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Diffusion of innovation: Technology in the high school journalism classroom

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DIFFUSION OF INNOVATION:

TECHNOLOGY IN THE HIGH SCHOOL JOURNALISM CLASSROOM

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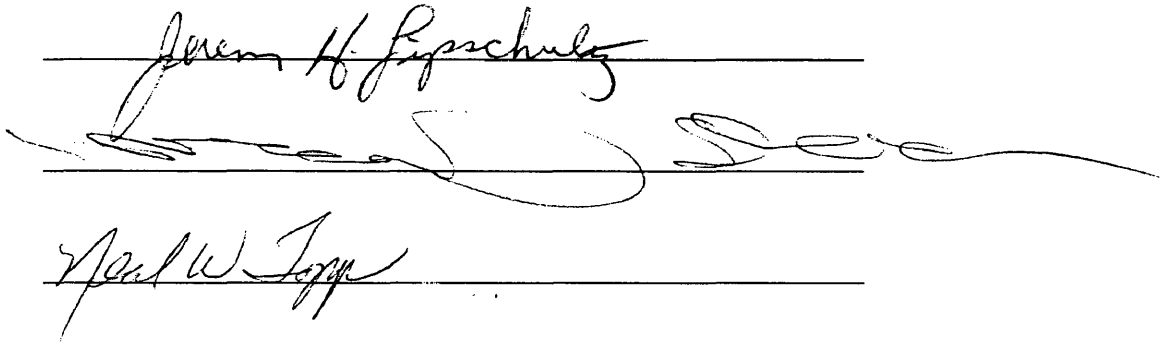

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DIFFUSION OF INNOVATION:

TECHNOLOGY IN THE HIGH SCHOOL JOURNALISM CLASSROOM

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University of Nebraska, 2000

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The purpose of this study was to explore the diffusion of technological innovation stages present in high school journalism classrooms across the state of Nebraska and to describe the high school journalism teacher's perception of technology in the classroom. After a review of relevant literature on technology in the classroom, in the workplace and in the journalism profession, the researcher developed a self-response questionnaire sent to 100 members of the Nebraska High School Press Association. A response rate of 55 percent allowed analysis at a descriptive and basic interpretative level. The results of this limited sampling indicate that high school journalism programs have access to many technological innovations but that availability does not equal usage or automatic incorporation in to the journalism curriculum. A demographic description was developed on the average Nebraska high school journalism adviser and many of the advisers' perceptions of technology were identified through both scaled items and open-ended responses. Analysis of these responses suggests that some Nebraska high school journalism classrooms are more likely to have certain technologies available and likely to have journalism teachers who perceive technology in certain ways. This study serves to motivate educators to challenge their current stage of technological innovation and analyze their own perceptions of technology.

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CHAPTER I
INTRODUCTION

Society is undoubtedly influenced by technology. Although some people may not be ready or willing to admit it, technological innovations will continue to play an increasingly prominent role in organizational systems and in all business, social and personal relationships. A snapshot of American society shows that 43 percent of homes use a personal computer (Pew, 1999) and that nearly 45 million homes have online access (Iconocast, 2000). One cannot help but recognize that technology is transforming part of everyday life for many people. But not everyone is an equal participant in this cultural transformation and not everyone agrees that technological literacy is the correct goal.

Unequal access to technology reinforces the gap between the haves and the have nots and it makes the younger generation become one of "knows" and "know-nots." Access to technology makes many skeptical of the consequences of technology and it causes others to be frightfully concerned about the impact of technology on commerce, communication and education. It makes researchers question technology perceptions, technology availability, technology trends and trade-offs. In education, technology is a hot button. But whether you are a critic or an advocate, technology affects the experience in the classroom for young people today.

Both governmental leaders and mainstream media seem to understand that technology and education are important and newsworthy links given the prevalence of initiatives, task forces and national coverage. Studies have been conducted on many levels, but the ones that will be reviewed in this study are those examining the classroom

as a specific organizational system, and how the teachers and students are influenced by the spread or diffusion of technological innovations.

The existing literature on diffusion provides guidelines used to describe and understand how innovations and new ideas are adopted within a social system, such as a school system. Diffusion theory attempts to describe the process by which an innovation is communicated through a channel over a specified time period among members of a social system (Rogers, 1995). Innovation may consist of a new idea or series of ideas, a new thought process, a new product or any number of inventions, creations or breakthroughs. Diffusion theory relates to the communication process where participants create and share information with the goal of reaching a greater mutual understanding. The channel may take several forms, ranging from mass communication to interpersonal communication (Rogers, 1995).

The social system, for purposes of this study, is the Nebraska High School Press Association, a membership collection of the state's journalism programs, and the diffusion process is how technological innovations are perceived and adopted by the high school journalism educators within that system. Nebraska ranks near the top in classroom technology when compared to classroom technology in states across the country. In a nationwide poll by *Education Week* (Zehr, 1998), Nebraska ranked second in infrastructure development by having one computer for every 10 students in schools, while the national average was one computer for every 13 students. Nebraska ranked sixth in the nation in the percentage of schools with at least one point of Internet access.

Nebraska ranked second only to Alaska in percentage of teachers who use the Internet as an instructional aid (75 percent). Nebraska schools have used state funds, federal funds and private funds to develop this sound technology infrastructure, and the Nebraska Department of Education is committed to maintaining the state's strong lead in school technology (VanDeventer, 1999). It is an ideal state to use in a graduate level study.

For perspective, the literature review for this thesis covers the constructs of diffusion and innovations, from their beginnings in agricultural studies through their current connection to technology in education. It examines the concept of a change agent and the role that such an agent may play in promoting and restructuring change in the classroom. As almost every academic discipline can recognize an influence of technology, current studies examining technology in the classroom, technological innovations in business organizational systems and technology in the professional media will then be examined. The goals of this particular research study are to explore what technologies are currently available in high school journalism classrooms, to explore the perceptions and attitudes of secondary school journalism educators toward technological innovations, and to explore successful strategies used by journalism educators striving to integrate technology into their curriculum.

Problem Statement

Not everyone believes that technology is a necessity in the classroom or that students need to be technologically literate. As contrarian commentator Clifford Stoll (1999) explains in *High Tech Heretic*, computers do not belong in classrooms because

they stifle human nature, thwart human development and waste human resources. Social critic and chair of the department of Culture and Communication at New York University's School of Education, Neil Postman (1995), argues that many of us tend to confuse technological innovation with human progress. Technology does belong in schools, Postman says, but it is as a subject matter to be discussed in relation to changing culture. Many other critics do not go quite that far. Technology certainly does challenge the entire approach to the classroom experience, and it can challenge the essence of teaching and the purpose of a school (Cuban, 1994; 1999). But that does not mean it should be disregarded.

Following the lead of government spokespersons and acknowledging that the critics have valuable insights, technology still must be available to students in our schools. As U.S. Secretary of Education, Richard W. Riley (1998) pointed out in his speech to the National Press Club:

> Today's students are the first generation that will be expected to have technology skills for careers and future success. These skills are the "new basics." By the year 2000, 60 percent of all jobs will require high-tech computer skills. [During] the next seven years, according to the Bureau of Labor Statistics, it is estimated that there will be a 70 percent growth in computer-and technology-related jobs--jobs with a real future... In this Information Age, information is the currency that drives the economy. If people do not have access to information or the necessary tools, they can not participate in this economy.

Having technology available is not the simple answer though; having a computer in the classroom guarantees absolutely nothing. Introducing technology will not improve or even change the quality of classroom education unless teachers and educational leaders are able to evaluate and integrate the use of that technology into the curriculum (Geisert & Futrell, 1990, Knapp & Glenn, 1996). *Education Week*'s Technology Counts Report

(Zehr, 1998) shows that 75 percent of all U.S. public school classrooms have at least one instructional computer for student use and that almost 90 percent of all schools were connected to the Internet. Technology is already available, there is no doubt. What is in question is the usage and effectiveness of that technology. Numbers tell us nothing about the impact of technology. As Becker (1992) has made it clear, the real question is whether technologies are providing distinct academic benefits to students. This is difficult to answer and almost impossible to measure without looking at the big picture of technology in society. Both teachers and students enter the classroom with previous technology experience and personalized viewpoints on that technology, and all of this must be examined.

The President's Committee of Advisors on Science and Technology (PCAST) organized the Panel on Education Technology to address some of these issues. The Panel (1997) made six high-level strategic recommendations to America's elementary and secondary schools:

1. Focus on learning *with* technology, not *about* technology.
2. Emphasize content and pedagogy, and not just hardware.
3. Give special attention to professional development.
4. Engage in realistic budgeting.
5. Ensure equitable, universal access.
6. Initiate a major program of experimental research.

Education Week's Technology Counts Report (1998) shows that 38 states have technology requirements for teacher candidates and many individual school districts have their own technology coursework and proficiencies to be met when hiring new teachers.

Different curriculum areas have different technology needs, too. Obviously, not all courses have a technology component (Green, 1996). To take one small slice of the

education pie, the area of journalism education, that which teaches students at the high school level about the basics of journalism and mass media history, the basics of writing journalistically, the fundamentals of media ethics and free press laws and the basics of publishing, is a place to start. Teachers of journalism at the high school level are often called advisers because of the role they have in leading the students to produce a school newspaper, a newsmagazine or a yearbook. These advisers use technology, for the most part, as a tool in getting the job done. Many advisers know first-hand about outcome-based education, because as Rich Holden, executive director of the Dow Jones Newspaper Fund, explains, "I can think of no better model of outcome-based education than producing a school newspaper or yearbook" (as quoted by Benedict, 2000). Journalism advisers actively engage their students in word processing, desktop publishing and graphic design; they already use the tools of the trade. Not only must they have working knowledge of the hardware and software involved, they must also promote responsible use of technology by students, including dealing with intellectual property, copyright laws and the effective use of resources, which all become issues when students have access to the Internet.

Some high school journalism classrooms or labs function like professional newsrooms and some are just traditional classrooms with one computer terminal. Some students leave the high school classroom with the technology skills to enter the competitive media marketplace and some may know how to write a news story without using personal pronouns. Some may know how to change a headline font's width and height to fit a column's space, and some may know how count a headline to give to the

typesetter. The journalism curriculum may be atypical when looking at other required and elective curriculum areas at the secondary level, but looking at the larger picture, all career paths have their own technology needs and assessments.

The problem of having no clear idea of what specific technologies are being used in high school journalism classrooms became clear when conversation at a gathering of Nebraska high school advisers at the Spring Contest in Lincoln, Nebr. turned to photography in May 1998. The Nebraska High School Press Association sponsors a contest of high school journalistic work with different categories of competition. The photography category was expanded to two sections in 1997 when some advisers wanted to be able to submit the color photographs that their students had taken, and have them judged separately from the black and white images. Conversation erupted when other advisers asked to then have a separate category for digital images that could be manipulated or enhanced. Others immediately questioned how the judges would be able to determine if the original black and white images had been manipulated or corrected with the aid of some non-traditional technology. Others started asking how it was possible to correct a black and white photograph in the first place. It was all too obvious that the group of advisers was not on the same page of technology use. The innovations of photo scanning and image editing computer software were not "new" to some advisers at all, but others obviously had not even considered the innovations as possible.

Purpose of the Study

The purpose of this study was to explore what technologies are currently available in high school journalism classrooms in the state of Nebraska and to explore the perceptions and attitudes of the secondary school journalism educators toward technological innovations. This study will also explore successful strategies used by journalism educators striving to integrate technology into their curriculum.

Significance of the Study

After a review of diffusion and innovation concepts, some of the additional literature in the areas of technology in education, technology in the workplace and technology in journalism careers will be explored. The literature review will establish research questions to guide this exploratory study of technologies available in the high school journalism classroom. This was a cross-sectional study of the journalism teachers in Nebraska in spring 2000. The population is a purposeful sample (Babbie, 1998) and thus, limited as far as generalization is concerned, but it will still provide a clear snapshot of technology in a classroom organization. The results obtained may help explain why some high school journalism classrooms are more likely to have certain technologies available. The study may provide valuable information to educators in evaluating their own perceptions and attitudes toward technology and help educators identify their own biases and preconceptions. It may also show who the successful change agents in a school system can be and it may motivate educators to challenge their current stage of technological innovation, thus making the business of education and the communication

of technologies more available to students. Finally, this study will explore successful strategies used by journalism educators striving to integrate technology into their curriculum in the hopes of inspiring others.

CHAPTER II
REVIEW OF LITERATURE

As mentioned in the introduction to this study, the literature review for this thesis covers the constructs of diffusion and innovation, from their beginnings in agricultural studies through their current connection to technology in education. It examines the concept of a change agent and the role that such an agent may play in promoting and restructuring change in the classroom, if it is the teacher him/her self or if it is an outsider. As almost every academic discipline can recognize an influence of technology, current studies examining technology in the classroom, technological innovations in business organizational systems and technology in the professional media will then be examined.

DIFFUSION

Diffusion as a social science concept is not exactly the physical scientific term for the process whereby particles of liquid, gases or solids intermingle as the result of their spontaneous movement caused by thermal agitation and in dissolved substances move from a region of higher to one of lower concentration. One needs to go to Webster's fourth definition, which comes closer: the spread of cultural elements from one area or group of people to others by contact ("Diffusion" 1989). Cultural diffusion is sometimes credited to French social scientist Gabriel Tarde, who lived from 1843 to 1904 (Kinnunen, 1996). Tarde's concept of imitation is today called the adoption of an innovation.

