Also, integration, general school support and technical support scales were analyzed.

## Integration Subscale

Integration was measured vis-à-vis modes of instruction. These modes of instruction include learning activities such as individual learning, group projects, and student-centered instruction. The integration scale listed teaching modes, and participants were asked how often teachers used these modes on a frequency scale, from "1" for not at all to "5" for every day. First, frequencies will be examined to examine which teaching modes are used most often. As Tables 1 and 27 in the Appendix B indicate, teachers reported they used both communication (Mean = 4.08) and individual assignments (Mean = 3.86) almost every day (64.7% and 38%, respectively) when integrating computers into the classroom. Participants reported they also used small group, productivity, and research as activities to integrate the computer into instruction. More than a fourth (28%) used small group activities several times a week (Mean = 3.22), whereas less than a fourth (19.6%) said once a week, and a quarter (26%) said once a month. As a productivity activity, many (19.6%) used the computer every day (Mean = 3.10). Less than a fourth (21.6%) said several times a week or once a week or once a month. Most (19.6%) used computers for activities involving research every day or once a month (Mean = 3.47). Over a third (35.3%) said several times a week, and less than a fourth (21.6%) said once a week.

Teachers also used activities that were cooperative, student centered, problem solving, or presentation, though use was far less than other activities. Most used cooperative activities (Mean = 2.75) either once a month or less (33.3%) or once a week (21.6%). Also, student centered activities (Mean = 2.47) were used by few, but most

reported either not at all (25.5%) or once a month or less (35.3%). Participants reported using problem solving activities (Mean = 2.82); however, almost an equal amount said once a month or less (23.5%) or once a week (25.5%). Again, most used presentation activities (Mean = 2.53), but most did not use activities like these at all (33.3%) or once a month or less (23.5). Finally, some used activities as a reward (Mean = 1.76) or as a tutor (Mean = 1.96), but most reported they did not use technology for these purposes at all. Although frequencies can indicate how often teachers use activities to integrate computers, further analysis was needed to understand the differences that may arise on the overall integration scale.

## Technical and School Support Subscales

In addition to the integration scale, both school support and technical support scales were used to determine teachers' attitudes toward support received for use of computer technology, as well as the amount of help these teachers receive from technical support. Participants were asked to identify their level of agreement with a list of statements on a five-point Likert scale, from "1" for strongly agree to "5" for strongly disagree. As Tables 6, 7, 28 and 29 in Appendix B indicate, more than half agreed (56%), but not strongly, they received support from their administration (Mean = 2.88). Also, most either strongly agreed (42%) or agreed (36%) they had sufficient access to computers (Mean = 2.08). Most strongly agreed (14%) or agreed (54%) they receive encouragement from faculty members (Mean = 2.02). Most strongly disagreed (12%), (42%) disagreed or were neutral (12%) when asked if participants had adequate time to learn computer skills (Mean = 3.30).

However, participants viewed technical support less favorably than general school support. As for technical support, participants were asked to provide information pertaining to support at their school. Then they were asked to respond to a series of statements on a five-point Likert scale, from "1" for strongly disagree to "5" for strongly agree). Most said they had an onsite technician. Almost a fourth had one technician, and fewer said they had two technicians. Most said they strongly disagreed (17.4%) or disagreed (52.2%) felt they received adequate assistance (Mean = 2.26). For dedication, most said they strongly disagreed (21.7%) or disagreed (47.8%) reported their onsite technician was dedicated to helping others (Mean = 2.26). Moreover, most were neutral (21.7%), agreed (19.6%) or strongly agreed (10.9%) when asked if technical support must be contacted several times before responding (Mean = 3.20). However, reported help with integration fared better; most said they were neutral (23.9%), agreed (30.4%), or strongly agreed (8.7%) the computer specialist shows teachers techniques for integrating technology into the classrooms (Mean = 2.98).

3. Are there differences in how journalism teachers use computer technology in their classrooms?

To determine these differences, subscales measuring integration, technology support and general school support, and instructional and application software use were used. Inferential tests were conducted to determine if statistically significant differences existed between the groups regarding variables, such as age, level of education, gender, and other demographic variables.

## Integration Subscale

On the overall scale, t-tests were performed to determine whether the observed difference between the two sample means arose by chance or represents a true difference between the populations (Shavelson, 1996). One-way ANOVA were used to determine whether there were significant differences on the dependent variables across two or more groups. Among the variables examined on the overall scale were gender, input type, certification path, level of education, average class size, and total number of students attending the participants' school. In the analysis, male and female comprised gender. Also, certification path was composed of two groups, traditional and alternative certification. Level of education was also composed of two groups, those who hold bachelor's degrees and those who hold graduate degrees. In addition, categories for average number of students were collapsed into two categories: 11 to 20 and 21 to 30. Also, categories for total number of students per school were also collapsed: 1 to 500 and 501 to 2,500. Input type indicates whether participants used an online survey or a paper-based survey. If the main effects were significant in ANOVA, Scheffe's post hoc tests were conducted to determine which means were significantly different because cell sizes were not equal, and $\eta^2$ was used to determine the amount of variance associated with the dependent variable.

T-tests were used to analyze gender, input type, certification path, level of education, total number of students per school, and average number of students per class. As indicated in Table 14 in Appendix B, they were examined on the integration scale, and the analyses yielded no statistically significant results.

One-way ANOVA was used to examine age and the number of years that participants have used computers. Again, they were examined on the integration scales, and the analyses yielded no significant results, as Tables 20 and 21 in Appendix B indicate.

## Technical Support and School Support Subscales

Similarly to the integration scales, further statistical analyses were needed for both the school and technical support scales. T-tests were performed on gender, input type, certification path, level of education, the total number of students per school, and the average number of students per class, and one-way ANOVA were used for age and the total number of years that participants have used computers. The ANOVA yielded no significant results, as Tables 20 and 21 in Appendix B indicate.

On the overall technical support scale, an independent t-test revealed females (Mean = 13.75) viewed technical support more favorably than males (Mean = 9.9070) in their attitudes toward technical support ($t = 1.676$, $p = .001$). Consequently, 6% of the variance in technical support was associated with gender. As Tables 15 and 16 in Appendix B indicates, level of education revealed significant differences on the overall technical support scale. Differences also arose between levels of education ($t = 3.142$, $p = .003$); those holding bachelor's degrees (Mean = 13.150) viewed technical support more favorably than those holding graduate degrees (Mean = 9.1290). As a result, almost 40% of the variance in technical support was associated with level of education.

## Instructional and Application Software Use Subscales for Teachers

As mentioned under research question one, understanding how teachers use computers should also aim to understand use of software. Moreover, teachers' attitudes toward software are valuable. The instructional software use scale was used for further analysis, and was based on frequency of use, from "1" for not at all to "5" for every day. Teachers' instructional use of software includes the use of tutorials, simulations and drill and practice. As mentioned previously in the methodology, the level for reliability for teachers' use of application software was unacceptable. The frequencies for both application and instructional software use were reported under research question one. To examine differences among and between teachers, the same analyses used for integration and support were used. As Tables 12, 20, and 21 in Appendix B indicate, both t-tests and one-way ANOVA were used, and no significant differences with teacher use of software were found with the statistical analyses.

## Instructional and Application Software Use of Students

Participants also reported their students' use of software, as well. The same measure was used for both instructional and application software use for students. Instruction use of software for students included games, drill and practice, simulations, tutorials, programming and presentations. The frequencies for each item were also reported under research question one. In addition, the same analyses used with the other scales were also used to examine students' use. As Tables 11, 13, 20, and 21 in Appendix B indicate, this scale revealed no significant results among the variables.

4. What are Oklahoma secondary school journalism teachers' attitudes toward computers?

In addition, frequencies from subscales were used to determine participants' attitudes toward computers. These subscales included questions confidence and comfort, as well as technological aversion and technological affinity. Moreover, teachers' reported preparation in using computers was also used to discern how teachers were educated in computer use.

As Table 3 in Appendix B indicates, part of these teachers' attitudes toward computer use is their preparation. Although not a scale, the frequencies reveal how the teachers' answers are distributed. Preparation included undergraduate preparation, inservice training, individual learning, interaction and distance learning. Most (60.8%) said they learned more through individual learning (Mean = 3.51). Inservice training and interaction with peers were also prevalent ways of learning (Mean = 2.84). Almost half said to a moderate extent, they learned this way (41.2%). More than a third (37.3%) said to a small extent, they learned this way. For interaction (Mean = 2.8), more than a third said to a small extent (35.3%), they learned through this type of interaction. More than a quarter said they either learned through interaction to a moderate (27.5%) or great extent (27.5%). Finally undergraduate preparation and distance learning were less helpful in preparation. For undergraduate preparation, almost half (45.1%) said their undergraduate education was not at all helpful (Mean = 2.02). To a small (21.6%) or moderate extent (21.6%), almost the same amount said it was helpful. Participants favored distance learning the least (Mean = 1.39).

## Aversion and Affinity Subscales

To assess teachers' attitudes toward computers, both a technology aversion and a technology affinity scale were used. Items on both scales were grouped together. Participants were asked to provide their general attitudes toward computer use on a five-point Likert scale, from "1" for strongly agree to "5" for strongly disagree. The means for both scales are reported in Tables 31 and 32 in Appendix B. Items on the aversion scale included become tense talking, pressure to integrate, computers are dehumanizing, avoidance of computers, use should be confined, diminish of role, instructional use is a fad. Most strongly disagreed (38%) or disagreed (48%) they felt tense talking about computers (Mean = 4.16). However, some agreed (8%) or were neutral (6%). Again, most strongly disagreed (18%) or disagreed (44%) they felt pressure to integrate computers, though many agreed (10%) or were neutral (28%) (Mean = 3.70). Most indicated they felt computers were not dehumanizing (Mean = 4.22). Most either strongly disagreed (28%) or disagreed (68%). Only one agreed, and one was neutral. Most strongly disagreed (68%) or disagreed (30%) they avoid computers (Mean = 4.84). One teacher reported avoidance of computers. Most disagreed instructional use of computers was a fad (Mean = 4.62). Most strongly disagreed (70%) or disagreed (26%), though one strongly agreed, and one was neutral. Of confining use of computer technology to computer courses, most strongly disagreed (70%) or disagreed (30%) (Mean = 4.70). Finally, most strongly disagreed (46.9%) or disagreed (51%) computers diminish their roles as teachers (Mean = 4.45). One, though, responded neutral to the question.

Items on the affinity subscale included items such as student access, skills essential, frequency of student use, use to solve problems, train leads to increase of use, curriculum incorporation, makes teachers' jobs easier, skills help me, and enhance instruction. Most strongly agreed (68%) or agreed (28%) their students should have adequate access to computers (Mean= 1.40). Only one teacher strongly disagreed or was neutral. All either strongly agreed (68%) or agreed (32%) their students gained essential skills by working with computers (Mean = 1.32). Most strongly agreed (42.9%) or agreed (38.8%) they would like their students to use computers more (Mean = 1.82). However, one was neutral or disagreed. Most strongly agreed (16%) or agreed (56%) they liked to use computers to solve complex problems (Mean = 2.16). However, many reported they were neutral (24%) or disagreed (4%). Again, most strongly agreed (26.5%) or agreed (49%) training leads to increased use (Mean = 2.08). Some were neutral (14.3%) or disagreed (10.2%). With incorporating computer use into classroom curriculum (Mean = 1.76), most strongly agreed (36%) or agreed (54%); however, some remained neutral (8%) or disagreed (2%). The computer makes teachers' jobs easier (Mean = 1.78). Most strongly agreed (40%) or agreed (48%); the rest remained neutral (6%) or disagreed (6%). Finally, all reported computer skills help them (Mean = 1.42). Teachers either strongly agreed (58%) or agreed (42%).

## Confidence and Comfort Scale

Finally, a confidence and comfort scale was used to help determine how comfortable these teachers are in speaking about and using the technology. This scale

asked participants to respond with their level of agreement to several statements on a five-point Likert scale, from "1" for strongly agree to "5" for strongly disagree. The overall means for this scale is reported in Table 30 in Appendix B. Items on the scale included the following: adequate training; effective use; comfort in assigning computer; using for instruction, or with terms; use of multimedia; and the development of expertise. Most strongly agreed (23.5%) or agreed (52.9%) they received adequate training to use computers (Mean = 2.14). Fewer reported they were neutral (11.8%), disagreed (9.8%), or strongly disagreed (2%). Again, most strongly agreed (31.4%) or agreed (47.1%) they used computers effectively in the classroom (Mean = 2.06). More than a few reported they were neutral (5.9%) or disagreed (15.7%). Most reported they felt comfortable assigning computer work to their students (Mean = 1.90). They strongly agreed (33.3%), agreed (52.9%), and only a few disagreed (9.8%). Only two reported they were neutral. Few were neutral (7.8%) or disagreed (2%) in respect to computers enhancing teaching (Mean = 1.69). However, most strongly agreed (43.1%) or agreed (47.1%) computers enhance teaching. Although some reported they were neutral (7.8%) or disagreed (9.8%), most strongly agreed (35.3%) or agreed (47.1%) they felt comfortable using computers for instruction (Mean = 1.92). Again, some reported they were neutral (5.9%) or disagreed (3.9%) computers enhance student performance; however, most strongly agreed (33.3%) or agreed (56.9%) computers do enhance performance (Mean = 1.80). Most strongly agreed (29.4%) or agreed (58.8%) multimedia use enhances teaching (Mean = 1.84). Many reported they felt neutral (9.8%), and one disagreed. Most felt comfortable with computer terms (Mean = 1.92); most strongly agreed (27.5%), agreed (60.8%), or were neutral (5.9%). Only two disagreed, and only one strongly disagreed.

Finally, most strongly agreed (21.6%) or agreed (68.6%) they were developing expertise in using technology in the classroom (Mean = 1.90). Only 4 reported they felt neutral, and one disagreed.

R5: Are there differences in Oklahoma secondary school journalism teachers' attitudes toward computers?

To determine these differences, subscales for technological affinity and technological aversion as well as comfort and confidence were used. Inferential tests were conducted to determine if statistically significant differences existed between the groups regarding variables, such as age, level of education, gender, and other demographic variables.

Analyses with technological affinity scale revealed only one significant finding. The technological aversion scale revealed several significant differences with many of the variables. Results for both are reported in Tables 18 and 19 in Appendix B. The analyses were the same as with previously mentioned scales.

The variable that revealed significant differences on both scales was the total number of students who attend school. With this variable, five categories were collapsed. The first three cells were collapsed into one, and the last two categories were collapsed into one. Category one included schools that had a population from 1 to 500, and category two included schools that had a population of 501 to 2,500. A total of 18 subjects comprised the first category, and a total of 31 comprised the second category. A total of two subjects were missing. As Table 19 in Appendix B indicates, both groups revealed significant differences on both the technology aversion scale and the technology

affinity scale. On the overall technological aversion scale, an independent t-test (t = 4.008, p = .001) revealed schools with 1 to 500 students (Mean = 32.2778) were more technologically averse than those from schools with 501 to 2,500 students (Mean = 29.3548). Again, on the overall technological affinity scale, an independent groups t-test revealed schools with 1 to 500 students (Mean = 13.8889) also displayed less technological affinity than those from schools with 501 to 2,500 students (Mean = 16.5806). Attitudes of those teaching in smaller schools illustrated less technological affinity than those teaching in larger schools (t = -2.686, p = .010). For aversion, about 25.5% of the variance in aversion was associated with school size. For affinity, more than 13% of the variance in affinity was associated with school size.

Size also mattered in the classroom. Teachers were asked to give the average number of students in each class. The category contained data in three cells, with 11 to 20, 21 to 30, and 31 to 40. Cell three was not used due to its size; it contained only one participant, who had an average of 35 students per class. On the overall scale, an independent groups t-test (t = 2.426, p = .019) revealed teachers with an average of 11 to 20 students per class (Mean = 31.3462) were more technologically averse from teachers with an average of 21 to 30 students per class (Mean = 29.4545). Consequently, about 12.7% of the variance in aversion is associated with class size, as Table 18 in Appendix B indicates.

Input signifies how each teacher responded to the survey. Teachers who received e-mails about the survey were given a link to the online survey; those who were contacted through traditional mail were given a choice between the paper and online survey. Although it is unclear why, those who received an option chose to fill out the

paper survey and return it. On the overall scale, an independent t-test ($t = -2.601$, $p = .012$) revealed those who completed the survey online (Mean = 29.9000) were more technologically averse than those who completed paper surveys (Mean = 32.2727). Consequently, about 18.9% of the variance in aversion is associated with class size, as Table 18 in Appendix B indicates.

Certification path indicated the type of certification that these teachers held; these include only alternative and traditional certification paths. On the overall scale, an independent groups t-test ($t = -1.992$, $p = .052$) revealed those certified traditionally in Oklahoma (Mean = 29.9167) were less technologically averse than those certified alternatively in Oklahoma (Mean = 31.6000). About 21.3% of the variance in aversion is associated with class size, as Table 18 in Appendix B indicates.

To assess participants' confidence in using technology, a one-way ANOVA was performed. Those with fewer years experience in using computers were less comfortable than those with more years (ANOVA $df=2$, $f=3.622$, $p<.034$). As Table 21 in Appendix B indicates, those who have used computers for 5 to 10 years being less confident than those who have used computers for 10 to 20 years. More than 33.6% of the variance in confidence was associated with the number of years that participants have used a computer.

# Chapter Five

## Conclusions and Discussion Section

### Summary of Results

The purpose of this study was to explore the availability, use, and attitudes toward computers of Oklahoma's secondary journalism teachers. By employing nine subscales that measure integration as well as other questions to investigate these individual factors, the study's aim was to provide a more complete picture of how these journalism teachers use and integrate computers into classroom instruction. This integration is important because of *No Child Left Behind* and its requirements. Research question one sought to answer the availability of computers for journalism teachers, and research question two sought to answer how these teachers are using computers. Research question three sought to determine whether differences existed between and among these groups of teachers and how they use computers. Research question four sought to determine these teachers' attitudes toward computer use, and finally, research question five sought to determine if there were any differences among the teachers' attitudes. Significant differences were found with years of experience, gender, certification, input type, school size, level of education, and class size.

### Teacher and Student Software and Computer Use

Overall, all participants indicated they use computer technology in classroom instruction. Their use differed by the types of software used and the activities that they implement in the classroom and personal use. The study found nearly all the teachers use software that would commonly be used in journalism: word processors, desktop publishing, and graphics. Participants reported they used these applications almost every day or several times a week. Not only are teachers using these word processors, desktop publishing, and graphic design software, students use them every day, several times a week or at least once a month, as well. Although students used these applications less than teachers, both students and teachers use these software applications in similar ways. Previous literature indicated language arts teachers educate students to communicate (Rose & Meyer, 1994). However, these journalism teachers have progressed beyond other language arts teachers insofar as they have integrated graphics and other forms of publication. However, not many teachers used software applications such as Web publishing, presentation or database software. Nor did teachers use spreadsheets or tutorials often. As with the software mentioned above, students' use was similar to teachers' use.

In addition, most reported they use computers as a communication, productivity or research tool. Most (86.3%) said they used the computer for communications every day. This supports prior literature indicating teachers have used telecommunications for some time (Rickelman and Henk, 1990). Although use for productivity or research was lower than communications, almost half (52.9%) reported they used computers for research every day, and nearly half (42%) said they used computers for productivity several times a week. About a fourth indicated the computer was used for fun or for

multimedia; they used the computer for these purposes either several times a week or once a month. Their instruction was also more focused on the individual than small group instruction, which is generally the nature of journalism. However, participants also indicated they did not integrate computers into instruction as a reward or a tutor. It was less student-centered and cooperative, as well.

## Professional Development

Again, all the participants indicated they engaged in some level of professional development involving computers, though most (60.8%) reported they learned about them on their own. Some, albeit a much smaller percentage, reported they learned about technology through interaction, inservice training and undergraduate education. Only a small number of participants reported the use of distance learning. Participants' use of distance learning seems to contradict some literature about online learning and teacher preparation. Previous literature indicated a trend in the sharp increase of online education for teacher preparation (Shaughnessy & Gaedke, 2000). There is no indication these teachers fit into that mold.

In addition to the types of professional development, a third indicated training for specific applications would be highly beneficial, and almost half the integration of computer technology in instruction would be highly beneficial. However, a few reported they felt learning introductory computer-related skills would be beneficial, although their reported use indicates they already have these skills. This finding in part supports previous literature. Those with less experience will experience more anxiety; however those with more experience will work to hone their skills (Dusick & Yildirim, 2000).

Although teachers reported training in certain areas would be more beneficial than training in others, they also indicated they perceived less support than they need. Many (64%) reported a lack of adequate time to expand their computer-related knowledge. However, they also reported they received support from the administration for computer-related training; they agreed, but not strongly (56%). However, data indicated participants felt they received encouragement from other faculty members and administration, as well as access and encouragement. Previous literature indicates those with more experience with technology suggest teachers who are learning need time to learn not only how to use the technology but how to integrate it into their instruction (Kerr, 1991).

Participants reported mixed views about technical support. Some participants reported their school's on-site computer specialist does not adequately assist them in problem solving (69.6%) or is dedicated to helping teachers (69.5%). They (30.5%) also reported the specialists must be contacted several times before teachers receive response. Teachers (39.1%) also reported on-site specialists fail to help integrate computer technology into the classroom. This supports previous literature that indicates differences in how teachers and technical support interact (Willis, 1992). It also could support previous research about gender differences and perceived roles of technical support staff (Hawkes & Brockmueller, 2003).

## Attitudes

Previous studies (Dupagne & Krendi, 1992; Cates & McNaull, 1993) examined teachers' attitudes toward computers. These studies illustrated positive attitudes toward computers leads to use. Moreover, van Braak (2001) argued some teachers display

openness to the adoption of innovations. As mentioned above, nine subscales were used to gauge teachers' attitudes toward a number of concepts; the subscales together illustrate the overall integration. All of these teachers in this study used computers to teach journalism. While research questions one and two aimed to describe availability and use of computers, research question three sought to examine teachers' attitudes. The subscales for integration, technical and school support, and software use for both teachers and students were placed under research question two, as the concepts illustrate the availability of computers, software, and support. Further statistical analyses were conducted to determine differences in use under research question three. Frequencies from the subscales for technological aversion and affinity, as well as comfort and confidence, were placed under research question four. Finally, further statistical analyses for attitudes were placed under research question five. For further statistical analyses, items from each scale were added, and a composite score was used to analyze variables on each scale; the composite score is given below, and only the subscales that yielded significant results are discussed.

## Technical Support

Most of the participants reported their school had a technical support person, so this would indicate many should have help when the need for technical support arises. The technical support scale revealed a number of significant differences. Overall, perceptions about adequate technical support differed between groups by level of education; those holding graduate degrees (Mean = 9.1290) viewed technical support less favorably than those holding bachelor's degrees (Mean = 13.150). Among the teachers,

most (52.9%) held a graduate degree, while fewer held a bachelor's degree. Significant differences also arose between males and females; females (Mean = 13.75) viewed technical support more favorably than males (Mean = 9.9070). As mentioned previously, most participants felt assistance was less than adequate; they also reported the level of dedication was also less than adequate. Many reported response time was insufficient; in addition, most felt guidance with integration was not helpful. These differences may indicate a difference in the level of expectation for these two groups of teachers and the amount of support received. It should also be noted because journalism is so dependent upon computer technology, inadequate assistance could prove frustrating to teachers. Without working technology, teachers are left with few alternatives for teaching this subject area.

In part, the results could support previous research on gender differences between men and women in technical support roles (Hawkes & Brockmueller, 2003). Males and females not only differ in their perceptions of their roles, they also differ in how they obtain their technical support jobs. Men and women differ in the amount of time that they spend on certain tasks. Men spend more time on installation of hardware and software. Women, on the other hand, have heavier teaching loads, and will spend more time training teachers and staff to integrate technology into the curriculum. Furthermore, men will occupy technology support jobs, but they are less likely to be a part of the certified teaching staff. Again, women typically come from an education background. In addition, the differences among disciplines could account for the differences between levels of education. Typically, those in technical support positions have an educational background in science, as technology belongs to that discipline (Willis, 1992). Thus, those in

technical support positions and language arts teachers might experience difficulties because the technical support staff might not understand how technology fits into the "soft" sciences.

## Comfort and Confidence

If many of the participants felt technical assistance was insufficient, it is understandable some of the participants felt less comfortable with the technology that they use. The confidence and comfort scale revealed significant differences in the length of time these teachers have used computers. Those who had used computers for 5 to 10 years were less confident than those that have used computers for 10 to 20 years. Most of the participants reported a high level of comfort and confidence in using computers; however, a few reported they did not. The difference between the two groups indicates a higher level of comfort might come with higher percentage of use. Again, because journalism typically requires use of technology, a lack of confidence in using computer technology might pose difficulties in teaching the subject area. Feeling uncomfortable with technology can be especially daunting when using graphic design or web publishing software, where the interfaces are designed for those who know the software.