Diffusion, as a theory and seemingly as a particular social science concept, had its roots in agricultural research. The milestone case, according to Lowery and DeFleur

(1995) is the Ryan and Gross (1943) study of hybrid-seed corn in Iowa. The work of Ryan and Gross became a milestone because it focused attention on the major factors involved in the adoption of innovation: 1) a specific innovation, 2) processes of interpersonal and mass communication that created awareness of the item, 3) a specific kind of social system, and 4) different types of individuals who made decisions at various stages as use of the item diffused (Lowery & DeFleur, 1995). Rogers (1995) sheds light on these major factors by further explaining the diffusion of innovation-decision process which can lead to the adoption, a decision to make full use of an innovation as the best course of action, or to rejection, a decision not to adopt the innovation.

Diffusion, as both a concept and a theory, rapidly expanded from its agricultural beginnings as scholars in other academic disciplines discovered many applications in anthropology, sociology, education, public health and medicine, marketing, geography, and communication. Rogers, Williams and West (1977) found more than 2,750 publications that dealt with diffusion and innovation and how related communication spread through certain channels over time among members of a social system. With that information, the Diffusion Documents Center was founded to collect and track diffusion studies at Stanford University. By September 1993, Rogers estimated that more than 5,000 studies of the diffusion process and their patterns over time had been published (Lowery & DeFleur, 1995, p. 132).

Rogers (1983) recognized eight main types of diffusion research:

1. Earliness of knowing about innovations.
2. Rate of adoption of different innovations in a social system.
3. Innovativeness.
4. Opinion leadership.

5. Who interacts with whom in diffusion networks.
6. Rate of adoption in different social systems.
7. Communication channel usage.
8. Consequences of innovation. (p. 85)

Surry and Brennan (1998) identify and recommend five additional areas of diffusion research, especially with regard to instructional innovations:

1. Interaction of adopter groups.
2. Adoption versus retention.
3. Product versus process.
4. Technical and societal accommodations.
5. Perspectives of innovation.

Diffusion studies, in general, try to explain why the rate of adoption of an innovation starts slowly, but then (at levels ranging from 10 percent to 25 percent adoption by members of an organization) the rate suddenly spirals upward to the point where in a very short time nearly everyone in the system has adopted the innovation (Rogers, 1983). This process is quantitatively represented by a graph that shows what is called the "S" curve. Rogers (1995) categorizes the adopter, whether it be an individual or collective unit, on the basis of their innovativeness as: 1) innovators, 2) early adopters, 3) early majority, 4) late majority, and 5) laggards (p. 22). The measure of innovativeness and the classification of a system's members into adopter categories is based upon the relative time at which the innovation is adopted, or where they fall on the "S" curve.

This conceptualization of diffusion seems to have been universally adopted because every accessible study that uses diffusion simply as a concept or even as a theory, refers back to Rogers at some point. Sutherland and Stewart (1999) explained that Rogers begins to include communication scholars in the diffusion investigation as they began studying technological innovations during the 1970s.

In the mid-1990s, Rogers work still seemed to be the classic diffusion reference point. Kelly (1996) used the diffusion of innovation approach to longitudinally examine the diffusion and adoption of digital imaging technology at daily college newspapers and found the characteristic "s" curve in progress at the late majority stage. In a recent study by Chen and Bankston (1998), the same definition and conceptualization of diffusion occurred. Chen and Bankston included Rogers's basic terminology and also included his explanation that diffusion includes the spontaneous, unplanned spread of ideas and the directed and managed dissemination.

INNOVATION

For practical purposes, an innovation is any significant alteration, a change, in the status quo. It can be a new idea, a new method or a new device. As a social science concept, it also seems to have remained consistent, depending on the characteristics of the innovation and the academic branch of each particular study.

An innovation presents an individual or an organization with a new alternative, with new means of solving problems (Rogers, 1995). It matters little, so far as human behavior is concerned, whether or not the idea is objectively new as measured by the lapse of time since its first use or discovery. The perceived newness of the idea for the individual determines his or her reaction to it. If the idea seems new to the individual, it is an innovation (p. 11). The characteristics of an innovation, as perceived by the members of a social system, determine its rate of adoption. Rogers (1995) details five

attributes of innovations: 1) relative advantage, 2) compatibility, 3) complexity, 4) trialability, and 5) observability.

Rogers (1995) continued to caution social science researchers that not all innovations are equivalent units of analysis. For example, consumer innovations such as VCRs or cellular phones may take only a few years to reach widespread adoption in the United States, while other new ideas such as using the metric system or using seat belts in cars require decades to reach complete use.

The same early agricultural studies that made the concept of diffusion mainstream also did the same for innovation. Innovations were processes in the agricultural world that made things grow more efficiently and effectively. When bringing the concept to the educational realm, innovations became teaching methods and classroom strategies to make an educator's life more rewarding. With the current state of technology, innovations are mainly new devices, such as computers, Internet connections, laserdiscs and digital cameras and new types of software.

A 1975 study by Hall, Loucks, Rutherford, and Newlove in the *Journal of Teacher Education* discussed a framework for analyzing innovation adoption. The article did not use the term "diffusion", but asked readers to use the word "change" and innovation adoption synonymously. The researchers explained that they encountered problems in attempting to specify exactly what comprises a single innovation. One solution was to "bundle" related innovations together such as individually guided education or competency-based education, where several innovations are combined into one. The researchers argued that it is essential, in levels of innovation use, to assess a

person's level of use for each innovation within a bundle. It becomes increasingly complicated for separating out parts of an innovation bundle, and the educational researchers note that it is often complicated enough just to measure a single innovation such as changing from one textbook to another.

Elliott, Ingersoll and Smith (1984) examined trends in the use of educational media and materials, and they did not use the term "diffusion" or "innovation." However, that is what they were studying. These researchers looked at the acceptance of "new and old technologies" used in the classroom. These were and are innovations, even if not labeled as such. Although the innovations themselves may not look or sound like they did when Rogers first began compiling his resources, the concept of an innovation has remained the same.

CHANGE AGENTS

The first recorded reference to an agent of change relates to the county extension agency and local farm bureaus that spread rapidly across the United States after 1911. The first social science study on them seems to be from a 1952 agricultural study by John Stone. Stone looked at agricultural extension agents promoting new ideas to Michigan farmers (Rogers, 1995). Rogers goes on to explain that the agricultural extension service of the United States is reported to be the world's most successful change agency, based mainly in part of the success of the agricultural revolution, the dramatic increase in U.S. farm productivity following WWII.

Development work continuing the conceptualization of Change Agents as a social research term was conducted in the United States Office of Education in the late 1960s and early 1970s (Havelock, 1995). Havelock and his associates created the *Change Agent's Guide* first in 1973 and revised it for a second edition in 1995, targeting educational change and the process requiring a change agent. The *Guide* is detailed, calling itself an "organized synthesis of research on change from thousands of change agents from many fields" (p. 20). The definition of a change agent, according to Havelock, is someone who deliberately tries to bring about a change or innovation in a social organization. Havelock frequently cited Rogers and included his 1962 *Diffusion of Innovations* as one of five classic resources on change.

In the early 1980s, Acuff (1982) conducted a thesis field project, an educational study of change in the classroom related to teachers' concerns over the introduction of microcomputers. Acuff used Rogers' 1971 work as his background and says that change does not automatically occur, rather it is the result of preplanned actions by change agents. Acuff used Rogers' definition of change agent: "an individual who influences innovation-decisions in a direction deemed desirable by a change agency" (Rogers, 1995, p. 369).

In another mid-cycle study, Dalton (1989) explained that credible change agents are key to facilitating diffusion of any innovation. The most significant role of the change agent is to act as an interface between the adopters of the innovation and those with a vested interest in seeing the change occur--the stakeholders. Dalton explained that the adopters are ultimately individual teachers, although they may not make the

adoption decision themselves. However, there may be a number of possible stakeholders to consider, including the developers of the innovation, the business sector, local colleges and universities, the community, parents, and even students. By default in many school settings, the principal becomes the change agent, responsible for planning and managing change. Dalton argued that this is a problem. In this view, education technologists need to be employed in school settings to oversee the change process.

These ideas of the concept of change agents have continued today. In Cuban's (1999) research for *Education Digest,* the limitations of computer-assisted instruction in the United States are discussed by focusing on the "narrow, misguided beliefs" of some technology-minded reformers who attempt to act as change agents but who do not recognize the real problems in classrooms and the core values of teachers, thus they are ineffective (p. 54). Dexter, Anderson & Becker (1999) would agree. They recommend that teachers be framed as agents of change because this recognizes that using computers in the classroom in a constructivist manner is a teacher's decision. Teachers will effectively bring about change based on their knowledge and expertise of what works in the classroom.

It appears, through this conceptual review, that the idea of a change agent has remained relatively stable since its inception in the early 1900s. Havelock (1995) noted that research on the process of change and the agents of change regrettably dwindled during the 1980s and early 1990s. As the concept became more popular in the late 1990s, confirming and extending earlier change studies, strategic details emerged and guides were created for the people acting as change agents.

TECHNOLOGY IN EDUCATION

In classrooms across the country, from small rural schools to those at prestigious universities, teachers use technology. Some have followed the vision of education futurist Dede (1990) that technology empowers an evolutionary educational infrastructure for learning and that advanced information technology is essential to success. But, as indicated in this study's problem statement, technology has caused a restructuring of some classrooms and has actually changed what and how students learn (Sheingold 1990). Many teachers use traditional text-based technologies such as Xeroxed copies and overhead projectors (Gordon, 1989) on a daily basis. Some may use integrated student learning labs for word-processing, mathematical calculations, scientific experiments or multimedia presentations. Teachers use video clips and audio recordings to supplement curriculum. They may use tutorials, educational games or simulations as student enrichment activities. Others may use technology as a tool for instructional situations as in databases, spreadsheets, graphing packages, calculators, desktop publishing and telecommunication opportunities. Technological access and networking beyond the classroom may be possible with an Internet connection making technology a process, a product and a tool for problem-solving in "real world" issues.

All of these classroom innovations have been examined by researchers attempting to discover if their use is justified and if their diffusion and adoption into the classroom has better prepared students to be competent and competitive in a technological world. Specific types of classrooms have been studied and specific types of students have been observed. Studies in kindergartens (Alfaro, 1999; Ithel, 1998) and colleges (Reinhardt,

1999; Jadali, 1999) have been conducted. Innovations have been examined in isolation and in clusters. Studies have compared two innovations with similar purposes, such as overhead projectors and PowerPoint slide presentations (Ahmed, 1998). Studies have been cross-sectional and longitudinal (Isernhagen, 1999; Parr, 1999); they have been quantitative and qualitative. Researchers have used innovations as independent variables and have realized that once they enter the classroom, they are part of a complex network of social and pedagogical interactions. Studies have examined technology's effect on the most basic educational objectives, such as writing (Greenleaf, 1994; Mellon, 1999; Garner & Gillingham, 1999). The modes of acquiring technology have been examined, and the attitudes behind the innovators, sometimes the teachers themselves, have been questioned. It seems as if no stone has been left unturned. But research on technology in education is not conclusive (Kent & McNergney, 1999). We have yet to realize the profound influence that the diffusion of technological innovations may have on classroom communication, achievement and behavioral interactions (Sheingold, 1990).

This literature review section will focus on existing research on classroom innovations related to two basic concerns, why is technology used or not used in the schools and what is the teacher's perspective and attitude toward technology. The review will not be focused on technology's impact, but more on its existence and the perceptions thereof. The technologies, or innovations reviewed will be those most clearly related to journalism education: computers, in their function as word processors, desktop publishing stations and online accessors of information. These studies that examine technology in

the educational system and in other organizational systems will be reviewed in hopes of leading to some specific research questions pointed at my research goals and objectives.

TEACHING WITH TECHNOLOGY

Computers can be the ideal education tool. Teachers use computers to prepare notes for lecture, create handouts and exams and for grade recording. They may even use computers for research and for professional writing, but do they use the computer in the classroom, with the students? Less than 10 percent of the faculty surveyed at Stanford do (Cuban, 1999). The use of technology in the classroom necessarily depends on the ability of the teacher to integrate it (Kent & McNergney, 1999). One of the reasons why many teachers are not integrating technology is that they lack prior experience using it as a productivity tool (Hope, 1998). Dalton (1989) found this to be true almost a decade earlier. He recognized that when teachers lack confidence to integrate innovation, they ignore it. Teachers, who are poorly informed or not informed at all, become bewildered and overwhelmed by technology. Hardy (1998) reviewed existing studies on teacher attitudes, developed a profile of "technology-using" teachers and summarized that variables such as access to equipment, administrative support and time did not have as strong an effect on the used of technology as did the teacher's own confidence level. Rosen and Weil (1995) determined that nearly one-third to two-thirds of the teachers they surveyed were not using computer technology personally or with their students because they lacked confidence, felt uncomfortable and were even a bit frightened by technology. Parr (1999) longitudinally studied a school in which all staff members were given a

laptop computer. After five years, reported personal use of the computer was extensive. Teacher confidence level and skill improved markedly, but use of computers, in the classroom, with students remained relatively low. Ropp (1999) makes it clear that teacher attitudes matter a great deal. She adds, from her study of pre-service teachers, that even if teachers demonstrate proficiency integrating technology into their teaching but do not believe that technology has a use in the classroom, they will probably not teach with technology despite their proficiency.