The correlation between years of experience and training is unclear. However, the link between the two should be studied more closely. The significant differences between the groups supports previous research that indicates more experienced users will have more confidence in their use (Orr, et. al., 2001).

## Technical Aversion and Affinity

Similar to the confidence and technical support scales, the technical aversion scale revealed several differences within the group of the participants. For instance, differences arose between groups for the average number of students per class. Those who taught smaller classes (Mean = 31.3462) were more likely to report technological aversion than those who taught larger classes (Mean = 29.4545). Nearly all participants reported no technological aversion; however, a handful of teachers reported an aversion. Some participants reported they agreed on items such as feeling tense when talking about computers, the belief that use of computers is an instructional fad, or avoiding computers. Also, differences arose between groups for size of school on both the aversion and affinity scales. Those who taught at larger schools (Mean = 16.5806) were more likely to report technological affinity than those who taught at smaller schools (Mean = 13.8889). Moreover, those who taught at larger schools (Mean = 29.3548) also reported less technological aversion than those who taught at smaller schools (Mean = 32.2778). On the affinity scale, most participants responded positively. Some participants disagreed on items such as computers make their jobs easier, using computers to solve complex problems, and training to increase use of computers in the classroom.

This difference could indicate the teachers' ability to teach a large class, as opposed to a smaller class. Although it would be easy to conclude small class size follows from smaller school size, this might not be the case. One possible explanation is the ability to effectively teach; larger class size might pose difficulty in teaching with computers. Moreover, school size also yielded differences, on both the aversion and affinity scales. The data could indicate those who teach at larger schools feel less

aversion and more affinity with computers. Again, those who teach at larger schools might face larger, more crowded classroom.

In addition to school and class size, input type and certification path also yielded significant results on the technological aversion scale. To briefly redefine these terms: input type refer to whether participants responded the online or the paper-based survey, and the certification path refers to teachers who obtained certification either through traditional or alternative certification.

In regard to input type, 41 participants responded using the online survey, and 12 participants responded using the paper-based survey. One of the paper-based surveys was not used because it was returned with no last page. Those who received the paper-based survey received the survey and a stamp, addressed envelope. The cover letter that accompanied the survey was the same sent to those who filled out the online survey. It also contained a link to the online survey, which none used. Analyses showed differences arose from these two groups on the technological aversion scale; those who filled out the online survey (29.9000) were less likely to report technological aversion than those who filled out the paper-based survey (32.2727). One possible explanation for these differences could lie in the nature of these two types of surveys; those who feel more comfortable with using computers, especially the Internet, used the online survey. Those who used the paper-based survey felt less secure with this method of response. Although participants responded they had access to computers, those who sent the paper-based survey opted for this response method because participants saw it as more convenient.

Certification path also revealed differences between the two paths: those certified traditionally (Mean = 29.9167) were less likely to report technological aversion than

those certified alternatively (Mean = 31.6000). Most who responded were certified traditionally; however, those who were alternatively certified comprised more than a quarter of those who responded. Oklahoma offers alternative certification to those who hold bachelor's degrees in a subject area and demonstrate adequate knowledge for the subject area, as well as the professional standards. The nature of this type of certification could account for the differences between these groups. Because those who are alternatively certified might possess computer experience outside of the teaching field, attitudinal differences could derive from differences in professional experience. Conversely, those who have taught using computers might also have more positive attitudes toward computers. Further, those who were taught to teach might find integration easier, as they know how to teach and can more easily see how computers supplement their instruction. This finding may support previous literature suggesting those who are alternatively certified may be less prepared in the methods of teaching (Shaughnessy & Gaedke, 2000).

## Comparison to previous studies

### Diffusion

Some studies have addressed obstacles within the academic world when it comes to innovation (Kozma, 1979; Lindquist, 1974). Moreover, others have studied diffusion of computer technology into the classroom (van Braak, 2001). All support Rogers' theory of how innovations can diffuse or be rejected in social groups (Rogers, 2003). Moreover, the focus of some educational innovation literature is implementation (Hord, 1987;

Moersch, 1995). Are teachers using computer technology, and if so, are they using it regularly?

The data show Oklahoma's secondary journalism teachers are not only using computer technology, they also use it regularly both personally and professionally. Further, these teachers have integrated computer technology into their instruction; their students use computer technology as a part of their class-related activities. Given the differences with respect to technical support, confidence, as well as aversion and affinity, this group of teachers has integrated computer technology in varying degrees. Using word processing, graphic design and desktop publishing software clearly indicates the relative advantage of using computer technology in journalism education. The types of activities used in instruction focus more on individual production, rather than collaborative work. Also, student use is similar to teacher use. Without possessing the knowledge and experience of computers, it would be difficult to pass these skills to students.

Most of the participants have used computers for a while, and in fact, many indicated learning introductory skills would not be beneficial. However, they reported training for specific applications and to learn how to integrate computer technology into their instruction would be beneficial. In addition, most indicated the technical support staff failed to provide guidance on how to integrated computer technology into their instruction. Although it is not clear how well this group of teachers represents the population, participants are not computer novices, and they actively seek out ways to support and expand their use of technology in instruction.

## Confidence and Comfort

As mentioned previously, a number of characteristics play a role in adoption of an innovation. Previous studies have examined attitudes toward computers as well as teachers' use of the technology in classroom instruction. Use of computers will depend upon how teachers perceive computer technology. Attitudes, including self-efficacy and anxiety, are linked to use (Brosnan, 1988; Karsten & Rex, 1998), and training can improve attitudes toward computers (Cates & McNaull, 1993).

All of the participants use computers, and most of them have used computers for some time. However, significant differences arose among the teachers. Teachers who have used computers for fewer years reported feeling less comfortable than those teachers who have used computers for more years. As reported previously, some of the participants indicated their training to use computers was less than adequate. Almost a fifth reported they used computers ineffectively in their instruction. About the same amount (9.8%) said they felt uncomfortable with assigning computer work or using computers for instruction. The data supports previous literature insofar as the group of teachers who have used computers for five to 10 years need more training and support not only in their computer use but their instruction, as well. In addition, confidence and positive attitudes toward computers and their use in instruction will develop with experience.

## Experience

As with confidence, experience also plays a role in attitudes toward computers and their use. Teachers who have more experience also have more confidence in using

computers (Orr, et. al., 2001). Although novice computer users experience anxiety, those who have experience try to hone and expand their skills (Matthews, 2000). In addition, teachers with more experience are more likely to use computers with students. Experience coupled with an understanding of students and their needs allows teachers to understand the computer needs of their students (Woodrow, 1991). Others found experience is related to a general openness to implement technology and innovativeness (van Braak, 2001). Finally, it takes time for teachers to gain experience in using computers, and they require time to figure out how to integrate computer technology into their personal teaching style (Kerr, 1991).

Participants' experience support previous literature. Most participants have used computers for a decade or more; however, they participants indicated further training for specific applications and integration would be beneficial. As mentioned previously, all the participants use computers, and their students' use computers. Moreover, gaining experience takes time; most disagreed they had adequate time to learn the skills that they need to use computers. Some of the participants reported they felt uncomfortable assigning computer work or using computers in their instruction. It is important to note preservice teachers are now trained to use technology. The gap in years of use and confidence should be closing in these groups.

## Gender and Age

Previous studies are inconsistent when it comes to both age and gender. With gender, some studies show gender affects attitudes and use of computers. In some cases, gender roles affected computer usage. Often, using computer technology was seen as a

"male" activity (van Braak, 2001). Differences in computer abilities among the genders have also been noted (Matthews, 2000). In addition, some studies found age was also a factor that affects attitudes and use. For instance, younger children liked using computers, and older children did not (Durndell et al., 1995).

In the present study, age was not a significant factor. The lack of significant differences supports previous research where age has not influenced attitudes (Cates & McNaull, 1993; Parry & Wharton, 1995). However, differences arose between males and females on the technical support scale. These differences also support previous research; though previous literature illustrated inequality between genders (Hawkes and Brockmueller, 2003). As mentioned previously, participants reported the level of technical support was not adequate, specifically with assistance and dedication. The data indicate teachers feel technical support is less helpful; differences in how males and females perceived support illustrate a possible consideration for future studies. While previous studies might conclude these differences result from perceived role or stereotype, it should be noted a level of expectation might account for this difference. Participants' disagreement with adequate support could indicate teachers perceive adequate assistance should exist but does not.

## Implications

The federal and state policies now require a level of proficiency with respect to computer technology. In part, this study sought to understand how teachers, as well as their students, use computers in the classroom. All of the participants use technology frequently, so their use illustrates what governmental policies promulgate. What does this

mean for the state of Oklahoma? This study indicates some of Oklahoma's teachers use computers; however, the number of teachers in this study is just a small percentage of those who teach secondary education in the state.

Almost all the participants used computer technology as a tool for instruction; both teachers and their students use computers for production, communication and research. In every aspect, student use of technology was similar to teacher use. The data reveals specific types of software use and activities that lend to understanding how teachers and their students use computers in the classroom. Conversely, it sheds light on what teachers and students are not using. For instance, some of the teachers who responded taught a broadcast production, multimedia or Internet publishing. In the profession, print media are struggling to compete and survive with online and broadcast media; a convergence of media now exists. The teachers who have expanded and incorporated other media technology might indicate they are early adopters of this convergence. As a result, journalism teachers might face the need to broaden what they teach. While the data indicate teachers engage in activities closely related to professional print journalists, the industry for professional journalists has changed. The data revealed Oklahoma's secondary teachers are not in line with these changes. Teaching Web design and video production are two ways to bring instruction up-to-date.

Also, the study indicates teachers possess rudimentary computer skills, and they would like more training in technology, primarily to include specific applications and integration of technology into the curriculum. More training and time to learn would help those who lack confidence, and both would be beneficial. Those who are traditionally certified enter the classroom with training in instruction; those who are alternatively

certified might know how to use computers, but they may not know how to integrate them into their instruction. However, participants understand journalism, and most know how to use computer technology as a tool for instruction that can help others in language arts.

Although the survey illustrated these teachers have and use computers, it lacked description of what types of computer hardware and software that teachers have available. Teachers may not use database or Web publishing software because they do not have the software. Knowing this would be helpful. If teachers use software like Web publishing less often because they need training, it would be helpful in promoting scholastic journalism. Previous studies about the salience of scholastic journalism classes nationwide show many schools offer broadcast production classes, media classes and other classes that differ from the traditional school newspaper or yearbook (Dvorak, 1999).

The state of Oklahoma would benefit from knowing what resources are available to teachers. Significant differences arose with both class and school size in technological aversion. With school size, significant differences also arose affinity. While data from the study would not be complete enough to indicate the lack of resources plays a role, it would be a fair conclusion. Those from smaller schools could reside in rural areas, and their access to adequate resources might be an issue. In addition, those who teach smaller classes might also have resource issues. These resources can include time, infrastructure, and equipment, as well as adequate school and technical support. In addition, those who teach at larger schools or teach larger classes were more likely to report technological aversion. If teachers work at a larger school, they have access to more peers, and if they

are located in a more urban setting like Tulsa or Oklahoma City, they have opportunity for professional development and resources that rural teachers do not.

Likewise, both the state and districts should devote more attention to technical support. While the state's technology plan was comprehensive, it should address issues concerning technical support. Teachers have abandoned other examples of educational technology – media such as radio, television and film – when their use of the technology is thwarted by technical problems (Cuban, 1986). More specifically, teachers' expectations and needs should be considered. The technical support staff may have a completely different idea of its role; teachers might hold different expectations about its role, as well.

Although the sample can only be generalized to scholastic journalism teachers in Oklahoma, it still provides a window into journalism education and technology used. It provides baseline data for one subject area, and it can be replicated in other states and for other subject areas. It helps provide picture of what type of activities that Oklahoma's secondary journalism teachers are using for classroom instruction. It also provides data on technology use, as well as how students in Oklahoma are using technology.

Beyond this, the subject area requires the use of technology; many of the participants taught other classes that require the use of technology, such as keyboarding or computer applications. These teachers may represent the early adopters of technology within the education social system of the state. However, in this group of data, there are significant differences in how the groups perceive confidence, aversion and technical support. These areas require attention. Bandura (1986) argues, just like innovations, behavior diffuses through social systems. If some of the participants feel aversion toward

using computers or less confident, then these attitudes may be the result of belonging to a specific group.

## Limitations

As opposed to Hogarty, et. al. (2003), this study focused on secondary journalism teachers. From a compiled list from the Oklahoma Interscholastic Press Association and an Internet search, 151 teachers in the state received the survey. Roughly 46% of the teachers filled out the surveys. Since the total number of certified journalism teachers is not known, it is difficult to generalize to the population of secondary journalism teachers in Oklahoma. According to the Oklahoma DOE, there are 111 teachers who are certified and teach journalism in Oklahoma. Moreover, due to the nature of journalism and journalism education, the results of availability and use are expected. However, not enough information is available on integration of computer technology in other subject areas in the state. It behooves school districts and the state to investigate further.