These studies though the 90s show a discouraging trend but studies in the early 80s noted a "surprising lack" of research available to determine trends in the use of instructional materials. Elliott, Ingersoll and Smith (1984) studied focus groups of educators and they found evidence of trends and attitudes worth noting. For purposes of their focus groups, "new" technologies were educational television, videotapes, microcomputers and photocopying, just to name a few. The researchers found that there was a "real interest" in these "new" technologies, but there is also "at least a mild paranoia among teachers about their roles relative to new technologies." In general, there was a positive acceptance of the "new" technologies, but generally, there was no overwhelming eagerness to it.

Ten years later, the "new" technologies were abundant in the classroom, but were not used effectively either. Chin and Hortin (1993), for example, surveyed elementary teachers on their perceptions of technology and used the information to make recommendations for inservice. They found that more than 50 percent of elementary teachers in a Kansas urban school district used technology less than 30 minutes in a

school day with their students. Wigmore (1988) studied high school science classrooms and determined that of the teachers, who did use a computer in the classroom, the computer was used at an average of 2.6 hours a month. Wigmore also found that teachers with a master's degree spent less time with technology than teachers with a bachelor's degree.

Since it is clear that individual teachers are a key factor in the success or failure of curricular technological innovations (Fougere & Olinsky, 1990), it is important to explore their feelings or concerns about innovations. Koohang (1989) studied computer attitudes, anxieties and confidence levels among students in college classrooms and found that subjects with more computer experience expressed more positive attitudes toward technology in general. This supports previous findings that experience promotes positive attitudes among teachers (Wang & Holthaus, 1999). Not only prior experience, but also positive role modeling makes a difference in attitudes. It has been shown that teachers teach how they were taught. (Norton & Gonzales, 1998). So, for beginning teachers, the teacher education faculty members must model effective use of technologies in their own classrooms (Cooper & Bull, 1997). Ropp (1999) conducted a longitudinal study during a preservice teacher education course that included hands-on technology training and classroom discussion of technology and found that students made significant improvements in technology proficiency, computer self-efficacy and computer coping strategies from the beginning to the end of the course. When Topp (1996) studied recent teacher graduates, he found that a computer-specific course was essential, especially one

on computer integration, but that the technology education pre-service teachers felt they received was inadequate.

In fact, according to the U.S. Department of Education, National Center for Education Statistics 1999*Teacher Quality: A Report on the Preparation and Qualifications of Public School Teachers*, only 20 percent of full-time public school teachers report feeling very well prepared to integrate educational technology into their classroom curriculum. This may account for why, according to the same report, nearly 78 percent of public school teachers, from all grade levels indicated that they had participated in professional development activities focused on the integration of educational technology in the last 12 months. This compares to 57 percent who did the same in 1994. Of those who attended professional development activities in 1998, 93 percent said they felt it improved their classroom teaching at least somewhat. So, as Moursund (1999) explains, teachers must take it upon themselves; they must take personal responsibility for professional development, especially in relation to technological innovations.

EDUCATIONAL CHANGE AGENTS

Teachers, as leaders, do function as change agents in the school environment. Teachers are generally regarded as independently practicing professionals (Dexter, Anderson & Becker, 1999) who make decisions about specific instruction and assessments to use in their classrooms. Teachers should be framed as agents of change but they need a supportive context to draw upon their own knowledge and expertise of what works in the

classroom. Bowman (1999) adds that if teachers are to function as change agents they will need to commit themselves to the big-picture mentality of systemic reform. Others think that the school principal is also an important change agent (Conte & Weber, 1999). Wetzel (1999) would agree and add that school districts need visionary technology administrators. Vojtek and Vojtek (1999) explain that effective change in a school comes from three different types of leaders: executives (the superintendent or administrative authority in a school), internal network leaders (peers such as department chairs) and local line leaders (the teachers within a building). For technology to be truly integrated throughout a system and to become a tool that increases the ability of students to achieve, leadership must come from all three types. Kearsley and Lynch (1992) advocate a critical need for formal training in educational technology leadership.

TECHNOLOGICAL INNOVATIONS IN OTHER ORGANIZATIONAL SETTINGS

A high school journalism classroom often functions more like its own organization within the larger school system because of the curricular goal of producing and publishing student newspapers and yearbooks. It is often a business in which students take on the roles of business manager and advertising agents to secure funds from non-school sources to make their student publications resemble professional publications. As such, it is useful to examine traditional business organizational communication systems and the influence of technological innovations. Just like in any school system, members of a business organization must first be willing to talk about new ideas before they can be used effectively (Albrecht & Hall, 1991). Then, as these innovations are adopted, their

specific effectiveness is measured in different ways. Communication competence is often used as a variable in determining success (Papa & Tracy, 1988; Papa 1989). It can be defined as the effective practice of encoding and decoding behaviors related to job performance. Technological innovation can decidedly alter the flow of information exchange within an organization, between organizations, and it can create different channels of and methods of communication.

Many studies of innovation in business organizations only investigate a single innovation: computers (Papa & Tracy, 1988; Papa 1989), word-processing (Reinsch & Beswick, 1995), or electronic mail (Komsky, 1991; Hunter & Allen, 1992; Ku, 1996; Sherblom, 1988; Mitchell, Crawford & Madden, 1985) for example. Other articles point out that research has a greater deal of reliability when multiple innovations are reviewed instead of just one (Van de ven & Rogers, 1988; Damanpour, 1988). This portion of the literature review will summarize these areas of research and will end with a review of a study (Herschel & Andrews, 1997) that examined the ethical implications of technological advances on business communication and by looking at Herndon's (1997) theoretical essay on the implication for the implementation of communication technology in organizations.

ORGANIZATIONAL TALK ABOUT INNOVATION

Before any technological innovation becomes effective in an organization, the members of that organization must be willing to talk about it. Research by Albrecht and Hall (1991) focused on the relational and network conditions that are most conducive to talk

about new ideas. Although they admit that talk does not guarantee implementation, it is a necessary and essential element in the overall innovation process. Albrecht and Hall performed two studies that help illustrate their point. In one study, researchers interviewed radiation oncology department personnel and developed a face to face survey questionnaire and found that the amount or frequency of talk about innovation was positively associated with satisfaction with innovative communication, work compatibility and relationship certainty. Albrecht and Hall also found that contacts with whom innovation and new ideas were discussed were seen as more credible, more influential, trustworthy, supportive and important. So not only talking about the innovation, but also talking to the right people about the innovation becomes important in organizational settings. This study could just as easily have been in a school system, as the need for innovation discussions is essential.

Computer systems

In determining if new technology, specifically a new computer system, had an impact on employee performance, an issue that corresponds to student classroom performance, Papa and Tracy (1988) conclude that the more an employee communicated competently, listened skillfully and talked about the innovation, the more productive that employee was with the innovation. Would that not also be true of students and teachers?

One year later, Papa (1989) continued his study and confirmed his hypothesis that employees who receive communication competence training will perform at higher levels with new technology than employees who did not receive the training. With both of Papa's studies, it is clear that there does exist some sort of relationship between success

with new technology/innovation and the amount of training received, whether it be in communication competence or simply in word of mouth instruction on how to utilize the innovation. Research in this organizational setting can certainly apply in a classroom. Teacher who are given training, be it formal or informal on using technology and implementing it in their curriculum, will have stronger competence skills.

Karahanna, et al (1999) examined Windows technology on computer systems in a Midwestern financial institution using diffusion theory and attitude theories to examine pre-adoption and post-adoption beliefs and attitudes. They found that users and potential adopters of this computer system technology differ, a result Rogers (1995) predicted. Potential adopters intention to adopt is solely determined by normative pressures, whereas user intention is solely determined by attitude. In addition, potential adopters base their attitude on a wider set of innovation characteristics than users. Pre-adoption attitude is based on perceptions of usefulness, ease-of-use, result demonstrability, visibility and trialability while post-adoption attitude is only based on instrumentality beliefs of usefulness and perception of image enhancements.

A second innovation that has been investigated in business organizations is word processing. In an exploratory study of Reinsch and Beswick (1995), seven variables were identified in an organization member's preference for sending word-processed messages as opposed to handwritten notes. The variables that affect preference for written media are: hierarchical level, message length, message complexity, anticipated reaction, communication task, need for documentation and communication across work shifts. This study only addressed horizontal communication and as noted by Reinsch and

Beswick (1995) in the preface to the study, electronic messages may replace some forms of the written communication that they studied, but new technologies will only stimulate additional communication, not replace older technologies.

Looking specifically at the newer technology, Komsky (1991) examined e-mail system usage and the factors that affect it at a university organizational environment, not in the classroom, but among the faculty. She hypothesized that perceived personal benefits of system use, user satisfaction, ease of using the system, awareness of system problems and user media preference will discriminate between occasional users and frequent users of e-mail. To test this, she "used the medium to study the medium" by electronically sending an interactive questionnaire to 500 university faculty and staff members who had e-mail accounts. Nearly 90 percent of all users *like* e-mail and find it efficient, convenient and easy to learn. Komsky explained the concepts of usage and acceptance and showed that forced compliance is not an appropriate organizational strategy for building a mass of users. Komsky concludes that frequent users are more computer literate, more accepting of system problems and more likely to say that e-mail saves time. She ends by saying that university organizations are conducive for new technology and that if faculty expect students to use the system, they must be able to themselves.

Traditional organizational development methods can be used to help employees overcome emotional resistance especially in making the system easy to use and providing some benefit for the organization. Hunter and Allen (1992) clearly support the findings of Albrecht and Hall (1991) when they suggest organizational development teams must

bring in the users to the decision making process prior to choice of system so that they can clearly see the advantages of using the e-mail system.

Ku (1996) also examined e-mail usage, but looked more closely at the content. Ku found that e-mail messages with socio-emotional content were generally avoided in downward and diagonal communication but were more commonly sent by nonmanagers and younger people. Like Komsky (1991), Ku used the medium to study the medium. Testing 36 distinct hypotheses, Ku found that younger people, those who had been at the organization for shorter periods of time, used e-mail to convey socio-emotional content and had negative views of their own input toward decision-making. However, these socio-emotional users had positive views of their own quality of work. Task-related e-mail use was found to increase with upward communication and when time pressure was involved, employees were more likely to use e-mail for complex tasks. In his conclusion, Ku makes it clear that a considerable amount of organizational communication is non-task related and that moderate use of technology for socio-emotional purposes may help keep employees motivated. School administrations wishing to push e-mail communication between staff members would be well-advised to review the details of this study.

Sherblom (1988) also looked within one particular organization, but he did not electronically administer a survey. With a content analysis of e-mail files, Sherblom found the presence of a signature was somewhat related to the direction from which the e-mail came. No downward communication had a signature, but 33 percent of upward and 13 percent of horizontal e-mail did have signatures. In his look at e-mail

paralanguage, Sherblom determined that e-mail communication reflects, reinforces and recontextualizes the organizational structural hierarchy.

In an earlier study by Mitchell, Crawford and Madden (1985), the need for researchers to even begin studying e-mail communication became clear. Surveying 100 teaching members of the Association for Business Communication (ABC) and 100 nonteaching members of the Office Systems Research Association (OSRA) with a Likert-type scale gave some clear conclusions. The survey responses were two-fold. The first simply asked the subject how they projected the use of electronic communication systems to effect organizational communication in the next decade and the second area asked respondents to evaluate the competencies needed by business students and ask how curriculum could meet those goals. Although "the next decade" has passed since this research was conducted, 98 percent of the ABC respondents and a full 100 percent of the OSRA respondents said they felt that electronic communication systems are likely or more than likely to be an important means of organizational communication in the next decade. Mitchell, Crawford and Madden's (1985) respondents then indicated that e-mail tended to flatten the organizational structure, electronically streamline communication with subordinates, promote teamwork, increase the quantity and timeliness of information, increase the pressure to act quickly and the speed of decision making and replace communication in the more traditional channels. In effect, what these researchers were saying is that communication characteristics will do more than just impact e-mail, but will affect the whole communication system of the organization.

E-mail technology seems to be a common area of organizational study, not only among communication scholars but mainstream media, psychologists, management information systems professionals, administrators, and educators. As e-mail usage becomes more nearly universal, it also becomes more useful because a person within an organization can use it for more and more of their communication. E-mail is a key feature of modern communication (Hunter & Allen, 1992) especially when organizational members understand and utilize it for all areas of communication.

Multiple innovations

Other articles point out that research has more reliability when multiple innovations are reviewed instead of just one. Investigations of a single innovation ignores innovation-to-innovation variance and is essentially a sample of one (Van de ven & Rogers, 1998). Van de ven and Rogers (1998) did not conduct a communication study, but instead present an overview of organizational innovation research in order to suggest future research directions with a focus on process. They suggest moving from a stage-by-stage conception to a dynamic, continuous conception in which the variable involved in innovation throughout an organization are sequenced and analyzed over time.

Damanpour (1988) suggested the same thing, almost ten years earlier with a review of organizational studies and adoption of innovations. This review suggests a "new" type of innovation research, studies that consider more than one dimension and that examine various contingencies of the interaction between the dimensions. Damanpour suggests that these studies would then be more useful in developing more comprehensive theories of organizational innovation.

Ethics & Theoretical Implications

Technological advances, whether examined in theoretical studies or not, have enabled dramatic change in organizational design and communication, just as they have in the traditional classroom. Herschel and Andrews (1997) report that technology fosters this type of change because computers and telecommunications technology minimizes the impact of time and place on organizational communication. Along with this impact, these researchers say, come new challenges to the ethical standards for social conduct. Herschel and Andrews cite a recent AP mail survey of 500 corporate security directors that show 98.6 percent of these companies have been the victim of a computer-related crime, such as credit card fraud, telecommunications fraud, unauthorized computer use, unauthorized access to confidential files and unlawful copying of copyrighted or licensed software. Herschel and Andrews cite other studies and then determine that there are four critical ethical issues involving technology: privacy, accuracy, ownership and accessibility. They conclude by noting that traditional ethical perspectives used to examine individual and organization communication behavior are equally useful in considering technological advances and the uses to which they are put. Some possibilities suggested by Herschel and Andrews include: enacting legislation, enforcing penalties, holding open discussions and establishing codes of ethical technological behavior. This makes the topic of technological ethics important in classroom discussions.

Herndon (1997) touches on a bit of the ethics of communication innovations as she explored the relationship between organizational theory and its application in the

design and utilization of communication technology. She argues that scientific management principles result in implementation of technology which fails to take full advantage of organizational members and the technology itself while applying a socio-technical systems (STS) approach enhances the potential of both the individuals and the technology itself within an organization. Herndon explains that an organization following an STS approach has the potential to use communication technology to foster communication across social categories, level status differences, enhance openness and free expression of ideas and be more consistent with values espoused by a democracy. It would be an interesting irony, she says, if technology, rather than subjugating people as has been the case in many situations, actually provides the tools to liberate people. Which is what I propose happens in the classroom.

TECHNOLOGY IN JOURNALISM CLASSROOMS AND CAREERS

Research on technology in journalism focused primarily on using computers for text editing prior to 1996. The innovations making a significant difference in the newsroom were word processing, computerized typesetting, and basic desktop publishing production technologies. Since then, journalism technology research has covered a wide range of innovations and areas such as digital imaging techniques, Internet sites with live audio and video links, and even online publications.

Looking simply at one innovation now almost completely adopted at the professional daily newspaper, digital imaging, helps us see the issues and value of change agentry, too. In March 1990, both the Associated Press and United Press International

announced that all photo members and subscribers would be equipped with digital imaging facilities and by June 1992, all had electronic darkrooms (Morse, 1992). This "forced" adoption made a diffusion study problematic. It was problematic for researchers and problematic for journalists, too. When two New York newspapers converted to all digital cameras, the photographers were apprehensive. Just because the technology changed, does not necessarily mean the publication has to change with it, "but the benefits--if you start out in the right way, doing rigorous research, rigorous training--the benefits are incredible" (Washburn, as quoted by Wang, 1998).

As mentioned previously, Kelly (1996) did use diffusion theory in his look at digital imaging at daily college newspapers, publications not entirely effected by the wire services. His measurement began in 1993 when he found 13 percent of college newspapers experimenting with digital imaging techniques. Using Rogers' framework, this was the early adopter stage. In early 1996, Kelly found 66 percent of college newspapers were using digital imaging, making the trend measurable at the late majority stage.

Many current researchers are exploring the online publishing trend (Singer, Tharp & Haruta, 1999; Peng, Tham & Xiaoming, 1999; Noack, 1998). Publishers are going online for many reasons, but the most often cited are: reaching more readers, generating advertising income and promoting their print product. Other reasons include: protecting their franchise as a news distributor, getting an advantage over competitors and staying ahead with technological development. Reasons considered, but not overwhelmingly influential include: reducing printing and distribution costs, ease of publishing and

superior graphical presentation (Peng, et al. 1999). Exploratory studies (Singer, Tharp & Haruta, 1999) suggest that online editors and designers will be able to command wages above those of their print counterparts.

Not only is the Internet a publishing media, but it is also a journalist's resource. As Boyer (1999) writes, the Internet is a leading source of information in 92 percent of newsrooms, compared to 25 percent just four years earlier. This makes critical evaluation of online resources a priority for journalists and a priority in journalism schools across the country (Gunaratne & Lee, 1996; Ketterer 1998).

High school journalism students wanting to enter the professional journalism workforce eventually, certainly need to have multimedia skills and an understanding of the capabilities of computer technology. They will also need to be able to critically analyze and go beyond the surface. The future in education is teaching students how to analyze and present information (Rodriguez, 1996).

Research Questions

Although it appears that many existing studies have examined technology in classrooms, organizational settings and in the journalism profession, none has been found that specifically targeted the diffusion of technology into the high school journalism classroom. That is what this study aims to do. In reviewing Rogers' (1995) types of diffusion research, this study explores the rate of adoption of different innovations in a social system and the innovativeness of the adopter.

RQ1: What technological innovations are currently available for use in high school journalism classrooms across the state of Nebraska?

A. What hardware is available for use by Nebraska high school journalism students?

B. What software is available for Nebraska high school journalism students to use?

C. Does school size or school location make a difference in the availability of the technological innovations?

D. Which innovations have been diffused into Nebraska high school journalism classroom situations?

RQ2: How do high school journalism teachers (advisers) in Nebraska perceive technology ?

A. Do Nebraska high school advisers perceive that they are better classroom teachers because of technology?

B. Do Nebraska high school advisers feel comfortable with technology?

C. Do Nebraska high school advisers feel that they can demonstrate effective use of the technologies available to their students?

D. Are any of the above perceptions affected by age of adviser, gender, education level, location or size of school?

RQ3: What are the successful methods of bringing technology into the journalism classroom?

Through a synthesis of open ended responses, teachers will identify personal strategies that were effective in their individual case.

RQ4: Who is functioning as a change agent for Nebraska journalism advisers?

CHAPTER III
METHODOLOGY

Population Sample

This study utilized purposeful sampling (Babbie, 1998). One-hundred questionnaires were mailed to journalism teachers of Nebraska high schools who were members of the Nebraska High School Press Association from all classification (size) distinctions in the spring of 1998. The membership list was obtained with permission through Jim Angele, at the state office of the Nebraska State Activities Association. Members are from urban, suburban and rural schools and from private, parochial and public school systems.

An invitation to participate was sent via e-mail to all members of the association who utilize e-mail explaining the study and telling them that the 4-page survey was coming in the regular mail (Appendix A: E-mail Invitation to Participate). Responses were kept confidential and anonymous. In an effort to increase the response rate, a follow-up postcard was sent two weeks later to thank respondents and solicit any final responses. Fifty-five of 100 surveys were returned in the collection period for a response rate of 55 percent.

A profile of Nebraska high school journalism teachers

Results of this survey showed that the mean average age for journalism teachers (n=55) in Nebraska was 40.75 years of age, ranging from 24 to 58. The median age was 40, and the modal age was 51. Nebraska journalism teachers were 67.3 percent female and 32.7

percent male. They had been teaching for a mean average of 13 years, ranging from 1 to 32 years. Specifically, they had been teaching journalism a mean average of 9 years. One had not officially taught, but had been a school publications adviser for 3 years as an extracurricular activity within the school system. Exactly 80 percent of the journalism advisers in the state of Nebraska owned and used a home computer, and 83.6 percent used e-mail on a regular basis. Only 25.4 percent of them had a computer in their first classroom as a teacher, and only 20 percent of them used a computer in their own high school experience. One teacher even added a, "Yeah, Right!" comment on the survey next to that question. Only three of 55 teachers responding to this survey listed themselves as a "Certified Journalism Educator," a label created by the Journalism Education Association in 1990 as a method to promote professionalism, encourage journalism education and recognize experience among the nation's journalism teachers and school publication advisers. According to data at the headquarters of JEA at Kansas State University, Nebraska has eight "Certified Journalism Educators" (CJE) and no "Master Journalism Educators" (MJE). As of April 1999, there were 571 CJE's nationwide, 100 of whom are also MJE's. Certified teachers may apply for MJE status, which honors journalism educators with more than seven years of experience who have developed unusual expertise and achieved excellence in their programs.

The schools at which these journalism educators taught were varied in size and location. The mean average school enrollment in grades 10-12 was 409, with a range from 54 to 2,100. They ranged in classification system from A to D. Nebraska high schools are classified in the system by the Nebraska State Activities Association. For

purposes of this survey, Class C1 and C2 were collapsed and so were D1 and D2. For state activity purposes, Class A schools have an enrollment of more than 500; Class B schools have at least 201 students but no more than 499; Class C schools enroll between 101 and 200 students and Class D schools have less than 100 students. A relatively even Class distribution of returned surveys (n=55) was noted with 22.2 percent Classes A and D and 27.8 percent in classes B and C. According to 1999 Nebraska State High School Activities Association records (note the total number of schools registered with NHSPA in 1999 was 116), there are 37 schools that qualify as class A, 29 as Class B, 25 as Class C and 25 as Class D. This survey population did not proportionally represent the population. It was lacking in Class A responses. The journalism teachers surveyed described their school location as urban, suburban or rural at a rate of 20 percent, 16.4 percent and 61.8 percent, respectively. This seems to be reflective of the state of Nebraska's demographic situation.

Survey Instrument

The items selected for inclusion in the questionnaire were determined through a review of the relevant literature. The questionnaire was field tested and revised before it was sent to respondents. Selected technology-using faculty members at the researcher's high school participated in the pre-test.

Based on the pre-test, the survey questionnaire was divided into four sections. Section 1 consisted of demographic data concerning the respondents. Each respondent in the sample was asked to supply personal information necessary to generate variables

pertinent to the study, such as those dealing with age, gender, educational qualifications, years of journalism teaching/advising experience, location of school, the size of the school, frequency and type of student publication advised. Section 2 included questions eliciting the basic views of respondents toward the use of technology in the classroom, their perception of administrative and actual support and their self-estimated use of technology. Section 3 asked the respondent to inventory technologies available to their students and Section 4 included open-ended questions for responses dealing with acquiring technology in the classroom and advice to other teachers.

A cover letter of explanation, similar to the participant invitation sent via e-mail, accompanied the questionnaire to explain its purpose and assure participating teachers that all responses would be kept confidential (Appendix B: Cover Letter and Questionnaire). Also enclosed was a signed exemption authorization obtained from the Institutional Review Board for the Protection of Human Subjects (Appendix C: IRB Exempt Authorization). The Omaha Public School District required that an additional authorization letter from the Omaha Public School Research Department be enclosed if Omaha teachers were to respond to the questionnaire. This was obtained and enclosed (Appendix D: OPS Research Request Approval). Each questionnaire was self-addressed and stamped.

Data Preparation and Analysis

As questionnaires were returned, respondents were kept anonymous by destroying the reply envelope Confidentiality was protected of all respondents by keeping any individual descriptions to that of demographic school size and number of years teaching,

although many respondents identified themselves to the researcher. A codebook was developed and data were entered into an SPSS 6.1 file. SPSS is a comprehensive and flexible statistical analysis and data management software program that allowed for simple creation of frequency tables, descriptive statistics, exploratory statistics and cross-tabulation tables.

CHAPTER IV
PRESENTATION AND ANALYSIS OF DATA

Findings

RQ1: What technological innovations are currently available for use in high school journalism classrooms across the state of Nebraska?

Technology, in its many forms was perceived to be readily available to Nebraska high school journalism advisers. This survey was not designed to determine if journalism students were actually using the technology in the classroom, it was to determine if the technology was available for use. All schools of survey respondents (n=55) were connected to the Internet. Ninety-five percent (52 of 55) of journalism classrooms or labs had at least one computer with Internet access. All journalism classrooms or labs had at least one computer and at least one printer available. Nearly all schools that responded to the technology inventory (n=53) had a VCR available (94.3 percent or 50 of 53) in the journalism classroom or in the school to be checked out or used by journalism students, according to the journalism adviser. The three schools that did not have it available wished it was available. Ninety-two percent had a CDRom player available, 94 percent had an overhead projector available, 83 percent had a flatbed scanner available and nearly 79 percent had a digital camera available. (For complete technology inventory breakdowns, see Table 1: Technology Inventory.)

Plotting these on a diffusion curve shows that at least computers, VCR's, overhead projectors, laser printers, CDRom players, and camcorders are almost completely diffused into the journalism classroom experience. Using Rogers (1995)

adopter categorization on the basis of innovativeness dimension, that which partitions an adopter into five categories: innovators, early adopters, early majority, late majority and laggards, provides a way to classify the Nebraska high school journalism programs. Any journalism teacher or school system that has not yet adopted a VCR, laser printer, CDRom player or camcorder is in the laggard category. Those yet to adopt flatbed scanners, digital cameras, color printers and computer projection devices are in the late majority category. Those who have already adopted videodisc or laserdisc systems, and negative or slide scanners are at least in the early majority category. These survey results were unable to identify exactly who the innovators or early adopters of a particular innovation were, because very few respondents actually were able to list a date of acquisition.

If respondents in this study could produce a wish list for Nebraska journalism classrooms, of those without certain technologies:

- 32.1 percent wish they could have or have access to a Negative or Slide Scanner.
- 32 percent wish they could have or have access to a Video Editing System.
- 24.5 percent wish they could have or have access to a CDRom Burner.
- 17 percent wish they could have or have access to a color printer.

Table 1: Technology Inventory

Technological Hardware Available in Nebraska High School Journalism Classrooms & Labs or in school buildings where teachers and students can check out the equipment to use for journalism and publication projects.

Computer	100 %
VCR	94.3 %
Overhead Projector	94.3 %
Laser Printer	94.3 %
CDRom Player	92 %
Camcorder	84.9 %
Flatbed Scanner	83 %

and Internet Explorer. Both are available at 75 percent (40 of 53) schools. Again, there is overlap because some schools have both options, but all have at least one or the other. (See Table 2: Software Inventory for complete software breakdowns.)