Literature on scholastic journalism has focused on the existence of journalism education: what programs exist, what is taught and who teaches these classes. In respect to scholastic journalism, this study is a small portion of journalism educators across the country. It would be much stronger if it encompassed the technology use of journalism teachers nationwide. Again, difficulty exists in generalizing to a larger population due to the geographic scope of the study.

Finally, the changing nature of journalism should also be considered in studying technology use of journalism educators. The scales for software use are especially helpful in painting a picture for what many standards dictate: teachers integrating computer

technology into instruction, and students learning how to use technology responsibly, to research and communicate effectively and ethically. However, one teacher who responded to the survey teaches broadcast classes. Reworking the software application use by teachers scale, as well as instructional software use, would be useful to account for the possible evolution of traditionally scholastic journalism classroom. These classrooms may participate in digital photography, Internet design and audio-video production.

## Future Research

Future research should build upon these results. Possible studies would compare subject areas and include teachers from a number of states. To help understand the population better, the study should include whether the school is considered rural or urban. Also, some questions of the survey could be revamped, as to improve data collection. For example, more specific information is needed on how often students use computers, as well as what types of software and hardware that teachers have available.

Because past research on diffusion of innovations shows the adoption throughout a social group, it is safe to say the Oklahoma's secondary journalism teachers who participated in the survey have integrated computer technology into their instruction. The data also indicate some would still use computers or other types of technology because they teach science or computer classes. However, in order to understand the larger picture, studies should examine adoption on a larger scale. Secondary education encompasses many more subject areas than simply journalism. It is necessary to look at the state's ability to implement technology in these other subject areas.

Future studies must focus on technical aversion, support, and confidence, as well. These studies should focus on why these differences exist. While some results would be expected, i.e., years used and confidence, others were not. Technical support should be examined more thoroughly. If teachers avoided or failed to integrate technology because they lack experience or knowledge, these are remedied through training. However, if teachers perceive technical support as inadequate, larger problems might exist. Those in Oklahoma's classrooms have other methods to teach students, and they have no need to depend upon technology to teach classes. The presence of policies dictating the use of technology presents a dilemma for teachers who want to use technology but have no support in reaching a resolution to technical problems.

In addition, while the sample is almost half of the teachers who are certified and teach journalism in the state, attention should be paid to the overall number of certified journalism teachers in the state. According to the DOE, Oklahoma has a total number of 6,062 people who are certified in journalism but are not employed in education. Moreover, the state has 3,523 people who are certified and are employed in education. Only 111 people are certified and teach journalism in the state. This disparity should be examined in future research.

Larger studies should also examine the state's technology policy and how well that policy is implemented. Because NCLB funding is largely contingent upon state performance, the state should consider including resource management to its technology/telecommunications plan. As indicated above, technical support and technological aversion yielded significant results. While Oklahoma's technology plan addresses teachers and professional development, it fails to address technical support for

schools and districts. For example, the national technology plan suggests schools and districts consider leasing plans with refreshing cycles of 3 to 5 years. However, Oklahoma's technology plan mentions little about how to overcome this technological hurdle: To ensure access, the state should include how districts and schools can hope to provide access on a continual basis, not just to meet short-term goals of access.

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# Appendix A
# Survey

# Computer Use Study

Welcome to the Computer Use Study. It seeks to learn more about the views of secondary journalism teachers and how they feel about the use of computers as a part of their students' learning processes. Diane Varner, graduate student in the School of Journalism and Broadcasting at Oklahoma State University, and Dr. Stan Ketterer, associate professor in the School of Journalism and Broadcasting at Oklahoma State University, are conducting the study. If you have any questions about the study or would like to contact the researchers, please send a message to Diane Varner at diane.varner@okstate.edu.

If you have any questions concerning your rights as a research participant, please contact Dr. Carol Olson, Oklahoma State University Research Compliance Office, 415 Whitehurst Hall, 405.744.1646 or colson@okstate.edu.

You have been purposely selected to participate in the study. Thus, your participation is important to the study.

Participation in this study is voluntary and confidential. Nobody will be identified. The results will be used for academic research purposes only. Your completion of this survey implies your consent for your results to be included in the study. If you want to receive an executive summary of the results, please enter your email address at the end of the study.

Please answer the questions below and click on the Submit button when you are finished. The study should take less than 15 minutes.

Thank you very much for your participation in this research.

## Types of Software Used to Complete School Related Activities

| For each type of software, please check your response to indicate how often you use the software (top row) and how often your students use the software (bottom row) to complete school related activities. | Not At All | Once a month or less | Once a week | Several Times a week | Every day |
|---|---|---|---|---|---|
| Word processors (e.g., Apple Works, MS Word, Claris Works) | | | | | |
| Your Use | | | | | |
| Students' Use | | | | | |
| Spreadsheets (e.g., Excel, Lotus) | | | | | |
| Your use | | | | | |
| Students' Use | | | | | |
| Databases (e.g., Filemaker Pro, Access) | | | | | |
| Your Use | | | | | |

Students' Use

Desktop Publishing (e.g., Pagemaker, Microsoft Publisher, Printshop)

Your Use

Students' Use

Presentation software (e.g., PowerPoint, Persuasion, Hyperstudio)

Your Use

Students' Use

Web publishing programs (e.g., FrontPage, PageMill, Dream Weaver, Claris Homepage)

Your Use

Students' Use

Graphics programs (e.g., Draw & paint programs, Photoshop, FreeHand, Illustrator)

Your Use

Students' Use

Drill and Practice

Your Use

Students' Use

Games

Your Use

Students' Use

Simulations

Your Use

Students' Use

Tutorials

Your Use

Students' Use

Integrated Learning Systems (e.g., Josten CCC)

Your Use

Students' Use

**Web browsers (e.g., Netscape Communicator, Internet Explorer)**

**Your Use**

**Students' Use**

**Programming/authoring tools (e.g., Authorware, Java, Visual Basic)**

**Your Use**

**Students' Use**

## Integration Of Computers into the Classroom

| Listed below are teaching modes in which computers may be used. Indicate how often you use computers in each teaching mode. | Not At All | Once a month or less | Once a week | Several Times a week | Every day |
|---|---|---|---|---|---|
| Small group instruction | | | | | |
| Individual instruction | | | | | |
| Cooperative groups | | | | | |
| As a reward | | | | | |
| To tutor | | | | | |
| To promote student centered learning | | | | | |
| As a research tool for students | | | | | |
| As a problem solving/decision making tool | | | | | |
| As a productivity tool (to create charts, reports or other products) | | | | | |
| As a classroom presentation tool | | | | | |
| As a communication tool (e.g., email, electronic discussion) | | | | | |

## Teacher Preparation for Computer Use

| For the following items, please check the one response that best reflects the extent to which you've acquired computers skills from the following sources. | Not at All | To a small extent | To a moderate extent | To a great extent | Entirely |
|---|---|---|---|---|---|
| As part of your undergraduate coursework | | | | | |
| Inservice courses/workshops | | | | | |
| Independent learning (e.g., online tutorials or books) | | | | | |
| Interaction with other faculty/staff | | | | | |
| Distance learning courses | | | | | |

### To what extent do you think the following types of computer education would be beneficial to you?

| | | | | | |
|---|---|---|---|---|---|
| Introductory computer skills | | | | | |
| Specific Applications (e.g., spreadsheets, desktop publishing) | | | | | |
| Specialized training on integrating computers into the classroom | | | | | |

### We would like to ask some questions about your teaching.

What subject do you teach?

None

If not the above, please specify:

How long have you taught secondary school?

If you have taught more than just secondary school, how many total years have you been teaching?

What are the total number of students who you teach?

On average, how many students do you teach per class?

About how many students attend your school?

## Confidence and Comfort Using Computers

| Please read the following statements and circle the one response that best reflects your level of agreement. | Strongly Agree | Agree | Neutral | Disagree | Strongly Disagree |
|---|---|---|---|---|---|
| I have had adequate training in using computers. | | | | | |
| I use computers effectively in my classroom. | | | | | |
| I am comfortable giving computer assignments to my students. | | | | | |
| The computer enhances my teaching. | | | | | |
| I am comfortable using computers during classroom instruction. | | | | | |
| My use of computer technology enhances student performance. | | | | | |
| Incorporating multi-media into lessons enhances teaching. | | | | | |
| I am comfortable with computer terminology. | | | | | |
| I am developing expertise in the uses of technology in the classroom. | | | | | |

## General School Support

| Please read the following items and circle the one response that best represents your level of agreement. | Strongly Agree | Agree | Neutral | Disagree | Strongly Disagree |
|---|---|---|---|---|---|
| I have adequate time to learn computer skills. | | | | | |
| I have sufficient access to computers at my school. | | | | | |
| I receive a sufficient level of computer related support at my school. | | | | | |
| Faculty members encourage the use of computers. | | | | | |
| The administration supports computer related training. | | | | | |
| The administration actively encourages the use of computers in the classroom. | | | | | |
| The administration actively encourages the use of computers outside the classroom. | | | | | |

## Your Personal Use of Computers

| Please reach each statement and check the one response that best reflects the frequency of your computer use. | Not at all | Once a month or less | Once a week | Several times a week | Every day |
|---|---|---|---|---|---|
| For multimedia activities (e.g., CD-ROM, laserdiscs) | | | | | |
| For fun/entertainment related activities | | | | | |
| As a communication tool (e.g., email, electronic discussion) | | | | | |
| As a productivity tool (to create charts, reports or other products) | | | | | |
| As a research tool | | | | | |

Hang in there! We're almost finished!

## Technical Support

| Does your school have an on-site computer support specialist? | Yes | No | Don't Know |
|---|---|---|---|

**If Yes**, how many computer specialists does your school have?

**If No or Don't Know**, then skip this section and move on to the next section.

| | Strongly disagree | Disagree | Neutral | Agree | Strongly Agree |
|---|---|---|---|---|---|
| The on-site computer specialist adequately assists me in problem solving and trouble shooting. | | | | | |
| The on-site computer specialist is dedicated to helping others. | | | | | |
| I have to contact our specialist several times before I get assistance. | | | | | |
| Our computer specialist shows me techniques to integrate technology into the classroom. | | | | | |

### Next, we would like to ask you some questions about computers.

| | Yes | No |
|---|---|---|
| Do you own a computer? | | |
| If yes, are you connected to the Internet? | | |

How many years have you used computers?

0-1 Years

| | Yes | No |
|---|---|---|
| Do you have access to computer labs? | | |

How many hours do your students use computers for your class?

| | Yes | No |
|---|---|---|
| Do you have computers in your classroom? | | |

If yes, how many?

Also, please briefly desribe how you use the computer(s) in the classroom:

## Attitudes toward Computer Use

| The folllowing statements address general attitudes towards computer use. Please check the one answer that best reflects your level of agreement. | Strongly Agree | Agree | Neutral | Disagree | Strongly Disagree |
|---|---|---|---|---|---|
| I would like every student in my classes to have access to a computer. | | | | | |
| Computer skills are essential to my students. | | | | | |
| I feel tense when people start talking about computers. | | | | | |
| I feel pressure form others to integrate the computer more into my classroom. | | | | | |
| I would like my students to be able to use the computer more. | | | | | |
| Computers are dehumanizing. | | | | | |
| I avoid the computer whenever possible. | | | | | |
| Computer instruction is just another fad. | | | | | |
| The use of computers should be confined to computer courses. | | | | | |
| I like using the computer to solve complex problems. | | | | | |
| More training would increase my use of the computer in the classroom. | | | | | |
| Computers diminish my role as a teacher. | | | | | |
| Computers should be incorporated into the classroom curriculum. | | | | | |
| Computers make my job easier. | | | | | |
| Computers further the gap between students along socio-economic lines. | | | | | |
| Computer skills help me as a professional. | | | | | |
| Learning computers make high demands on my professional time. | | | | | |
| Computers change my role as a teacher. | | | | | |
| I can help others solve computer problems. | | | | | |
| Computers enhance classroom instruction. | | | | | |

Hang in there! We're almost finished!

**Finally, we would like to ask a few more quick demographic questions.**

Are you national board certified? Yes No

If yes, please briefly describe your motivation in pursuing the certification:

What is your level of education?
Some College

What method did you use in obtaining certification? Alternative Traditional

What was your last year of college attendance?

What is your gender? Male Female

What is your age?

Please enter your email if you would like an executive summary of this survey.