Table 2: Software Inventory

Computer Software Available in Nebraska High School Journalism Classrooms & Labs

Adobe PageMaker	92 %
Microsoft Word	77 %
Netscape Navigator	75 %
Internet Explorer	75 %
Adobe PhotoShop	70 %
Microsoft Powerpoint	67 %
Claris Works	66 %
Microsoft Excel	38 %
Hyperstudio	30 %
Adobe Illustrator	26 %
Word Perfect	23 %
Freehand	17 %
Quark	13 %
TypeStyler	8 %
Other Software: (write ins)	
AvidCinema	4 %
Microsoft Publisher	4 %
Photo Studio	2 %
Picture Works	2 %
Claris Home Page	2 %
Corel Draw	2 %
Microsoft Front Page	2 %

Multiple responses were allowed. Not all respondents replied to this section of the survey. (n=53)

In order to determine if school size or location influenced the amount of available technology, the variable of school size was collapsed into four categories, by classification size, and was cross-tabulated with the different innovation variables. Very slight variances were found. For example, 92 percent (11 of 12) of Class A, the largest

class of journalism schools have a flatbed scanner available and a CDRom player and the exact same percentage of Class D, the smallest class, have the same innovations. It was the Class C schools that had the most significant difference, but only in one innovation. Only 67 percent (10 of 15) of Class C schools have a flatbed scanner but 93 percent have CDRom players. The same type of statistical test was conducted on several other journalism production-related technologies, digital cameras, negative scanners, Zip drives, CDRom Burners and color printers.

With digital cameras, Class D schools were most likely to have them available, with 92 percent (11 of 12). Seventy-five percent of Class A schools (9 of 12) were likely to have a digital camera and Class C schools were again the lowest, with 67 percent (10 of 15). Negative or slide scanner availability cross-tabulations were significantly different. Class A schools were most likely to have negative scanners available at 58 percent (7 of 12) and Class D schools were least likely to have them available at 8 percent (1 of 12). The trend was followed with Class B and C schools, showing that the larger the school, the more likely they were to have a negative scanner available. The same positive correlation was found with the Zip drive, a storage innovation and the CDRom burner. The larger the school, the more likely it was to have a Zip drive and a CDRom burner available. All Class A schools in this survey had a Zip drive (12 of 12); Class B schools were 79 percent (11 of 14) likely to have a Zip drive; Class C schools were 73 percent (11 of 15) and Class D schools were 67 percent (8 of 12) likely to have a Zip drive. CDRom burners were available at 42 percent (5 of 12) Class A schools and only 17 percent (2 of 12) Class D schools. When looking at color printers, a negative

correlation was found. Class D schools were the most likely to have color printers available at 92 percent (11 of 12) and Class A schools were 58 percent (7 of 12) likely to have a color printer.

One would expect that if school location variable were cross-tabbed with the same innovation variables that a similar relationship would be found as those with the school size. The location variable of urban, suburban and rural were collapsed so that urban and suburban made one category and rural was the other. It must be noted that 65 percent (34 of 52) of the schools responding to this survey and having valid responses for all innovation categories classified themselves as being rural in setting. More than 72 percent (13 of 18) of the urban and suburban schools have digital cameras and 82 percent (28 of 34) of the rural schools have a digital camera. The urban and suburban category had higher percentages of almost all other innovations, including flatbed scanners, CDRom players, negative scanners, zip drives and CDRom burners. The only other innovation with a higher prevalence at rural schools was a color printer; 68 percent (23 of 34) of the rural schools had a color printer available while only 58 percent (11 of 19) at urban and suburban schools have access to a color printer.

RQ2: Perceptions of technology by Nebraska high school journalism teachers:

Technology does seem to make Nebraska journalism teachers feel like they are better teachers. Using the responses on the scaled survey items, nearly 84 percent (46 of 55) either agree or strongly agree that they are better teachers with technology. Nebraska journalism teachers in this sample are also comfortable using technology in their classroom with a rate of nearly 86 percent (47 of 55). Approximately 76 percent (42 of

55) believe that as a teacher, they should continuously search for new ways to use instructional technology in the classroom. Technology may make a journalism teacher feel like a better teacher, but it may not necessarily make them a better teacher. As many survey respondents noted in the open-ended response section of the survey, technology does not always equal good writers, good journalism practices or good editing skills. One Class C adviser of three years responded, "Don't get into this profession if you care about good writing. It is all about the technology now and nothing about the discovery of fact and truth." Another Class C adviser of 12 years responded, "Don't think that having lots of technology is a substitute for good writing skills or careful editing. Be careful of letting the quality of product decline because you spend so much time with technology doing cool stuff." A Class A adviser of 14 years responded with a similar note, "Technology is a means that can provide an end...too much of our time is focused on its utilization, and not enough time spent on asking 'Why?' Too many folks consider technology a god and have never questioned its presence and use in education."

Even with these expressed concerns, at least 87 percent (48 of 55) want more technology knowledge and skills in general with 78 percent (43 of 55) saying that they want specific technology training with journalism related technologies. One Class D adviser of 18 years even made a side-note on the survey asking, "How can anyone NOT want more training?" Evidently, 22 percent (12 of 55) are neutral or in disagreement on this issue. A full 75 percent (41 of 55) believe that the use of instructional technology improves the overall quality of student learning. Almost half of the journalism teachers in this sample are comfortable demonstrating the effective use of the technologies

available in their classroom with a rate of 45.5 percent (25 of 55); 14.5 percent (8 of 55) were neutral on this issue. The remaining 40 percent (22 of 55) do not perceive that they can effectively demonstrate effective technology use in their classroom. Many respondents expressed frustration of some kind with their own technology skills in the open-ended response area of the survey. Many also gave advice to simply learn from the students; teachers are also learners.

A journalism teacher's perception of technology is influenced by those around them but only 29.1 percent (16 of 55) agree that their building administrators have a very good understanding of how technology should be used in the journalism curriculum. Many teachers remained neutral on this perception question (27.3 percent or 15 of 55) but 43.7 percent (24 of 55) disagree or strongly disagree, meaning they do not feel their building administrators understand their technology needs. A similar pattern exists when looking at journalism adviser's perceptions of the way other staff members in their building, not administrators, understand their technology needs and experiences. In this case, 45.5 percent (25 of 55) agree that other staff members understand and 40 percent (22 of 55) disagree. The eight remaining respondents were neutral with this perception question.

Further statistical analysis by cross tabulating some the perception questions with demographic variables such as age of adviser, education level of the adviser, gender of the adviser and school size also show interesting results. The age of the adviser does not make a statistically significant difference in the responses to the survey questions about technology and it aiding in classroom teaching, but age does seem to make a slight

difference in perception of respondent's ability to effectively demonstrate technology in the classroom. Again, the results are not statistically significant (Pearson's Chi-Square value of 13.56 with a significance level of .32956), but they are interesting. Advisers who are in their 30s seem to be the most comfortable with nearly 65 percent (11 of 17) at least agreeing. Advisers in the 40s feel only 20 percent (3 of 15) comfortable demonstrating effective classroom technology skills. The same sort of relationship exists when cross-tabulating age of adviser with perceived administrative support. Forty-one percent of those advisers in their 30s agree that their building administrators understand their technology needs, while only 13 percent of those in their 40s agree.

The education level of the adviser does not significantly effect any of these perception questions, but it should be noted that nearly 93 percent (51 of 55) of the Nebraska journalism teachers responding to this survey have at least completed some graduate classes and that almost 31 percent (17 of 55) responded that they have had no formal journalism education whatsoever.

Of female journalism teachers, 32.4 percent (12 of 37) agree that the administration understands their technology needs in the journalism classroom; 43.2 percent (16 of 37) disagree and 24.3 percent (9 of 37) were neutral. Of male journalism teachers, 22.3 percent (4 of 18) agree that the administration understands their technology needs; 44.5 percent (8 of 18) disagree and 33.3 percent (6 of 18) were neutral.

The size of the school might also make a slight difference in the perceptions of the advisers. No Class A advisers, those at the schools with the largest enrollment, disagree that they are better teachers with technology, while at least one adviser from the

other three classifications disagreed. No Class A adviser disagrees with the perception question of feeling comfortable using technology and only three Class A advisers feel that they cannot effectively demonstrate technology in the classroom, compared with at least six advisers in every other class.

RQ3: Strategies of successful technology gain in the journalism classroom:

Successful strategies for gaining technology involve many components as indicated by the wide variety of responses to this open-ended survey question. At least 87 percent (48 of 55) of the respondents made at least one notation on the final four survey questions asking for open ended responses and 65 percent (36 of 55) answered this question: **What successful strategies have you employed to help bring technology to your students?** Responses were varied and insightful. They ranged from one word answers: "Fundraising" to detailed listings with numbered strategies. All original responses have been included in Appendix F: Open Ended Responses. In an effort to synthesize the results, five key strategic elements have been identified in successfully gaining technology in the journalism classroom:

1.) Prove the value of the innovation/technology.

2.) Be vocal about the need to adopt the innovation/technology.

3.) Be persistent.

4.) Involve students in the process.

5.) Actively search for outside/additional funding.

To further illustrate these strategic elements, a few practical responses will be shared. A Class A adviser with 18 years of experience responded, "The best strategy is to have successful students...Several of my students have been recognized and gotten publicity for the school." This helped her gain technology in the journalism classroom. A Class A adviser with three years of experience said, "I complained, screamed, and bemoaned our situation. Then I threatened to quit or move back to my major content area of social studies." He was able to gain technology with that strategy. Another Class A adviser of 23 years responded, "To be perfectly honest, the most success I've enjoyed is when I have administrator's kids in the program. They see the value then, especially as their kids are affected." What obviously works for one teacher will not always work for another, but some indicated that they would almost do anything for more technology in the classroom, like a Class D adviser of 11 years who responded "bringing the technology coordinator Tootsie Rolls helps!"

RQ4: Who is functioning as a change agent in Nebraska high school journalism programs?

As part of the change agent function, it is useful to identify strong influences to the stakeholders. In this case, the stakeholders are those who have a vested interest in the decision to be made, the teachers and students, among others. As part of this survey, journalism teachers were asked to identify who has been influential in helping to gain technology in the classroom. Multiple responses were allowed with a special response to be indicated with the source who was *most* influential. Nearly 80 percent (43 of 55) of the respondents indicated that the gain in technology was at least partly self-initiated.

More than half (29 of 55) indicated that their school's technology coordinator was at least partly responsible as well. Then, if following Rogers' (1995) definition of a change agent, all the groups listed in Table 3: Potential Change Agents are functioning to aid in bringing technology to the Nebraska journalism classroom.

Table 3: Potential Change Agents

Self-initiated	78 %
Technology Coordinator	53 %
Other faculty members within the building	40 %
Administration	31 %
Printing Companies/Yearbook Representatives	31 %
Students	29 %
Other Journalism Advisers	15 %
Other Product Vendors	5 %
Parents	4 %
Alumni	4 %
Department Chair	2 %
Co-workers from prior occupations	2 %

Percent is out of 55 valid responses.

The agent noted most frequently as the *most* influential was self, that that not only are the journalism teachers the primary stakeholder, but also the primary change agent as well.

Summary of Major Findings

Technology is available in Nebraska high school journalism classrooms. Computers and printers are available in all classrooms and Internet access is available in 95 percent of the classrooms. Other technologies that have diffused, by Rogers' standards, are VCR's, overhead projectors, CDRom players and video cameras. Other widespread technologies were flatbed scanners, cable television, digital cameras, Zip or

Jaz drive storage devices and computer projection equipment. Those schools yet to adopt these are in the late majority category. As for computer systems, nearly 66 percent (36 of 55) of the schools are on the Macintosh system and approximately 33 percent (18 of 55) use an IBM or compatible system. Desktop publishing software used by most (92 percent) of the journalism programs in the state of Nebraska is Adobe Pagemaker. The majority also used Microsoft Word, Adobe PhotoShop and Internet browsers. School size and school location were not significant indicators for the availability of technological innovations as many innovations were found in equal proportion at the largest and smallest schools. A few innovations did have positive correlations with regard to school size, such as negative scanners, zip drives and CDRom burners. The larger the school, the more likely it was to have these innovations available. A negative correlation was found with the color printer innovation. The larger the school, the less likely it was to have a color printer. The location of the school was also a significant factor with regard to availability of some innovations. Urban and suburban schools were more likely to have all innovations except digital cameras and color printers.

Most respondents in this survey (84 percent) indicated that they agree that technology makes them a better teacher. Nearly the same number (86 percent) are comfortable using technology in the classroom. Respondents often clarified their perceptions in the open-ended response portion of the questionnaire and expressed their frustration that technology was both a time-saver and a time-waster in their classroom. Technology may make the publication adviser's job a bit more efficient and automated, but the time it takes to learn that level of technology expertise is often overwhelming.

Demographic variables only slightly effect the Nebraska journalism teacher's perceptions of technology. Advisers in their 40s seem to be the least comfortable demonstrating effective technology use and also the least certain that the administration understands their technology needs in the classroom. The gender and education level of the adviser were not a significant factor in this analysis but the size of the school did seem to be statistically significant because the advisers in larger schools perceived their relationship with technology to be more positive.

In order to gain technology in the classroom, advisers indicated a wide variety of responses. Five key strategic elements were identified in the open-ended responses: 1) Prove the value of the innovation/technology; 2) Be vocal about the need to adopt the innovation/technology; 3) Be persistent; 4) Involve students in the process; and 5) Actively search for outside/additional funding. It is obvious that the same strategy is not going to work for everyone, but these methods would not seem to hinder the technology acquisition in any journalism classroom. In many organizations, the diffusion of innovations happens because of effective change agents. Of the high school journalism advisers of Nebraska, 78 percent feel that they are the change agents themselves, thus their position automatically puts them in the function and role of bringing about change for their own benefit and the benefit of their students, if they deem it necessary.