Thank you for your help with this survey! All you have to do now is submit your responses.

Submit

# Appendix B
# Tables

**Table 1, Frequencies for examples of integration of computers into the classroom**

| Description of item | N | Mean | SD | Not at all | Once/Month | Once/Week | Several Times/Week | Every Day |
|---|---|---|---|---|---|---|---|---|
| Small group | 50 | 3.22 | 1.250 | 8% | 26% | 20% | 28% | 18% |
| Individual | 50 | 3.86 | 1.178 | 2% | 18% | 10% | 32% | 38% |
| Cooperative | 51 | 2.75 | 1.230 | 15.7% | 33.3% | 21.6% | 19.6% | 9.8% |
| Reward | 50 | 1.76 | 1.135 | 60% | 18% | 12% | 6% | 4% |
| Tutor | 51 | 1.96 | 1.019 | 39.2% | 37.3% | 13.7% | 7.8% | 2% |
| Student Centered | 51 | 2.47 | 1.270 | 25.5% | 35.3% | 13.7% | 17.6% | 7.8% |
| Research | 51 | 3.47 | 1.138 | 3.9% | 19.6% | 21.6% | 35.3% | 19.6% |
| Problem Solving | 51 | 2.82 | 1.322 | 19.6% | 23.5% | 25.5% | 17.6% | 13.7% |
| Productivity | 51 | 3.10 | 1.345 | 13.7% | 23.5% | 21.6% | 21.6% | 19.6% |
| Presentation | 51 | 2.53 | 1.447 | 33.3% | 23.5% | 13.7% | 15.7% | 13.7% |
| Communication | 51 | 4.08 | 1.468 | 11.8% | 9.8% | 2% | 11.8% | 64.7% |

**Table 2, Frequencies for personal use of computers for Oklahoma's journalism teachers**

| Description of Item | N | Mean | SD | Not at all | Once/Month Less | Once/Week | Several Times/Week | Every Day |
|---|---|---|---|---|---|---|---|---|
| Multimedia | 51 | 2.63 | 1.356 | 12 | 15 | 12 | 4 | 8 |
| Fun | 50 | 3.04 | 1.355 | 7 | 14 | 8 | 12 | 9 |
| Communication | 51 | 4.78 | .610 | 0 | 1 | 2 | 4 | 44 |
| Productivity | 50 | 3.74 | 1.352 | 3 | 10 | 5 | 11 | 21 |
| Research | 51 | 4.16 | .758 | 0 | 2 | 5 | 27 | 17 |

## Table 3, Frequencies of preparation for Oklahoma's journalism teachers

| Description of Item | N | Mean | SD | Not at All | Once/Month Or less | Once/Week | Several times/ week | Everyday |
|---|---|---|---|---|---|---|---|---|
| Undergraduate | 51 | 2.02 | 1.122 | 23 | 11 | 11 | 5 | 1 |
| Inservice | 51 | 2.84 | .903 | 1 | 19 | 21 | 7 | 3 |
| Individual Learning | 51 | 3.51 | .967 | 3 | 5 | 9 | 31 | 3 |
| Interaction | 51 | 2.8 | 1.000 | 4 | 18 | 14 | 14 | 1 |
| Distance | 51 | 1.39 | .874 | 39 | 8 | 1 | 2 | 1 |

**Table 4, Frequencies for confidence and comfort of Oklahoma's journalism teachers**

| Descriptions of items | N | Mean | SD | Strongly Agree | Agree | Neutral | Disagree | Strongly Disagree |
|---|---|---|---|---|---|---|---|---|
| Adequate training | 51 | 2.14 | .96 | 12 | 27 | 6 | 5 | 1 |
| Use Effectively | 51 | 2.06 | 1.008 | 16 | 24 | 3 | 8 | 0 |
| Comfortable Assigning | 51 | 1.90 | .878 | 17 | 27 | 2 | 5 | 0 |
| Enhances teaching | 51 | 1.69 | .707 | 22 | 24 | 4 | 1 | 0 |
| Comfortable with instruction | 51 | 1.92 | .913 | 18 | 24 | 4 | 5 | 0 |
| Enhances performance | 51 | 1.80 | .722 | 17 | 29 | 3 | 2 | 0 |
| Multimedia | 51 | 1.84 | .674 | 15 | 30 | 5 | 1 | 0 |
| Comfortable with terms | 51 | 1.92 | .821 | 14 | 34 | 3 | 2 | 1 |
| Develop Expertise | 51 | 1.90 | .608 | 11 | 35 | 4 | 1 | 0 |

**Table 5, Frequencies of professional development that Oklahoma's journalism teachers would find beneficial**

| Decriptions of items | N | Mean | SD | Not at All | To Small Extent | To Moderate Extent | To Great Extent | Entirely |
|---|---|---|---|---|---|---|---|---|
| Intro skills | 51 | 1.49 | .703 | 32 | 13 | 6 | 0 | 0 |
| Specific Applications | 51 | 3.22 | 1.064 | 3 | 10 | 16 | 17 | 5 |
| Integration | 51 | 3.25 | .956 | 3 | 8 | 14 | 25 | 1 |

## Table 6, Frequencies of how Oklahoma's journalism teachers feel about school support

| Description of items | N | Mean | SD | Strongly Agree | Agree | Neutral | Disagree | Strongly disagree |
|---|---|---|---|---|---|---|---|---|
| Time | 50 | 3.30 | 1.111 | 1 | 16 | 6 | 21 | 6 |
| Access | 50 | 2.08 | 1.307 | 21 | 18 | 2 | 4 | 5 |
| Support | 50 | 2.88 | 1.081 | 3 | 19 | 13 | 11 | 4 |
| Faculty Encouragement | 50 | 2.02 | .769 | 7 | 27 | 8 | 7 | 1 |
| Administration | 50 | 2.88 | 1.081 | 11 | 28 | 9 | 2 | 0 |
| Encouragement from Administration | 50 | 2.36 | .964 | 11 | 30 | 6 | 3 | 0 |
| Administration outside of class | 50 | 2.04 | .755 | 3 | 23 | 21 | 3 | 0 |

## Table 7, Frequencies for Oklahoma's journalism teachers for technical support

| Descriptions of item | N | Mean | SD | Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree |
|---|---|---|---|---|---|---|---|---|
| Adequate Assistance | | 2.26 | .905 | 8 | 24 | 8 | 6 | 0 |
| Dedication | | 2.26 | 1.042 | 10 | 22 | 8 | 4 | 2 |
| Response | | 3.20 | 1.222 | 5 | 9 | 10 | 16 | 6 |
| Integration | | 2.98 | 1.202 | 6 | 11 | 14 | 4 | 0 |

## Table 8, Technical support frequencies, availability of technical support

| Descriptions of item | N | Mean | SD | 1 | 2-3 | 4-6 |
|---|---|---|---|---|---|---|
| Have technical support person | 40 | | | | | |
| Don't Have | 8 | | | | | |
| Don't Know | 2 | | | | | |
| Missing | 1 | | | | | |
| How Many | | 1.38 | 1.153 | 20 | 15 | 2 |

## Table 9, Frequencies for software use of Oklahoma's journalism teachers

| Description of Item | N | Mean | SD | Not At All | Once/Month | Once/Week | Several/Week | Everyday |
|---|---|---|---|---|---|---|---|---|
| Word Processors | 51 | 4.63 | .824 | 1 | 1 | 2 | 8 | 39 |
| Spreadsheets | 51 | 2.55 | 1.331 | 16 | 10 | 9 | 13 | 3 |
| Databases | 51 | 1.71 | 1.045 | 29 | 14 | 4 | 2 | 2 |
| Desktop Publishing | 51 | 4.35 | 1.036 | 2 | 2 | 3 | 13 | 31 |
| Presentations | 51 | 2.14 | 1.132 | 17 | 20 | 6 | 6 | 2 |
| Web Publishing | 51 | 2.06 | 1.502 | 32 | 1 | 7 | 5 | 6 |
| Graphics | 51 | 3.53 | 1.405 | 6 | 8 | 7 | 13 | 17 |
| Drill Practices | 50 | 1.46 | 1.034 | 40 | 3 | 2 | 4 | 1 |
| Games | 51 | 1.71 | 1.119 | 32 | 10 | 2 | 6 | 1 |
| Simulations | 51 | 1.37 | .662 | 36 | 12 | 2 | 1 | 0 |
| Tutorials | 50 | 1.64 | .663 | 22 | 25 | 2 | 1 | 0 |
| Integrated Learning | 51 | 1.98 | 1.568 | 34 | 4 | 1 | 4 | 8 |
| Web Browsers | 51 | 4.75 | .771 | 1 | 1 | 1 | 4 | 44 |
| Programming | 51 | 1.27 | .896 | 45 | 3 | 0 | 1 | 2 |

## Table 10, Frequencies for software use of Oklahoma's journalism students

| Description of Item | N | Mean | SD | Not At All | Once/Month | Once/Week | Several/Week | Everyday |
|---|---|---|---|---|---|---|---|---|
| Word Processors | 51 | 4.20 | .872 | 1 | 1 | 6 | 22 | 21 |
| Spreadsheets | 50 | 1.92 | .986 | 21 | 17 | 7 | 5 | 0 |
| Databases | 50 | 1.42 | .758 | 35 | 11 | 2 | 2 | 0 |
| Desktop Publishing | 50 | 4.18 | 1.207 | 3 | 4 | 2 | 13 | 28 |
| Presentations | 50 | 1.72 | 1.132 | 17 | 20 | 6 | 6 | 2 |
| Web Publishing | 50 | 1.88 | 1.409 | 31 | 9 | 1 | 3 | 6 |
| Graphics | 51 | 3.63 | 1.296 | 5 | 6 | 7 | 18 | 15 |
| Drill Practices | 51 | 1.86 | 1.200 | 30 | 7 | 6 | 7 | 1 |
| Games | 51 | 2.39 | 1.524 | 23 | 8 | 3 | 11 | 6 |
| Simulations | 51 | 1.49 | .784 | 33 | 13 | 3 | 2 | 0 |
| Tutorials | 50 | 1.68 | .683 | 22 | 22 | 6 | 0 | 0 |
| Integrated Learning | 51 | 2.08 | 1.585 | 32 | 4 | 2 | 5 | 8 |
| Web Browsers | 51 | 4.39 | 1.021 | 1 | 4 | 2 | 11 | 33 |
| Programming | 51 | 1.27 | .896 | 45 | 3 | 0 | 1 | 2 |

**Table 11, t-test results for differences among journalism students' use of application software**

| Description of items | T | df | *P* | $\eta^2$ |
|---|---|---|---|---|
| Certification | 1.728 | 49 | .090 | .280 |
| Gender | .330 | 49 | .743 | .277 |
| Input | -.187 | 49 | .852 | .270 |
| Level of Education | -1.360 | 49 | .180 | .426 |
| Number of students | -1.551 | 47 | .128 | .554 |
| Average/Class | -.191 | 46 | .850 | .290 |

**Table 12, t-test results for differences among journalism students' use of instructional software**

| Description of items | T | df | *P* | $\eta^2$ |
|---|---|---|---|---|
| Certification | .948 | 49 | .348 | .267 |
| Gender | -.212 | 49 | .833 | .202 |
| Input | 1.267 | 49 | .211 | .077 |
| Level of Education | .233 | 49 | .817 | .174 |
| Number of students | -.340 | 47 | .735 | .200 |
| Average/Class | .564 | 46 | .576 | .210 |

**Table 13, T-test results for differences among journalism teachers' use of instructional software**

| Description of items | T | df | *P* | $\eta^2$ |
|---|---|---|---|---|
| Certification | .109 | 49 | .914 | .114 |
| Gender | -.227 | 49 | .822 | .019 |
| Input | -.323 | 49 | .748 | .274 |
| Level of Education | 1.692 | 49 | .097 | .084 |
| Number of students | -.698 | 47 | .489 | .084 |
| Average/Class | -1.002 | 46 | .337 | .127 |

**Table 14, T-test results for differences between journalism teachers' integration of computer technology into the classroom**

| Description of items | T | df | *P* | $\eta^2$ |
|---|---|---|---|---|
| Certification | -.618 | 49 | .539 | .591 |
| Gender | 1.676 | 49 | .100 | .605 |
| Input | -.398 | 49 | .692 | .527 |
| Level of Education | -.238 | 49 | .813 | .548 |
| Number of students | -1.218 | 47 | .229 | .371 |
| Average/Class | .147 | 46 | .884 | .392 |

**Table 15, T-test results for differences among journalism teachers' attitudes toward school support for use of technology**

| Description of items | T | Df | *P* | $\eta^2$ |
|---|---|---|---|---|
| Certification | .462 | 49 | .646 | .384 |
| Gender | -1.129 | 49 | .059 | .182 |
| Input | -.022 | 49 | .982 | .238 |
| Level of Education | -1.319 | 49 | .193 | .458 |
| Number of students | .000 | 47 | 1.000 | .395 |
| Average/Class | .100 | 46 | .920 | .310 |

**Table 16, T-test results for journalism teachers' attitudes toward technical support and their use of technology**

| Description of items | T | df | *P* | $\eta^2$ |
|---|---|---|---|---|
| Certification | .032 | 49 | .975 | .109 |
| Gender | 1.698 | 49 | .001* | .208 |
| Input | 1.015 | 49 | .415 | .190 |
| Level of Education | .001 | 39.701 | .003* | .398 |
| Number of students | -.305 | 47 | .762 | .384 |
| Average/Class | -.653 | 46 | .517 | .153 |

Note. *p < .05, two-tailed.