CHAPTER V
DISCUSSION AND CONCLUSIONS

Discussion of Selected Issues

TEACHER TECHNOLOGY TRAINING

It should be apparent that those who want to (or have to in some cases) teach scholastic journalism and advise student publications have an interest and some experience in instructional technology use. One first year adviser at a Nebraska Class C school made that very clear in the open ended response section of the questionnaire. "...I am a teacher that had some technology experience, but no journalism...but I was able to do the work." Maybe he can teach the technology, but the question remains, can he teach journalism with the technology? All educators should, as the respondents in this survey indicated, be aware that something else will suffer if too much emphasis is placed on the technology and not enough on the specific content area. But, a balance is possible and the potential technology brings to a classroom is limitless. In some cases, journalism teachers by the very nature of their job, cannot be techno-phobic. One 34-year veteran adviser of a Class D school responded that advisers must "Learn it!" and "Like it!" There is no other option. But if the adviser just does not like it and has a fear of getting started, Heinssen (1987) and Rosen, Sears, and Weil (1995a) have described straightforward, proven strategies for eliminating the fear. This is not as simple as it appears. Although technology has become more "user friendly" in the past decade, it may still be quite complex. Rosen and Weil (1995b) offer the following guidelines for the introduction of any technology:

> 1. The person who is teaching any form of technology must be comfortable with that technology because a techno-phobic teacher will pass these attitudes and feelings to the learner.
> 2. The person who is teaching technology must be calm, clear, and very open to questions.
> 3. The teacher should walk the learner through the process of using a technological device first with the learner pushing the buttons. Then the teacher should supervise the learner doing the steps by him/herself.
> 4. The introduction of technology should be in a non-evaluative atmosphere.
> 5. It is important to learn about technology by "playing" with it (pp. 4-5).

Teachers must take it upon themselves to become more technologically proficient; no one will do it for them. Many advisers responded that they use their lunches, their plan periods, and their summers to learn the software. Others encouraged attendance at workshops and journalism summer camps with the students. One 14-year adviser in a Class A school realistically encourages new advisers to "seek out those who are comfortable with technology and throw away the manuals." Many advisers also noted that success was found when they recruited technology-talented students. But, in the case of a Class D adviser of only 2 years, "Get help from whoever you can to survive."

In only 30 percent of the schools surveyed for this study, did the advisers feel that the school district organized or supported effective technology inservice training in the last two years. This seems to greatly contradict the U.S. Department of Education's findings that 78 percent of all public school teachers from all grade levels have participated in professional development activities focused on the integration of educational technology in the last 12 months. The discrepancy in results may be linked to the wording of the survey questions or simply to the thought that journalism teachers use very specific technologies that traditional instructional technology inservices fail to cover effectively. Much of the specific technology training needed by journalism

teachers will have to come from outside the school setting. In fact, 40 percent of those surveyed for this study feel that they get more technology support from someone outside of their school. Thirty-three percent were neutral and only 27 percent felt support from inside the school. As an administrator, I would be concerned by this and by the fact that nearly 44 percent of the journalism teachers responding to this survey do not feel their administration understands their technology needs. It should be noted that when listing potential change agents, 31 percent of those surveyed indicated that their school administration was at least partly influential in helping to gain technology.

As Moursund (1999) advocates, when a person decides to become an educator, they make a commitment to lifetime learning. They owe it to themselves, the profession and the students. The 78 percent of the journalism teachers who responded to this survey are on the right track when they have recognized that change must, in many cases, be self-initiated. Good teachers need to challenge themselves first before they even think about challenging their students (Trayes, as quoted first by Phipps, 1998).

AVAILABILITY OF TEACHING/TECHNOLOGY RESOURCES

The largest frustration with resources was with that of time. Teaching with technology takes time. There is no way around it. High school journalism teachers in this study were asked to estimate how much time, in minutes, they spent with technology each day. Results were difficult to statistically analyze because of the irregularity of the responses. Many respondents noted that the time varies drastically each day, but at deadline time, a teacher could be using technology more than 12 hours a day with

students. Some made notations in the survey response space that it depended on whether or not a disk crashes or whether students saved files correctly. Of those who did note a specific amount of time, and most listed the time in hours, not minutes, the mean average of time spent with technology was at least one and a half hours a day. Except for specific computer programming instructors or staff members in the business office, arguably no other faculty member in a school setting is actively involved with technology so much in a day. The only study reviewed that made an attempt to measure high school teachers and time with technology was Wigmore (1988). Although a dated study, it is of interest in that he studied high school science classrooms and determined that of the teachers who did use a computer in the classroom, the computer was used at an average of 2.6 hours a month, not a day! Wigmore also found that teachers with a master's degree spent less time with technology than teachers with a bachelor's degree. An attempt to verify that research was made in this study but no conclusive data were found. Those with a bachelor's degree averaged two hours a day but the one with a doctorate averaged four hours a day. Those with some graduate courses averaged slightly less than one hour a day and those with a master's degree averaged two-and-a-half hours a day. The age of the adviser was not clear intervening variable either, but four advisers over the age of 50 responded that they spend four hours or more with technology a day, compared to only two advisers in all the other age categories combined.

Many survey respondents noted that available actual technology resources changed so rapidly that it was impossible to keep up. Some rural school advisers noted that the computer stations available to journalism students were also used by others. "We

have many computers and types of software available however it is all being used by others during the journalism hour leaving us with one computer to both a newspaper and annual and to maintain our online presence," explained a Class D adviser. A Class A adviser of 8 years has a similar frustration at the overall lack of technology equipment. "Schools want a first class product with third class equipment," she explained.

Software versions themselves change frequently and staying on top of them is a full time job in itself. Each respondent in this study who identified the software they were using on the questionnaire indicated at least four different applications. This survey did not ask respondents to identify the version of the software they had available. From personal experience, those advisers using one particular yearbook publishing company in Nebraska range from using PageMaker 4.2 to PageMaker 6 and Adobe InDesign, which was not offered as a suggestion or a write-in option in this study questionnaire. The software budget alone could cripple a publication staff if expecting to stay at the leading edge of technology. As anyone with purchasing power understands, software upgrades eventually equate to hardware upgrades and the process is never ending. One Class A adviser of 19 years shared, "Have patience. Even if the school is willing to give you new hardware, but sure you're also capable of purchasing the updated software – so it will be compatible." Many advisers in this study also recommend shopping for used hardware, not to get ahead, but to attempt to catch up.

Suggestions for Further Research

The scope of this study was narrowly defined. It was not the intent of the researcher to determine how or how often technological innovations were being used by high school journalism students in Nebraska or even if the innovations were being utilized at all. That is the obvious next step for this research. The students themselves could be surveyed or observed in an attempt to determine usage. The advisers could also be re-surveyed and directly asked about their students usage of available innovations. The study of any particular innovation's use would be interesting in itself. A detailed look at high school students and their use of e-mail or use of word-processing software, could highlight trends and provide useful information for educators. The study could be expanded to look at the diffusion of technological innovations in all curriculum areas and at all grade levels.

The impact of technology at the high school level is another relatively unexplored area of study. It would be interesting, in the journalism area, to do content analysis of high school publications and determine if technology has changed content over the years. Undoubtedly it has changed the process and design capabilities, but has the content remained the same? The impact of technology on the student's attitudes would be valuable to determine and could be explored with longitudinal studies beginning when a student enters a school system. The studies of technology's impact could even begin before a subject even reaches school age, because of the current technology infusion into the home. The impact of technology-minded young people entering the workforce could

be an extension of this sort of study. The dawn of this new millennium seems prime for at least determining benchmarks for this content area.

Originally, it was thought that this study could determine the innovators among high school journalism advisers in Nebraska, but the inventory questions on the survey asking for approximate date of acquisition were interestingly difficult to answer. One survey respondent did note items back to 1980 (when the classroom first acquired a SLR camera) but many filled in the category with question marks. It was interesting to discover that some advisers acquired technological innovations "last week" or will do so "by the end of this year." This area of research could also be explored further. By identifying the advisers who have been in the classroom for at least 20 years (10 of the respondents) or some other arbitrary number, detailed interviews or survey instruments could be developed to determine more accurate pictures of the process of innovation acquisition, the motivation and patterns behind the adoption behavior.

Although the concepts of diffusion and innovation were applied to frame this study, the researcher questions if this theory is the most appropriate. Given the rapid rate of technological change, one could question if innovations can still be classified as they once were. Are the innovations used in the classrooms of today really "new" by Rogers standards? Innovations of today may be faster or sleeker or more economical, but are they fundamentally different or "new" when students are introduced to them in their earliest memories. Rogers may need to reconsider the "S" shaped curve to describe more fully what happens after an innovation has been completely diffused. Even if diffusion is not an appropriate theory, this study itself can serve a distinct purpose if repeated over

time. The inventory data on high school journalism classrooms in Nebraska can provide a benchmark for future study or be a springboard for related studies with other populations.

Limitations of the Study

As with all research, this study has certain limitations. The study's sample is limited to respondents who are members of the Nebraska High School Press Association, a division within the Nebraska State Activities Association, an organization in which the researcher also belongs. A high school journalism adviser does not have to be member of this organization to teach journalism in the state. The $45 membership fee for the organization enables the students to participate in state conventions, contests and workshops. Taking the initiative to join the organization already limits the sample. In many cases, the registration is the job of the athletic director in a school system who must register in the same manner for each sanctioned sport. Because of the limited population sample, it is not intended to generalize the results to the larger educational system or even scholastic journalism advisers as a collective group, however the findings provide references for technologists, teachers, administrators and students in higher education.

Further, while an effort was made to examine non-response bias, there is always the possibility that the data are systematically biased. The methodology adopted for this study also presents certain constraints. Cross-sectional studies such as this do not fully capture the complexity of the technology adoption process. As has been mentioned throughout this study, just because an adviser said his or her students have access to a

certain innovation does not mean they are using it at all or using it in the same way as students in another school system. Each technology user will use the innovation to suit their immediate needs, often with a limited understanding of the potential being overlooked. The researcher also assumes that the respondents were telling the truth in their questionnaire responses. No testing of external or internal validity could be confirmed if respondents did not accurately inventory their classroom technologies.

Additionally, perceptions and attitudes are not static. As a result, a cross-sectional study like this does not capture the complexity of the adoption process. Therefore, results of this study should be viewed as exploratory and preliminary.

Conclusion

This research study was conducted to explore the diffusion status of educational technologies or innovations in the high school journalism classrooms of Nebraska and to explore the high school journalism adviser's perceptions of technology in the classroom. Another goal of this study was to document successful technology-gaining strategies of technology-using educators. All three of these goals have been achieved by the review of relevant literature pertaining to diffusion theory, the function of change agents, technology in education and technology in journalism careers and through the instrumentation of a statewide questionnaire to high school journalism teachers. One-hundred questionnaires were mailed to high school journalism advisers who were members of the Nebraska High School Press Association and 55 valid responses were returned by the study completion date for a response rate of 55 percent. With such a

limited sampling, the data analysis, conducted with the aid of the SPSS statistical analysis software, is certainly not conclusive, but exploratory.

Four general research questions were identified and descriptive answers were formulated. Research Question One asked: *What technological innovations are currently available for use in high school journalism classrooms across the state of Nebraska?* The complete responses to the questionnaire's technology inventory are detailed in Tables 1 and 2 of Chapter 4. Hardware innovations that are almost completely diffused in to the journalism classroom situations of those Nebraska high school journalism adviser respondents were: computers, Internet connection, VCRs, overhead projectors, laser printers, CDRom players and camcorders. School size and school location were found to be determining factors for technology availability with a few innovations.

Research Question Two asked: *How do high school journalism teachers advisers in Nebraska perceive technology ?* Perceptions were measured by analyzing scaled items and open-ended responses on the study questionnaire. It seems that Nebraska high school journalism teachers feel that technology makes them better teachers. Many (86 percent) of those in the sample are comfortable using technology in the classroom, but only a discouraging 45.5 percent of those in the sample feel that they can effectively demonstrate the use of the technologies available to their students. Fully 87 percent of those in the sample indicated that they would like more technology knowledge and general skills. Demographic variables did not significantly effect these perceptions.

Research Question Three asked: *What are the successful methods of bringing technology into the journalism classroom?* Through a synthesis of open ended responses,

five key strategies were identified: 1) Prove the value of the innovation/technology; 2) Be vocal about the need to adopt the innovation/technology; 3) Be persistent; 4) Involve students in the process; and 5) Actively search for outside/additional funding. The entire list of responses is included in Appendix E.

Research Question Four asked: *Who is functioning as a change agent for Nebraska journalism advisers?* The most effective agent of change for 78 percent of those Nebraska high school journalism advisers in this sample was the adviser him/her self. Technology coordinators or their equivalent within a school system were cited in 53 percent of the responses and the administration was cited 31 percent, just slightly ahead of the students themselves at 29 percent.

In summary, the analysis describes the diffusion status of the availability of technological innovations in the high school journalism settings of Nebraska, describes the average journalism adviser and his/her perceptions of technology, describes strategies for successfully acquiring technology and identifies the common agents of change.

As educators and as journalists, the legal, ethical and societal effects of technology must continue to be explored. We have an obligation to ensure that our students understand that technology has the potential for improving the life of individuals and serving the societal public good in an almost unlimited variety of ways. High school journalism teachers must move well beyond worries relative to getting the student newspaper or yearbook published on time, they must advocate a critical study of the impact of the mass media and new technologies.