**Table 17, t-tests results for journalism teachers' attitudes toward confidence and comfort**

| Description of items | T | df | *P* | $\eta^2$ |
|---|---|---|---|---|
| Certification | 1.369 | 49 | .177 | .315 |
| Gender | -.753 | 49 | .455 | .163 |
| Input | 1.234 | 49 | .223 | .360 |
| Level of Education | .464 | 49 | .645 | .389 |
| Number of students | -.144 | 47 | .886 | .341 |
| Average/Class | -.248 | 46 | .805 | .425 |

**Table 18, t-test results for journalism teachers' attitudes toward technology aversion**

| Description of items | T | df | *P* | $\eta^2$ |
|---|---|---|---|---|
| Certification | -1.992 | 49 | .052* | .213 |
| Gender | -1.132 | 49 | .263 | .117 |
| Input | -2.601 | 49 | .012* | .189 |
| Level of Education | -.224 | 49 | .823 | .064 |
| Number of students | 4.008 | 47 | .001* | .408 |
| Average/Class | 2.426 | 46 | .019* | .197 |

Note. *p < .05, two-tailed.

**Table 19, T-test results for journalism teachers' attitudes toward technology affinity**

| Description of items | t | df | *P* | $\eta^2$ |
|---|---|---|---|---|
| Certification | 1.112 | 49 | .272 | .270 |
| Gender | .294 | 49 | ,770 | .261 |
| Input | 1.224 | 49 | .227 | .263 |
| Level of Education | -.764 | 49 | .449 | .171 |
| Number of students | -2.686 | 47 | .010* | .406 |
| Average/Class | -.644 | 46 | .523 | .308 |

Note. *p < .05, two-tailed.

## Table 20, One-way Analysis for scales and age

| Ages | | | | | | |
|---|---|---|---|---|---|---|
| Scale | SS | MS | F | df | P | $\eta^2$ |
| Teacher Instruction | | | .477 | 3 | .700 | |
| Between | 45.279 | 15.093 | | | | |
| Within | 1487.230 | 31.643 | | | | |
| Student Instruction | | | 2.479 | 3 | .073 | |
| Between | 18.571 | 6.190 | | | | |
| Within | 117.351 | 2.497 | | | | |
| Student Application | | | .429 | 3 | .733 | |
| Between | 19.747 | 6.582 | | | | |
| Within | 720.410 | 15.328 | | | | |
| Integration | | | .183 | 3 | .908 | |
| Between | 37.947 | 12.649 | | | | |
| Within | 3251.974 | 69.191 | | | | |
| School Support | | | .678 | 3 | .570 | |
| Between | 36.429 | 12.143 | | | | |
| Within | 842.316 | 17.922 | | | | |
| Technical Support | | | .458 | 3 | .713 | |
| Between | 44.995 | 14.998 | | | | |
| Within | 1537.593 | 32.715 | | | | |
| Comfort | | | 1.398 | 3 | .255 | |
| Between | 138.281 | 46.094 | | | | |
| Within | 1549.131 | 32.960 | | | | |
| Aversion | | | .528 | 3 | .665 | |
| Between | 13.050 | 4.350 | | | | |
| Within | 387.303 | 8.240 | | | | |
| Affinity | | | 1.852 | 3 | .151 | |
| Between | 67.956 | 22.652 | | | | |
| Within | 547.750 | 12.229 | | | | |

## Table 21, One-way ANOVA for scales, years used

| | Years Used | | | | | |
|---|---|---|---|---|---|---|
| Scale | SS | MS | F | df | P | $\eta^2$ |
| Teacher Instruction | | | .174 | 2 | .840 | |
| Between | .981 | .491 | | | | |
| Within | 134.941 | 2.811 | | | | |
| Student Instruction | | | 1.807 | 2 | .175 | |
| Between | 51.819 | 25.910 | | | | |
| Within | 688.337 | 14.340 | | | | |
| Student Application | | | 1.368 | 2 | .264 | |
| Between | 82.632 | 41.316 | | | | |
| Within | 1449.878 | 30.206 | | | | |
| Integration | | | 1.855 | 2 | .167 | |
| Between | 236.081 | 118.040 | | | | |
| Within | 3053.841 | 63.622 | | | | |
| School Support | | | .583 | 2 | .562 | |
| Between | 20.850 | 10.425 | | | | |
| Within | 857.895 | 17.873 | | | | |
| Technical Support | | | 1.311 | 2 | .279 | |
| Between | 81.961 | 40.981 | | | | |
| Within | 1500.627 | 31.263 | | | | |
| Comfort | | | 3.622 | 2 | .034* | .336 |
| Between | 221.266 | 110.633 | | | | |
| Within | 1466.146 | 30.545 | | | | |
| Aversion | | | .520 | 2 | .598 | |
| Between | 8.493 | 4.246 | | | | |
| Within | 391.860 | 8.164 | | | | |
| Affinity | | | .210 | 2 | .812 | |
| Between | 5.569 | 2.784 | | | | |
| Within | 637.137 | 13.274 | | | | |

Note. *p < .05, two-tailed. Scheffe's post hoc found significant differences, p < .49.

# Table 22, Demographics of participants

| Description of Item | Frequency | Percentage |
|---|---|---|
| **Gender** | **49** | **100%** |
| Male | 8 | 16.3% |
| Female | 41 | 83.7% |
| **Age** | **46** | **100%** |
| 20-29 | 4 | 7.8% |
| 30-39 | 7 | 15.2% |
| 40-49 | 22 | 47.8% |
| 50-59 | 13 | 28.3% |
| **Certification** | **48** | **100%** |
| Traditional | 34 | 69.4% |
| Alternative | 14 | 28.6% |
| **Level of Education** | **47** | **100%** |
| Undergraduate | 20 | 42.6% |
| Graduate | 27 | 57.4% |
| **Input Type** | **51** | **100%** |
| Online | 41 | 80% |
| Paper | 10 | 20% |
| **Own a Computer?** | **51** | **100%** |
| Yes | 46 | 90.2% |
| No | 5 | 9.8% |
| **Internet Connected?** | **48** | **100%** |
| Yes | 41 | 85.4% |
| No | 7 | 14.6% |
| **Computer in Classroom** | **51** | **100%** |
| Yes | 50 | 98% |
| No | 1 | 2% |
| **Access to computer lab?** | **51** | **100%** |
| Yes | 44 | 86.3% |
| No | 7 | 13.7% |
| **Average number of students/class** | **45** | **100%** |
| 11-20 | 26 | 53.1% |
| 21-30 | 22 | 44.9% |
| **Total number of students/school** | **49** | **100%** |
| 83-500 | 18 | 36.7% |
| 501-2,500 | 31 | 63.3% |
| **Years Used Computers** | **50** | **100%** |
| 5 to 10 | 16 | 31.4% |
| 10 to 20 | 27 | 54% |
| 20 or more | 7 | 14% |

# Table 23, Classes taught by participants

| |
|---|
| Computer and business technology, desktop publishing, and multimedia |
| Computer science and yearbook |
| Journalism, English and yearbook |
| Keyboarding applications, Accounting, yearbook |
| Desktop publishing and graphic design, business technology |
| Journalism, including newspaper and yearbook, AP English language |
| Journalism, newspaper/yearbook, literature |
| Keyboarding (typing), introduction to business, yearbook |
| English, yearbook |
| Newspapers, yearbooks, magazine and Mass Media writing |
| English I, 2, 3, 4, yearbook |
| Journalism, computer applications I and II, yearbook |
| English I, Humanities, Yearbook |
| 8th grade English, high school newspaper |
| English IV, English II, journalism (newspaper) |
| Pre-AP English, creative writing and basic journalism, advise newspaper |
| Yearbook, Newspaper, Technical theater (stagecraft) |
| English, Yearbook |
| Newspaper, English |
| Computer Usage, Web design, Desktop Publishing, Yearbook |
| 9th and 10th PreAP English, Journalism I and II |
| Composition 10, journalism I, II, III |
| Advanced Computer Technology, Biology, Chemistry |
| English I, Newspaper, Yearbook |
| English II, Yearbook, Journalism |
| Internet Publishing |
| English, Yearbook, Art |
| Yearbook, Journalism, French, English |
| English 10, Yearbook, Types of Lit for slow readers |
| Yearbook, Newspaper, Photography |
| English, Yearbook, Speech |
| Fundamentals of Media, Television Production, Broadcast Production |
| Yearbook, journalism, English II |
| English, Yearbook |
| Journalism I, Yearbook, Newspaper, Photography |
| English II and III, Journalism, Newspaper |
| English, journalism, newspaper, Yearbook |
| English 12, journalism/newspaper |
| Yearbook 1 and 2, Newspaper 1 and 2, preAP English 2, Public Speaking |
| Journalism |
| Computers, newspaper, math |
| Business and information technology, desktop publishing, newspaper/yearbook |
| Keyboarding |
| Computer applications, Accounting, journalism |
| Yearbook, Newspaper, Photography |
| Yearbook, Newspaper, English I |
| Journalism 1, 2, 3, 4, sophomore literature |

**Table 24, Students' Application Software Use Subscale**

| Items | Mean | SD |
|---|---|---|
| Composite Mean | 24.9020 | 5.53626 |
| Overall Mean | 2.7669 | .61514 |
| Word Processors | 4.2 | .872 |
| Spreadsheets | 1.92 | .986 |
| Databases | 1.42 | .758 |
| Desktop Publishing | 4.18 | 1.207 |
| Web Publishing | 1.88 | 1.409 |
| Graphics | 3.63 | 1.296 |
| Integrated Learning | 2.08 | 1.585 |
| Web Browsers | 4.39 | 1.021 |
| Programming | 1.27 | .896 |

**Table 25, Students' Instructional Software Use Subscale**

| Items | Mean | SD |
|---|---|---|
| Composite Mean | 10.3922 | 3.84748 |
| Overall Mean | 1.7320 | .64125 |
| Games | 2.39 | 1.524 |
| Drill/Practice | 1.86 | 1.200 |
| Simulations | 1.49 | .784 |
| Tutorials | 1.68 | .683 |
| Programming | 1.27 | .896 |
| Presentations | 1.72 | .882 |

**Table 26, Teachers' Instructional Software Use Subscale**

| Items | Mean | SD |
|---|---|---|
| Composite Mean | 4.3725 | 1.64877 |
| Overall Mean | 1.4902 | .64067 |
| Tutorials | 1.64 | .663 |
| Simulation | 1.37 | .662 |
| Drills/Practice | 1.46 | 1.034 |

**Table 27, Integration Subscale**

| Items | Mean | SD |
|---|---|---|
| Composite Mean | 32.0392 | 8.11162 |
| Overall Mean | 2.9127 | .73742 |
| Small Group | 3.22 | 1.250 |
| Individual instruction | 3.86 | 1.178 |
| Cooperative groups | 2.75 | 1.230 |
| As a reward | 1.76 | 1.135 |
| To Tutor | 1.96 | 1.019 |
| Student-centered learning | 2.47 | 1.270 |
| Research tool | 3.47 | 1.138 |
| Problem solving/decision tool | 2.82 | 1.322 |
| Productivity tool | 3.10 | 1.345 |
| Presentation tool | 2.53 | 1.447 |
| Communication tool | 4.08 | 1.468 |

**Table 28, Technical Support Subscale**

| Items | Mean | SD |
|---|---|---|
| Composite Mean | 10.3922 | 5.62599 |
| Overall Mean | 2.6275 | 1.45548 |
| Adequately assists | 2.26 | .905 |
| Dedicated | 2.26 | 1.042 |
| Contact several times | 3.20 | 1.222 |
| Show integration techniques | 2.98 | 1.202 |

**p = .001 for level of education. **p = .003 for gender. Eta-squared for gender was 6%, and was 40% for level of education.