Seconding what Pattison, (1995) wrote for *Quill*, using what technology is available is all about control. Some of us have fallen in love (or lust - as he says) with the power of Macs, Quark and Adobe Photoshop. Rather than reduce workload, technology often increases the workload. Fascination with technology can go too far, journalism may become more about the production process on your desktop than about journalism itself. But we must keep in mind that it's still all about the craft, the art of storytelling, even if technology has shortened the deadline to milliseconds. To paraphrase Allison Davis (as quoted by Lord, 1995), we can always teach HTML (hypertext markup language) to a journalist, but we can't teach a techie to how to tell a story. But as Simon and Napolitano (1999) report, we can be reasonably certain that the future belongs to reporters who become more and more computer literate. But, we cannot forget, as Martinson, (1998) reminds journalism teachers, a vast majority of our students will never work for a newspaper or broadcasting outlet. Each and every one, however, will be the recipient of messages emanating from an increasingly technologically sophisticated communication industry.

As Cuban (1999) writes, the essence of teaching is a knowledgeable, caring adult building a relationship with one or more students to help them learn what the teacher, the community and the parents believe to be important. Technology changes that relationship. "Teachers' beliefs about their authority, control of their students--their very role--come into sharp focus when they are asked to use software that would seem to replace what the teacher has traditionally done. While some teachers find this exhilarating and rush to accommodate the change in classroom relationships, many pause

to consider the gains and losses to them and their students." There needs to be more debate over traditional education values and the need to accelerate at the speed of light in technology. Technologies change too quickly to stay current in all areas of development.

But this cannot be a deterrent, it must be a catalyst.

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APPENDIX A
Initial E-mail Letter of Explanation

Dear NHSPA members:

Greetings amidst the rush of spring contest submissions and second semester deadlines. As many of you know, I'm finishing up my masters program at UNO and working on a thesis related to technology in the high school journalism classroom. On top of my day job at Marian, this has been an exhausting and yet rewarding experience, as you can well imagine. I am writing to forewarn you that a survey is coming to you in the regular mail. It should not take you longer than 10-15 minutes to answer and I whole-heartedly thank you in advance for participating in this statewide research project. I will be posting results on the web and I think we'll all gain from the information gathered.

If you have questions, suggestions or concerns, please do not hesitate to contact me. Thanks.

Marsha A. Kalkowski
mascu@marian.creighton.edu

APPENDIX B
Cover Letter and Questionnaire

Marsha A. Kalkowski
7705 S. 70th Street Circle
LaVista, NE 68128

March 2000

Dear _____,

The enclosed questionnaire has been prepared to assess the use of technology in journalism classrooms in the state of Nebraska. I certainly understand that journalism teachers have more than enough to do already, but I am simply asking you to take a few minutes of your time to complete it on behalf of the future of journalism education. As you are well aware, journalism classes are ideal for students to experience innovations, utilize desktop publishing and digital imaging techniques and to explore what technology can offer. Even though we know this to be true, the technology available in classrooms across the state covers a broad spectrum. Before we try to jump ahead in the race, we need to understand exactly what technologies are available and what technologies are being utilized. This questionnaire and brief inventory should take no more than ten minutes to complete and I thank you sincerely in advance for recognizing the value of time well spent.

I will make the survey results available to you at the conclusion of this project to assist you and your students in gaining more access to technology in the classroom. The study and all related data will be posted on the WWW at http://marian.creighton.edu/~mascu/TECHNOLOGY.html.

I welcome any additional comments you may have concerning the topics dealt with in this questionnaire. Please write comments in the space provided at the bottom of the last page or email them to me at the address provided below.

All information will remain anonymous and confidential. No identifying material will be kept and at no place on the questionnaire are you asked to identify yourself personally. Please return the self-addressed stamped questionnaire within five days. Returning this questionnaire indicates your formal consent, allowing the information to be used in this research study.

The questionnaire has been approved by the Department of Communication at the University of Nebraska at Omaha, the Institutional Research Board and the Omaha Public School District's Research Department. If you have any questions, please call me at (402) 592-5228 (home) or (402)571-2618 ext. 34 (work) or email me at: mascu@marian.creighton.edu. You may also contact my advisor, Dr. Jeremy Lipschultz (402) 554-2563.

Thank you for your time and cooperation.

Sincerely,

Marsha A. Kalkowski

QUESTIONNAIRE

Part 1: Demographics

Please circle the answer or print the answer in the space provided.

If you are not a journalism teacher or student publication adviser, please answer questions 1-7 and return the questionnaire in the enclosed envelope.

1. School Population (grades 10-12) _____

2. School Classification _____

3. Would you consider your school to be: urban suburban rural?

4. In what year were you born? _____ 5. What is your gender: male female

6. Total number of years teaching, including this year _____

7. Number of years teaching journalism/advising publications, including this year __

8. What is the highest educational level you have achieved (check one)
   - _____undergraduate college degree
   - _____some graduate college courses
   - _____graduate college degree
   - _____some post-graduate college courses
   - _____doctoral degree

9. How would you classify your journalism education: (check all that apply)
   - _____some undergraduate classes in journalism related courses
   - _____undergraduate degree in journalism
   - _____some graduate classes in journalism related courses
   - _____graduate degree in journalism
   - _____Certified Journalism Educator (CJE) through the Journalism Education Association
   - _____Master Journalism Educator (MJE) through the Journalism Education Association
   - _____Journalism workshop attendance and convention participant
   - _____No formal journalism education

10. Total Number of students currently enrolled in all your journalism class(es)?_____
    What is your average class size? _____

11. Types of Publications you advise (check all that apply)
    - _____weekly newspaper
    - _____bi-weekly newspaper
    - _____monthly newspaper
    - _____quarterly newspaper
    - _____quarterly newsmagazine
    - _____spring-delivery yearbook
    - _____fall-delivery yearbook
    - _____online publications
    - _____literary magazine
    - other_____

Part II: Technology Perceptions

Answer the following questions on the scale below.

① Strongly Agree ② Agree ③ Neutral ④ Disagree ⑤ Strongly Disagree

Self-perception

①②③④⑤ 12. I believe that I am a better teacher with technology.

①②③④⑤ 13. I feel comfortable using technology in the classroom.

①②③④⑤ 14. I believe a teacher should continuously search for new ways to use instructional technology in the classroom.

①②③④⑤ 15. I believe the use of instructional technology improves the quality of student learning.

①②③④⑤ 16. I feel that I need additional knowledge and skill in the preparation and utilization of technology for the journalism classroom.

①②③④⑤ 17. I want specific training on current technologies related to advising student publications.

Perception of Administrative Leadership

①②③④⑤ 18. I think the school district should require all teachers to attend technology workshops.

①②③④⑤ 19. I see clear differences in the effectiveness of teachers using computers for instruction as compared to those who do not.

①②③④⑤ 20. My building administrators have a very good understanding of how technology should be used in the journalism classroom.

Perception of Actual Support

①②③④⑤ 21. There is a sufficient amount of technology equipment available at my school to aid and improve journalism education and experience.

①②③④⑤ 22. My school district has organized effective technology inservice training in the last two years.

①②③④⑤ 23. In the last two years my school has purchased some very useful technology tools for journalism.

①②③④⑤ 24. Appropriate and adequate space and facilities for computer use are available for my students.

①②③④⑤ 25. I get more technology support from people outside the school than from the inside.

①②③④⑤ 26. I feel other staff members at my school understand my technology needs and experiences.

Self-Estimated Use

①②③④⑤ 27. I am able to evaluate, select and integrate technology in my classroom.

①②③④⑤ 28. I can demonstrate effective use of all the technologies available to my students.

①②③④⑤ 29. I used a computer in my own high school experience.

①②③④⑤ 30. I used a computer in my own college experience.

①②③④⑤ 31. I had a computer in my first classroom as a teacher.

①②③④⑤ 32. I own and use a home computer.

①②③④⑤ 33. I use E-mail on a regular basis

①②③④⑤ 34. I feel comfortable with authoring web pages.

Part III: Technology Inventory

35. What computer platform is most readily available to you and your journalism students?

_____IBM/compatible
_____Apple/Macintosh series/G3s/G4s
other_____

36. Indicate in the chart below, the access or availability of the following technologies to you and your journalism students.

Technological Innovation	**# Available in my classroom or lab**	**Approx. date of latest acquisition (if known)**	**If not available in classrom or lab, is it available in the school? (yes or no)**	**If it is not available, would you like it to be? (yes or no)**
Cable television				
VCR				
Camcorder				
Video editing system				
CD-ROM player				
CD-ROM burner				
Overhead projector				
LCD projector				
Computer projector				
Large screen projector				
Videodisc/laserdisc				
Computer terminal				
Zip drive/Jaz Drive				
Flatbed scanner				
Negative/Slide scanner				
Digital camera				
SLR camera				
Point & Shoot camera				
Inkjet printer				
Laser printer				
Color printer				
Other technologies not mentioned above _____				

37. What software do you and your journalism students have access to in the school? Check all that apply

_____Microsoft Word	_____Microsoft Excel	_____Typestyler
_____Word Perfect	_____Adobe Photoshop	_____Adobe Illustrator
_____Claris Works	_____Aldus Freehand	_____Netscape Navigator
_____Adobe PageMaker	_____HyperStudio	_____Internet Explorer
_____Quark Express	_____Microsoft Powerpoint	_____other _____

38. Is Internet Access available to your students in the school? YES NO
    At approximately how many terminals? _____
    Is Internet Access available in your classroom? YES NO
    At how many terminals? _____
    Are students given E-mail accounts if desired? YES NO
    Are faculty members given E-mail accounts if desired? YES NO

39. Approximately how much time in minutes do you spend in the preparation and utilization of technology each day? _____

Part IV: Technology Influences

40. Who has been most the influential in helping you to gain technology in the classroom? (Check all that apply but * the most influential one)

_____Self-initiated
_____Other faculty members from within your building
_____Department chair
_____Technology coordinator
_____Administration
_____Other journalism advisers
_____Printing companies
_____Product vendors
_____Students
_____Parents
Other _____

41. What successful strategies have you employed to help bring technology to your students?

42. What advice would you give beginning journalism teachers with regard to technology?

Do you have other comments about this topic that would be of interest to other journalism teachers?

Is there anything else not covered in this survey that should be noted?

Thank you sincerely for your time and your participation!

APPENDIX C
Institutional Review Board Approval

Institutional Review Board (IRB
Office of Regulatory Affairs (ORA
University of Nebraska Medical Center
Eppley Science Hall 3018
986810 Nebraska Medical Center
Omaha, NE 68198-6810
(402) 559-6463
Fax: (402) 559-7845
E-mail: irbora@unmc.edu
http://www.unmc.edu/irb

March 14, 2000

Marsha Kalkowski
Communications
A & S Hall 107/108
UNO - Via Courier

IRB#: 129-00-EX

TITLE OF PROTOCOL: "Diffusion of Innovations: Technology in the High School Journalism Classroom" MA Thesis, UNO Communication Dept.

Dear Ms. Kalkowski:

The IRB has reviewed your Exemption Form for the above-titled research project. According to the information provided, this project is exempt under 45 CFR 46:101b, category 2. You are therefore authorized to begin the research.

It is understood this project will be conducted in full accordance with all applicable sections of the IRB Guidelines. It is also understood that the IRB will be immediately notified of any proposed changes that may affect the exempt status of your research project.

Please be advised that the IRB has a maximum protocol approval period of five years from the original date of approval and release. If this study continues beyond the five year approval period, the project must be resubmitted in order to maintain an active approval status.

Sincerely,

Ernest D. Prentice by lw

Ernest D. Prentice, Ph.D.
Co-Chair, IRB

lw

APPENDIX D
Omaha Public Schools Approval

OMAHA PUBLIC SCHOOLS
DIVISION OF RESEARCH
3215 CUMING STREET OMAHA, NEBRASKA 68131-2080 (402) 557-2120 FAX: (402) 557-2049

February 24, 2000

Marsha Stithem Kaldowski
University of Nebraska at Omaha
College of Arts and Sciences
Department of Communication
Omaha, NE 68182-0112

Dear Ms. Kalkowski:

The Research Review Committee has reviewed your research proposal that involves the collection of data from students, teachers, and administrators through processes such as the examination and/or collection of information from files or records, direct observation, focus groups, or individual interviews.

We believe your study has merit and permission is granted for you to proceed under the following conditions:

- Teachers in affected buildings agree to your study.
- You, the researcher, will be responsible for distributing and collecting parent consent forms. This will not be the responsibility of the schools.
- In the reporting of the data, neither students nor schools will be personally identifiable.
- You will be willing to share results of your study with OPS.

Best wishes.

Sincerely,

Dr. Virginia Brown, Ph.D
Instructional Research Administrator

VB/jb

Appendix E: Open Ended Responses

In the end, 85 percent (51 of 60) of all respondents made at least one notation on the final four survey questions asking for open ended responses. Five surveys were returned after the data set had been established but most of the original open ended responses have been included here.

41. What successful strategies have you employed to help bring technology to your students?

- Prove the value of your technology to the administration. The journalism students and I produce all the programs for athletics and the student body and the community have been satisfied with the visual changes brought about with technology. (1 Class C1 adviser of 16 years)

- Fundraising! (10 Class B adviser of 28 years)

- I simply showed the administration an example of a yearbook that was created by paste up boards and one designed on the computer using PageMaker. The comparison spoke for itself.

- Due to competition with yearbook companies, I have had success in obtaining incentives for my business. For example, this year I signed a 3-year contract in exchange for a $400 check that I will use to purchase an additional camera. (11 Class C1 adviser of 6 years)

- I complained, screamed, and bemoaned our situation. Then I threatened to quit or move back to my major content area (social sciences). (13 Class A adviser of 3 years)

- The best strategy is to have successful students... Several of my students have been recognized and gotten publicity for the school. We also visited many businesses to see technology at work. (15 Class A adviser of 18 years)

- We wrote a grant and received 2 laptop computers for student use and I attended a seminar and received a Sony Macvica digital camera. (17 Class C1 adviser of 23 years)

- Most students come highly motivated to use technology and I learn a lot from them. (27 Class A adviser of 6 years)

- Working with others in the building using technology and bringing the technology coordinator Tootsie Rolls! (33 Class D1 adviser of 11 years)

- I'm a member of a challenge grant project...it's a huge help. (35 Class C1 adviser of 7 years)

- I don't have to do much. The students come to me with a technology background and motivation to learn more. (37 Class A adviser of 20 years)
- Talking with parents and school board members. (38 Class D1 adviser of 3 years)

To be perfectly honest, the most success I've enjoyed is when I have administrator's kids in the program. They see the value then, especially as their kids are affected. (39 Class A adviser of 23 years)

- Applying for grant money has allowed me to expand with technology (42 Class D2 adviser of 12 years)

- Persistence - inflated journalism budgets. Revenue from yearbook sales and advertising. (46 Class A adviser of 19 years)

- I haven't really brought technology to my students. Much has to be self-taught (there was no training provided for using the flatbed scanner, for example). I have to gain the expertise on my own time and the availability of time is limited. (47 Class B adviser of 18 years)

- Obviously, I push for purchase of equipment. If we have any money left at the end of a year, it goes back into the program in the form of a camera, computer, etc. (48 Class A adviser of 29 years)

- 1) Applying for money through special district or building funds. Some money is easy to get and goes to those who apply.
  2) Keeping journalism program in the black means money to spend on technology. Careful money management is essential.
  3) Producing quality products (newspapers and yearbooks) gives administration a reason to support you financially. Poor product=less money. (50 Class A adviser of 7 years)

- I order what [yearbook] company suggests; usually clears okay with administration when it's within reason. (52 Class D1 adviser of 2 years)

- We used research of college programs and businesses to show administration why our students needed access to improved technology, especially the Macintosh platform. We also demonstrated the technology to encourage them to buy it. (56 Class A adviser of 14 years)

- 1) Participation in a techno-magnet school.
  2) Fund-raising
  3) Budget expenses
  4) Grant participation (57 Class A Adviser of 32 years)

• 7th grade exploratory course (5-week rotations) Students learn basic PageMaker. I teach first 6 students; then, they become the teachers for second 6. (59 Class B adviser of 6 years)

42. What advice would you give beginning journalism teachers with regard to technology?

• It doesn't matter what platform you're working with -- if you have the right software, you can build better hardware. Check the discount hardware stores, re-cyclers, etc. (1 Class C1 adviser of 16 years)

• Learn it! It will help in the long run. (3 Class B adviser of 4 years)

• Learn the programs! Attend summer camp with your kids! (4 Class B adviser of 21 years)

• Attend workshops to keep up with technology and get help books. Access your rep from the publishing company (5 Class D1 adviser of 5 years).

• Ask for help! (6 Class C1 adviser of 20 years)

• I don't have to teach these kids anything about technology. They know much more than I care to know. I would encourage beginning journalism teachers not to get into this profession if they care about good writing. It's all about technology now and nothing about discovery of fact and truth. (7 Class C1 adviser of 3 years)

• Accept the idea that your students may know more than you do-- and learn from and with them. (8 Class B adviser of 10 years)

• Take classes and workshops. Metro [community college] is a good place to start. (10 Class B adviser of 28 years)

• Stay on top of it! (11 Class C1 adviser of 6 years)

• Learn it early - It's hard to keep up. (12 Class C1 adviser of 21 years)

• If technology isn't there, don't take the job. Get all promises from administration in writing. Number of computer stations is vital. Class size (especially in intro classes) either lets you teach appropriately or not. 35 in intro classes does not allow you to teach technology. (13 Class A adviser of 3 years)

• Absolutely learn PageMaker or Quark and PhotoShop before you take the job.

Keep in touch with experienced j-advisers. Back up everything and don't assume students know everything about technology. Keep a notebook of any troubleshooting solutions you've learned. (14 Class A adviser of 27 years)

- Get the parents on your side. For me, the constant chatter in the principal's ear has made a big difference. Also, I suggest going in with a specific plan with ways the technology will benefit students and explaining the hardships you are working under (15 Class A adviser of 18 years)
- Don't think that having lots of technology is a substitute for good writing skills or careful editing. Be careful of letting quality product decline because you spend so much time with technology doing cool stuff. (16 Class C1 adviser of 12 years.)

- Be patient - learn as much as you can from your students. Recruit students with good computer skills - they can help train classmates. (17 Class C1 adviser of 23 years)

- Learn the company's program shortcuts. Use only company materials. (18 Class C adviser of 15 years)

- Stick with it...it does get easier! Organize and delegate! (19 Class B adviser of 6 years)

- Abandon all outdated processing as soon as possible. But, keep in mind that practical delivery of new products doesn't always keep up with a vendor's promises. (20 Class B adviser of 3 years)

- Go to workshops that are provided and let your students go along. They catch on fast. (25 Class C adviser of 3 years)

- Look at good quality publications. A lot of what is being produced by high schools in Nebraska is garbage. (26 Class D2 adviser of 18 years)

- 1 - Let the kids show you. 2- Use your lunch period to play with technology. 3- Call other advisers for help. 4 - Find the most techno-savvy person on staff and become his/her friend. 5- Do not be afraid of technology. 6 - Technology changes pretty fast, so search out the computer kids who will spend all night "researching" in the name of fun. (27 Class A adviser of 6 years)

- Learn it! Like it! (28 Class D1 adviser of 34 years)

- Use it! I am a teacher that had some technology experience, but no journalism...but I was able to do the work. (30 Class C1 adviser of 1 year)

- Seek out those who are comfortable with it, throw away the manuals and attend periodic workshops. (32 Class A adviser of 14 years)

• Take the time before you start the year to really work with the programs and printers you will be using. (33 Class D1 adviser of 11 years)

• Find a knowledgeable student and make them a staff member (34 Class D adviser)

• Desktop publishing is the "wave." Take a workshop about your software before trying to use it. Learn with your students (35 Class C1 adviser of 7 years)

• Learn it! Keep up! It changes constantly! (36 Class C1 adviser of 21 years)
• Find a good word processing program and desktop publisher. Get a zip drive. (37 Class A adviser of 20 years)

• Get it as soon as possible and utilize it. (38 Class D1 adviser of 3 years)

• Get into it--get your kids into it and let them run wild. They make great teachers and they embrace technology. (39 Class A adviser of 23 years)

• Take as many workshop opportunities as possible (40 Class A adviser of 8 years)

• The more the better! (41 Class D adviser of 6 years)

• Get a lot of training. (42 Class D2 adviser of 12 years)

• Use it to save time! (43 Class B adviser of 11 years)

• You must teach technology - especially the technology used by professionals. If you don't, you are hurting your students! (44 Class B adviser of 3 years)

• Take many classes! Expect to spend hours learning on your own time. (45 Class D adviser of 2 years)

• Have patience. If the school is willing to give you new hardware, be sure you're capable of purchasing the updated software - so it will be compatible. Don't be frustrated with not having the time to learn and teach students the new programs - especially graphics. Allow students to self-learn and attend workshops to gain mastery. (46 Class A adviser of 19 years)

• Technology in regard to journalism is changing at a rapid pace. Students are coming into the classroom now with a wide variety of expertise in technology. Use their knowledge to enhance your own. Try to keep pace. (47 Class B adviser of 18 years)

• Acquaint yourself with what is being used in the world of journalism. Kids should and do ask questions concerning technology because it is common in so many households.

You're doing your students a disservice if you aren't up to speed. (48 Class A adviser of 29 years)

• 1) At first, use what you know. Managing publications are hard enough without adding lots of new software and hardware to your worries.
2) Backup important files regularly but especially near deadlines.
3) Listen to students. Many use or have technology at home. Let them show you. They're much more willing to try and figure it out sometimes than I am. (50 Class A adviser of 7 years)

• Learn as quickly as possible and get help from whoever you can to survive. (52 Class D1 adviser of 2 years)
• Get as much information as you can. Ask for everything, because you may only get 1/2 of it. (54 Class B adviser of 13 years)

• Compose a wish list and propose it every year. Be sure you know enough about the requested technology to defend your proposal. Invite "decision makers" to your room during production times or during lessons and let them see your struggle without the requested technology. (56 Class A adviser of 14 years)

• In all seriousness, learn how to use & evaluate necessary software and hardware in summer and off-time and then, most importantly, surround yourself with student experts who pass on its use because if you are doing your job, you won't have time to instruct. Something will suffer—you are not a techno-media instructor. (57 Class A adviser of 32 years)

• Attend one or two-day classes for credit. Attend yearbook publisher's workshops. (59 Class B adviser of 6 years)

43. Do you have other comments about this topic that would be of interest to other journalism teachers?
• The kids adapt so easily - they have time to sit down and work things out. I have 150 English students plus journalism each day. I need someone one-on-one who will walk me through the programs, not just show me. (4 Class B adviser of 21 years)

• We need to utilize new technology in our classes to prepare our students for a rapidly changing work and school environment. (10 Class B adviser of 28 years)

• Technology is great, but understand it will take lots of your time day and night. Always Back Up. (14 Class A adviser of 27 years)

• Technology doesn't = good writers. (21 Class B adviser of 19 years)

• No journalism teacher ever has enough good, fast computers that aren't crashing on deadline day! (27 Class A adviser of 6 years)

• Technology is a means that can provide an end...too much of our time is focused on its utilization, not enough time spent on asking "why?" Too many folks consider technology a god and never question its presence and use in education. (32 Class A adviser of 14 years)

• Journalism in a small school is always approached in a different manner - both in attitude and content. (33 Class D1 adviser of 11 years)

• We have many computers and types of software available however it is being used by others during the journalism hour leaving us with one computer to both a newspaper and annual and to maintain our online presence. (34 Class D adviser)

• Simply put, I cannot do what my students do on a computer. I don't get the time to be on the units like they do. I desperately want to be able to do more, but it's hard to be the one in charge and find time during the day to learn the thousands of things you are expected to know. I feel frustrated! (36 Class C1 adviser of 21 years)

• I know the interest is not high, but colleges and universities don't offer much specifically for high school advisers. UNL is a perfect example. (39 Class A adviser of 23 years)

• Lack of equipment and money is a concern. Schools want a first class product with third rate equipment. (40 Class A adviser of 8 years)

• It would be nice to have a central Nebraska (UNK) location where journalism teachers could attend "job-alike" workshops and training. (42 Class D2 adviser of 12 years) Demand that students learn/know the basics of writing, design and photography before they become dependent on the technology to do everything for them. (46 Class A adviser of 19 years)

• Your most important job is journalism instruction and publications advising, it is not media/technology instruction. That's another class in the curriculum, and if it doesn't exist, find students who want to specialize in it and you'll be the evaluator/adviser which you were hired to be. (57 Class A adviser of 32 years)

• There is a real need for graduate credit classes in technology use – pagemaker, quark and photoshop. (59 Class B adviser of 6 years)

44. Is there anything else not covered in this survey that should be noted?

• It was enjoyable compared to some I've done. (39 Class A adviser of 23 years)

• It would be interesting to note how well-respected journalism programs are at individual schools. When I started here, journalism was the school's dumping ground for students who had nowhere to go. It has now evolved into a program for the elite. Students who are academically or behaviorally deficient are not allowed in the journalism program. (11 Class C1 adviser of 6 years)

• Background: Our school is small. I have 6 preps. I am a English major: The students in my class often qualify for state competition but we are not a well-equipped classroom. We still cut and paste our school newspaper on 8 1/2 by 11 paper and run on a copier. We do use PageMaker for yearbook and we've learned a great deal, but we have a long ways to go. I'd be very interested to see the possibilities that technology offers as I only know the tip of the iceberg. (9 Class D adviser of 10 years)

• This is my last year as a journalism adviser. I'm going back to teaching English. I spend so much time dilly-dallying with computers now that I have no time to teach writing, a skill much more time-honored than this computer fad. (7 Class C1 adviser of 3 years)

• The lack of programs/funds outside of individual school district resources to provide the journalism department with needed technology, especially since most journalism departments are at the bottom of the high school food chain. (44 Class B adviser of 3 years)

• Photography, pagination, graphics, advertising, marketing and sales, accounting and budgeting, etc.... how many hats can a journalism teacher successfully wear if the peripherals have become more important (time and energy) than the printed word itself? An effective instructor must delegate the peripherals and trust in the system and process she puts into place. You can't teach photography, graphics, pagination unless its done one-on-one and that's insane. Everything else will suffer. Those must be taught in other classes unless you find student instructors who are part of your current staff. A good teacher is more a manager/facilitator than an instructor of the peripherals. Teaching "journalism" is a full-time job. (57 Class A adviser of 32 years)

• NHSPA needs to provide more educational/informational sessions for journalism teachers. (59 Class B adviser of 6 years)