**Table 29, General School Support Subscale**

| Items | Mean | SD |
|---|---|---|
| Composite Mean | 17.1569 | 4.19224 |
| Overall Mean | 2.4510 | .59889 |
| Adequate time to learn | 3.30 | 1.111 |
| Sufficient access to computers | 2.08 | 1.307 |
| Sufficient level of computer-related support | 2.88 | 1.081 |
| Faculty members encourage | 2.02 | .769 |
| Administration supports training | 2.88 | 1.081 |
| Administration encourages use | 2.36 | .964 |

**Table 30, Confidence and Comfort Subscale**

| Items | Mean | SD |
|---|---|---|
| Composite Mean | 17.1765 | 5.80932 |
| Overall Mean | 1.9085 | .64548 |
| Adequate Training | 2.14 | .960 |
| Use computers effectively | 2.06 | 1.008 |
| Comfortable assigning work | 1.90 | .878 |
| Enhances teaching | 1.69 | .707 |
| Comfortable using during instruction | 1.92 | .913 |
| Enhances student performance | 1.80 | .722 |
| Multimedia enhances teaching | 1.84 | .674 |
| Comfortable with computer technology | 1.92 | .821 |
| Developing expertise in computer uses | 1.90 | .608 |

Years of computer use revealed significant differences among groups (ANOVA = df = 2, f = 3.622, p = .034). Eta-squared was 33.6%.

**Table 31, Technological Aversion Subscale**

| Items | Mean | SD |
|---|---|---|
| Composite Mean | 30.4118 | 2.82967 |
| Overall Mean | 4.3445 | .40424 |
| Tense talking about computers | 4.16 | .866 |
| Feel pressure to integrate | 3.70 | .886 |
| Computers are dehumanizing | 4.22 | .582 |
| Avoid computers | 4.64 | .598 |
| Use confined | 4.70 | .463 |
| Diminish role | 4.45 | .542 |
| Instructional use/fad | 4.62 | .725 |

***p = .001 for size of school. *p = .019 for class size.
*p = .012 for input type. *p = .052 for certification type.

**Table 32, Technological Affinity Subscale**

| Items | Mean | SD |
|---|---|---|
| Composite Mean | 15.5294 | 3.58526 |
| Overall Mean | 2.7669 | .61514 |
| Student access | 1.40 | .728 |
| Skills Essential | 1.32 | .471 |
| Students/Use More | 1.82 | .905 |
| Use/solve problems | 2.16 | .738 |
| Train/use increase | 2.08 | .909 |
| Curriculum incorporation | 1.76 | .687 |
| Makes job easier | 1.78 | .815 |
| Skills help me | 1.42 | .499 |
| Enhance instruction | 1.66 | .519 |

**p = .010 for school size.

# Appendix C
# IRB Approval and Modification Forms

Diane Varner
206 Paul Miller Building
School of Journalism and Broadcasting
Oklahoma State University

Carol Olson, Chair
Institutional Review Board
415 Whitehurst
Oklahoma State University

October 28, 2004

Dear Carol,

Included with this letter are the emails that you requested per the approval of our IRB application. I apologize for taking so long.

Please let me know if you have any questions. You can reach me at 405-880-3738 or diane.varner@okstate.edu. Dr. Stan Ketterer, my advisor, would also be helpful in answering any questions that you may have. You can reach him at 405-744-8270 or kstan@okstate.edu.

Thank you,

Diane S. Varner
Graduate candidate, M.S. in Media Management

# Oklahoma State University Institutional Review Board

Date: Monday, October 11, 2004

IRB Application No AS0524

Proposal Title: Computer Use and Journalism Teachers: How Oklahoma's Secondary Journalism Teachers Use Computer for Classroom Instruction

Reviewed and Processed as: Exempt

**Status Recommended by Reviewer(s): Approved** **Protocol Expires: 10/10/2005**

Principal Investigator(s):

Diane S. Varner
206 Paul Miller Bldg.
Stillwater, OK 74078

Stanley E. Ketterer
315 Paul Miller Building
Stillwater, OK 74078

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The IRB application referenced above has been approved. It is the judgment of the reviewers that the rights and welfare of individuals who may be asked to participate in this study will be respected, and that the research will be conducted in a manner consistent with the IRB requirements as outlined in section 45 CFR 46.

☒ The final versions of any printed recruitment, consent and assent documents bearing the IRB approval stamp are attached to this letter. These are the versions that must be used during the study.

The reviewer(s) had these comments:
As requested in question 2(a)(3), please send copies of the solicitation and follow-up emails.

As Principal Investigator, it is your responsibility to do the following:

1. Conduct this study exactly as it has been approved. Any modifications to the research protocol must be submitted with the appropriate signatures for IRB approval.
2. Submit a request for continuation if the study extends beyond the approval period of one calendar year. This continuation must receive IRB review and approval before the research can continue.
3. Report any adverse events to the IRB Chair promptly. Adverse events are those which are unanticipated and impact the subjects during the course of this research; and
4. Notify the IRB office in writing when your research project is complete.

Please note that approved protocols are subject to monitoring by the IRB and that the IRB office has the authority to inspect research records associated with this protocol at any time. If you have questions about the IRB procedures or need any assistance from the Board, please contact me in 415 Whitehurst (phone: 405-744-1676, colson@okstate.edu).

Sincerely,

Carol Olson

Carol Olson, Chair
Institutional Review Board

# E-mail Message for Participants

**The following is an e-mail message that will be sent to all subjects requesting their voluntary participation in the study. Please note that it includes a hypertext link to the online survey. The introduction to the survey reiterates much of the information here. Thank you very much.**

Full name of the participant,

You are invited to participate in a research study concerning the integration of computer technology into Oklahoma's secondary journalism programs. The study seeks to learn more about computers are used by both teachers and students in this subject area. Your answers to the online study will provide insights that will help other educators and administrators to better understand this pivotal course. The information also may be used to improve teaching.

Your name was selected randomly to participate in this study. Consequently, your participation also will help ensure a representative sample. Naturally, your participation is voluntary, and your answers will be kept strictly confidential. Your participation in the study implies your consent for the aggregate results to be shared with other educators.

Please click on the e-mail link below and be taken directly to the study. It should take less than 15 minutes for you to complete. You may withdraw from participation at any time.

This e-mail message and the survey have been approved by the Institutional Review Board at Oklahoma State University. If you have any questions, please contact me by e-mail at diane.varner@okstate.edu or by phone at (405) 880-3738.

Thank you very much.

http://www.surveymonkey.com/s.asp?u=98636693517

Diane Varner
Graduate Candidate in Media Management
School of Journalism and Broadcasting
Oklahoma State university
Phone: (405) 880-3738

Dear journalism teacher,

Last week we sent you an e-mail asking for your help by answering a survey about the integration of computer technology into Oklahoma's secondary journalism programs. If you have already completed the survey at http://www.surveymonkey.com/s.asp?u=98636693517, thank you for your participation.

If you haven't had the opportunity to complete the survey yet, we would we greatly appreciate your help by taking a few minutes to answer the questionnaire. It can be found at http://www.surveymonkey.com/s.asp?u=98636693517, or we can send it to you as an attachment via e-mail. No identifying information will be collected from your response. You can also request a paper version through the mail at the address below. If you choose this option, we will immediately discard the address on the envelope. The results of this project will be summarized, and we guarantee that your response will remain anonymous.

If you do not wish to receive any future e-mails about this research, you can send your e-mail address to diane.varner@okstate.edu and your name will immediately be removed from this mailing list.

Regardless of whether you choose to participate, we would be more than happy to send you a summary of our findings. To receive a summary, please send an e-mail to diane.varner@okstate.edu or request a copy via the U.S. postal system (see address below).

If you have any questions or concerns about completing the questionnaire or about being in this study, you may contact me at (405) 880-3738 or at diane.varner@okstate.edu, or my advisor, professor Stan Ketterer at (405) 744-8270 or kstan@okstate.edu.

Thanks in advance for your participation.

Best wishes,

Diane S. Varner
209 Paul Miller Building
Oklahoma State University
Stillwater, OK 74075

Dear journalism teacher,

We are drawing near the end of our research and would greatly appreciate your help in answering our survey at http://www.surveymonkey.com/s.asp?u=98636693517 about the integration of computer technology in Oklahoma's secondary journalism programs. If you have already completed the survey, we deeply appreciate your participation.

No identifying information will be collected from your response. You can also print out the survey at http://www.surveymonkey.com/s.asp?u=98636693517 and mail it to the address below. If you choose this option, we will immediately discard the address on the envelope. The results of this project will be summarized, and we guarantee that your response will remain anonymous.

Regardless of whether you choose to participate, we would be more than happy to send you a summary of our findings. To receive a summary, please send an e-mail to diane.varner@okstate.edu or request a copy via the U.S. postal system (see address below).

This is the last reminder you will receive about this project. If you have any questions or concerns about completing the questionnaire or about being in this study, you may contact me at (405) 880-3738 or at diane.varner@okstate.edu, my advisor, professor Stan Ketterer at (405)744-8270 or kstan@okstate.edu.

Thanks in advance for your participation.

Best wishes,
Diane Varner
209 Paul Miller Building
Oklahoma State University
Stillwater, OK 74075

(The Academic Affairs Institutional Review Board (AA-IRB) at Oklahoma State University has approved this research project. If you have any questions or concerns about your rights as a participant in this study, you may contact the AA-IRB at (405) 744-0405 or at colson@okstate.edu.)

# Research Plan

The survey research method will be used as the primary method for the study because it allows for the exploration of not only the availability but also the use of computers by Oklahoma secondary journalism teachers within a realistic setting (Buddenbaum and Novak, 2001). The research will help illustrate how teachers use computers in their classroom instruction. The method has high external validity. It is especially appropriate for gauging the attitudes of such a specific group. The survey method will allow the researcher to administer the questionnaire online, and it will enable the researcher to reach educators throughout the state (Hogarty, Lang, and Kromrey, 2003).

## Sample

Oklahoma teachers were selected for this research for many reasons. Oklahoma ranks below the national average in many respects, two of which are student achievement and teacher salary. In per-pupil spending, Oklahoma ranks 42nd in the country. It could be argued examining this group's need and use of computer technology in the classroom provides baseline information for future studies in the state. Also, due to changes in both state and federal law, determining both need and use provides understanding of the future needs as well as complication in meeting the goals of regulations and standards promulgated by government agencies and professional organizations.

About 100 of Oklahoma's junior and senior high school journalism teachers will comprise the purposive sample. Because journalism is a profession that demands its professionals to remain proficient in technology and its evolution, it could be argued these teachers must also stay proficient in order to transfer that knowledge to their students. Moreover, like many other states, the Oklahoma state government has struggled financially with budget shortfalls. Teachers were chosen as subjects because the research concerns how those who will implement federal guidelines of integrating computer technology into classroom instruction feel about integration and how they will accomplish these goals.

A mailing list of roughly 107 journalism teachers was obtained from the Oklahoma Interscholastic Press Association (OIPA), a professional organization that includes secondary and postsecondary journalism educators throughout Oklahoma. The sample will be comprised of journalism educators from the OIPA. The e-mail addresses for many of those members will be obtained from the Oklahoma Department of Education Web site. The link to the online survey will be sent to those teachers in e-mail. Teachers will receive an e-mail to a link for an online questionnaire in October 2004.

## Operationalization

Overall, the study will measure use, access, and attitudes of teachers and computer technology in classroom instruction. Nearly all of the scales were adopted from Hogarty, Lang and Kromrey (2003), and they include a number of scales that measure types of software used by educators and students, level of integration and computer support questions, (see Appendix A, survey questions). Scales measuring personal use and preparation, attitudes as well as comfort and confidence are also included. Demographic information will also be collected. Questions concerning certification path and other subject areas taught were added, as Oklahoma offers alternative certification.

Research question one asks Oklahoma secondary school journalism teachers about their availability of computers. Availability of computers will be defined as the ability of educators to use computers in classroom instruction. This availability will be measured by asking respondents a myriad of questions. These questions will include questions about personal use and preparation, years used computers for Instruction, access to a computer lab, and hours per week that students spend in the computer lab. A 14-question Types of Software Used to Complete School Related Activities scale will be used. Items will be measured on a five-item Likert scale. It will seek to answer questions about activities for both students and teachers and will measure availability by helping

determine what software that teachers may have and use in the classroom (Hogarty, Lang and Kromrey, 2003).

Research question two asks how Oklahoma secondary school journalism teachers differ in their use of computers. Computer use will be defined as teachers' use of computers for classroom instruction. The scales used for availability will also be used to help determine how these teachers differ. In addition to those scales, a 12-question Integration of Computers into the Classroom scale will be used. It will use a five-item Likert scale to measure the level of integration. Also, an eight-question Teacher Preparation for Computer Use scale and a nine-question Confidence and Comfort Using Computers scale will be used. Both these scales will use a five-item Likert scale. Computer uses include use of computers in the classroom, for personal, administrative or instructional uses (Hogarty, Lang and Kromrey, 2003).

Research question three asks how Oklahoma secondary journalism teachers differ in their attitudes toward computers. Attitudes toward computers include how teachers feel about using computers for classroom instruction. A 20-question, Attitudes toward Computer Use scale will be used; it will use five-item Likert scales. In addition, previously mentioned scales measuring comfort and confidence, personal use and integration will also be used to measure teachers' attitudes (Hogarty, Lang and Kromrey, 2003).

Research question four asks what factors influence Oklahoma high school journalism teachers' adoption of computers. Adoption is defined as the level use of computer technology in classroom instruction. Use includes both teacher and student use of computers. The scales mentioned previously and the demographic information will measure adoption of computers; this information will help the research understand what factors influence teachers' adoption (Hogarty, Lang and Kromrey, 2003).

Finally, the study will gather demographic information, such as age, gender and school in which the teachers work. This information will help to measure the four research questions and will aid in understanding possible characteristics of adoption among Oklahoma's secondary journalism educators.

## Questionnaire

The online questionnaire will contain the OSU logo at the top. Dillman (1978) argues use of a university logo helps to increase the response rate. In addition to the OSU logo, the questionnaire will include a statement explaining the survey, contact information for the researcher and implied consent, as required by the Oklahoma State Institutional Review Board (Clark, 2004).

A 90-item questionnaire was adopted and adapted for the study. Hogarty, Lang, and Kromrey (2003) devised the study to explore uses of computers in classroom technology in Florida. Although the study used both paper- and Web-based surveys, this study will use only an online survey. Using Web-based surveys offers researchers an easy, cost-effective means by which to conduct research, due to the World Wide Web's popularity and availability (Hogarty, Lang and Kromrey, 2003). The first section asks general questions about the types of software used to complete activities in the classroom, integration of computers into the classroom, and general as well as technical support. The second section will contain scales that will measure availability and use on several scales: teacher preparation for computer use, confidence and comfort using computers, personal use of computers and attitudes towards computer use, (see appendix A, survey questions).

The final section of the survey will include demographic information, such as age, gender, education level and years of teaching experience. The survey will also include a section for teachers' to write their e-mail in order to request a copy of the executive summary from the researcher. The e-mail addresses will be used to determine who responded to initial e-mails; these addresses will be removed so reminder e-mails are sent to those who have not responded.

Other differences between this questionnaire and the survey used by Hogarty,

Lang and Kromrey (2003) include specific questions about computer ownership and use. Also, questions concerning national board certification and certification path not only does Oklahoma offer an alternative certification path it also promotes national board certification for its teachers. The researcher also included year graduated from college.

## Procedure

The list of names obtained from the Oklahoma Interscholastic Press Association will be used to find e-mail addresses vis-à-vis school Web sites from the Oklahoma Department of Education Web site. A list of e-mail addresses will be compiled and used to administer the survey.

A pretest will be conducted to pinpoint problems with the questionnaire as well as data-gathering processes. The questionnaire will be revised as needed. Oklahoma secondary journalism teachers, as well as journalism educators at a large, Midwestern university, will provide the sample for a pretest. The survey instrument will be administered online.

To increase the response rate, a preliminary e-mail will be sent to teachers informing them of the survey and when an e-mail message with the link to the online questionnaire will be sent (Dillman, 1978). To avoid confusion, teachers will receive a link to the survey in an e-mail; it allows respondents to go directly to the survey. One week after this initial e-mail, another e-mail will be sent to teachers with the link to the Web site containing the questionnaire. The research will monitor e-mail addresses of those responding and will send reminder e-mails to those who have not responded. Further, reminder e-mails will be sent only to those educators who have not responded. A final reminder e-mail will be sent two weeks after the link to the questionnaire has been sent to those educators who have not responded, informing them that it will be their last chance to participate in the survey.

## Data Analysis

When respondents click the submit button on the questionnaire, data will be sent to a text file. The text file will then be imported into an Excel file. The researcher will add the variable names and import the data into SPSS for analysis. The data will be screened for accuracy and checked to assure the data meets the assumptions for statistical tests. After descriptive statistics have been generated, frequencies, t-tests, ANOVA and regression analysis will be used to analyze the data.

Research question one will be analyzed using the frequencies of availability and use. These frequencies will involve counting and describing availability to computers. Tables will be generated to illustrate these frequencies.

Research question two will delve deeper into the relationship between the differences among and between various groups of journalism teachers. A series of t-tests will be used to compare two means, whereas one-way ANOVA will be used to compare more than two means. Alpha will be set at .05 for all statistical tests.

According to Shavelson (1996), the purpose of t-tests is to help the research determine whether the observed difference between two sample means arose by chance or represents a true difference between the populations (p. 344). The purpose of using one-way ANOVA "is to compare the means of two or more groups in order to decide whether the observed differences between them represent a chance of occurrence or a systematic effect" (p. 371). One-way ANOVA will be used to determine whether there are significant differences on a dependant variable across two or more groups. The purpose is to examine the variance among groups – such as gender, age, and education and certification path – on the attitudinal scales. A post hoc test will be used following the ANOVA analysis to determine which means are significantly different. Research question three will measure a difference in teachers' attitudes toward computers. To accomplish this, the researcher will use a series of t-tests and ANOVAs; however, the question will look at differences among these teachers according how they score on the attitudinal scales.

Research question four will use regression analysis to help determine what variables play a role in predicting adoption of computers. These variables will include subject areas taught, education level, certification path, age, gender, availability and attitudes toward computers.

Shavelson (1996) describes regression analysis as a statistical analysis allowing researchers "to predict some criterion or dependent variable (Y) from a set of predictor or independent variables...to test hypotheses about alternative models of the relation between Y and the set of X's or to do some combination of these two things." Regression analysis will be used to evaluate the factors that influence teachers' adoption of computer use in the classroom.

# Oklahoma State University Institutional Review Board

| | | | |
|---|---|---|---|
| Date | Monday, November 15, 2004 | **Protocol Expires:** | **10/10/2005** |
| IRB Application | AS0524 | | |
| Proposal Title: | Computer Use and Journalism Teachers: How Oklahoma's Secondary Journalism Teachers Use Computer for Classroom Instruction | | |
| Reviewed and Processed as: | Exempt<br>**Modification** | | |

Status Recommended by Reviewer(s) **Approved**

Principal Investigator(s) :

Diane S. Varner
206 Paul Miller Bldg.
Stillwater, OK 74078

Stanley E. Ketterer
315 Paul Miller Building
Stillwater, OK 74078

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The requested modification to this IRB protocol has been approved. Please note that the original expiration date of the protocol has not changed. The IRB office MUST be notified in writing when a project is complete. All approved projects are subject to monitoring by the IRB

☒ The final versions of any printed recruitment, consent and assent documents bearing the IRB approval stamp are attached to this letter. These are the versions that must be used during the study.

Signature : Carol Olson

Carol Olson, Chair, OSU Institutional Review Board

Monday, November 15, 2004
Date

School of Journalism and Broadcasting
206 Paul Miller Building
Oklahoma State University
Stillwater, OK 74075
405-744-6355

November 11, 2004

Full name of the participant,

You are invited to participate in a research study concerning the integration of computer technology into Oklahoma's secondary journalism programs. The study seeks to learn more about how computers are used by both teachers and students in this subject area. Your answers to the online study will provide insights that will help other educators and administrators to better understand this pivotal course. The information also may be used to improve teaching.

Your name was selected randomly to participate in this study. Consequently, your participation also will help ensure a representative sample. Naturally, your participation is voluntary, and your answers will be kept strictly confidential. Your participation in the study implies your consent for the aggregate results to be shared with other educators.

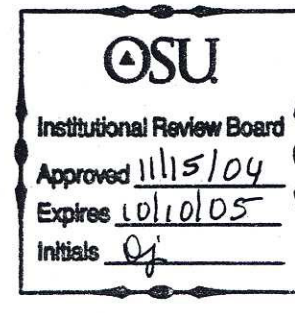
Please fill out the survey or go the url listed below to take the survey online. It should take less than 15 minutes for you to complete. You may withdraw from participation at any time.

This letter and the survey have been approved by the Institutional Review Board at Oklahoma State University. If you have any questions, please contact me by e-mail at diane.varner@okstate.edu or by phone at (405) 880-3738.

Thank you very much.

http://www.surveymonkey.com/s.asp?u=98636693517

Diane Varner
Graduate Candidate in Media Management
School of Journalism and Broadcasting
Oklahoma State University
Phone: (405) 880-3738



Reply Reply to all Forward Close Help

You replied on 11/11/2004 5:47 PM.

From: Elizabeth M Mcternan [emct@okstate.edu] Sent: Thu 11/11/2004 1:03 PM

To: Varner, Diane

Cc:

Subject: Fw: Question concerning IRB approval

Attachments:

View As Web Page

Diane:

You will need to fill out an IRB modification form (http://compliance.vpr.okstate.edu/hsp/forms.htm) for the changes you describe. Collect the appropriate signatures and bring it by our office in 415 Whitehurst. You only need one copy of the modification form. Be sure to attach the cover letter and paper copy of the survey that will be mailed out. The changes you describe do not change the level of review needed, so we should be able to process the modification rapidly for you. You should not begin mailing any surveys until you receive the IRB modification approval, however.

Please call if you have any additional questions.

Best Regards,

Beth McTernan
Research Compliance Specialist
University Research Compliance
415 Whitehurst Hall
Phone: 405-744-5700
Fax: 405-744-4335
Email:emct@okstate.edu

**"Varner, Diane" <diane.varner@okstate.edu>**

11/11/2004 09:52 AM

To: <colson@okstate.edu>
cc: "Stanley E Ketterer" <kstan@okstate.edu>, (bcc: Carol M Olson/res/Okstate)
Subject: Question concerning IRB approval

Hello Dr. Olson,
My IRB application has been approved, but I had a question involving contacting some of the members of our sample. We have discussed increasing the size of the sample by sending out a paper version of the survey to journalism teachers.

Currently, we plan to send an email and a link to the survey to teachers; however, we cannot reach many of the teachers through email. We can reach them through the mail. The communication with these teachers would be limited; rather than a series of emails, we would only send the survey and a cover letter. The cover letter would be the same as the email sent to teachers, but it would differ insofar as it is accompanied with the paper version of the survey and the option of using the Internet to fill out the survey.

What steps would I need to take to assure we are complying with university policy and the IRB? Any help and guidance you could provide would be greatly appreciated. Thank you for your time and effort.

Sincerely,
Diane S. Varner
Candidate for M.S. in Media Management
diane.varner@okstate.edu
405-880-3738

Vita

Diane Sim Varner

Candidate for the Degree of

Master of Science

Thesis: COMPUTER USE AND JOURNALISM TEACHERS: HOW OKLAHOMA'S SECONDARY JOURNALISM TEACHERS USE COMPUTERS FOR CLASSROOM INSTRUCTION

Major Field: Mass Communication

Biographical:

Personal Data: Born in Tulsa, Oklahoma, April 10, 1972, the daughter of Robert and Nancy Varner.

Education: Graduated from Bishop Kelley High School, Tulsa, Oklahoma, in May 1990; received Bachelor of Journalism from the University of Missouri-Columbia in May 1996; received an Associates of Liberal Arts from Tulsa Community College in summer 1996; fulfilled requirements for graduate certificate for international studies, May 2005; completed the requirements for the Master of Science degree at Oklahoma State University in May 2005.

Professional Experience: Worked at several different newspapers as a reporter: *Columbia Missourian*, Columbia, MO., May 1995 to Aug. 1995; *Catoosa Times-Herald*, Catoosa, OK., July 1996 to April 1997; *Clipper-Herald*, Lexington, NE., April 1997 to Oct. 1997; *Pekin Daily Times*, Pekin, IL., July 1998 to March 1999. Later, began substitute teaching in Illinois, for both Winnebago County schools and Rockford Public Schools, from 1999 to 2001, as well as Tulsa Public Schools, from February 2002 to May 2002. Received teaching certification in Oklahoma in 2004. Worked as a reporting instructor for School of Journalism and Broadcasting at Oklahoma State University from August 2002 to May 2005. Also, worked for USDA-ARS as a Webmaster and newsletter editor from August 2002 to June 2005. Assisted marketing campaign for book buy back for Cowboy Book in Stillwater, OK., April 2004 to May 2004.