

## AN ABSTRACT OF THE THESIS OF

Dawn E. Rottinghaus for the Masters of Science in Business Education

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Title: **CAREER OPPORTUNITIES IN MULTIMEDIA: A NEEDS ASSESSMENT**

Abstract approved: Nancy Geneman  
(Thesis Advisor Signature)

This thesis is a compilation of research that focuses on the emergence of careers in multimedia. Three different components of this thesis were researched thoroughly.

The first component was presented in the Review of Related Literature (Chapter 2). In the review seven main topics were examined. The topics were:

1. Trends in Multimedia Technology
2. Career Development Opportunities in Multimedia
3. The Advantages and Disadvantages of Pursuing a Multimedia Career
4. Skills Employers Seek in Multimedia Related Occupations
5. Locations of Multimedia Occupations
6. Where to Search for Jobs in the Multimedia Field
7. Multimedia Opportunities for High School Students

Research determining the availability of multimedia job opportunities in the central states region comprised the second segment. The avenues used to obtain this information included (1) a job search through classified ads from four major metropolitan newspapers from four central states and (2) a job search through online employment advertisements.

The third component was comprised of a survey that was sent to the business department chairs at every accredited high school in the state of Kansas. The survey asked questions about seven basic areas of multimedia and was based upon perceived responses.

The first set of conclusions came from the newspaper and online study. The Internet provided a great number of job listings dealing with multimedia, whereas newspapers provided limited listings, which typically dealt with PowerPoint knowledge. Most jobs were available in larger cities on the East and West Coasts.

The second set of conclusions came from the survey. Most schools in Kansas are teaching multimedia, if PowerPoint is included in the definition. Most instructors also agreed there were multimedia job availabilities in the larger cities surrounding their communities. A majority of the respondents stated multimedia funding was adequate, but professional development using multimedia was limited.

**CAREER OPPORTUNITIES IN MULTIMEDIA:  
A NEEDS ASSESSMENT**

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**A Thesis  
Presented to  
the School of Business  
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**In Partial Fulfillment  
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Masters of Science  
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**by  
Dawn E. Rottinghaus  
November 1999**

*Nancy Groneman*  
Approved by the Division Chair

*Timothy R. Sauer*  
Approved by Dean of Graduate Studies and Research

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# CHAPTER 1

## INTRODUCTION

"I want to get into multimedia." It's a phrase heard often--at conferences, in conversations among friends and peers, and especially by people already in multimedia. It is a phrase uttered by educators, by school administrators, by school boards and by students. It is a phrase that is not going to go away. The reasons for getting into multimedia are different for various people. Business teachers want to "get into multimedia" because it is on the cutting edge. It is the tool that is going to keep their students motivated. It is something new and exciting for them to learn. It is going to help their students prepare for the working world of technology. For administrators and school boards, the reasons for getting into multimedia are much the same. For them, multimedia instruction will elevate their school's curriculum above others. It can also provide potentially better work and educational opportunities for the students.

Interactive media and multimedia projects are transforming almost every activity in society today. Some evidence of this is in the development of new words and terms to describe the activities and interactions people are having these days. Standard terms in multimedia today include multimedia careers, multimedia specialist, authoring tools, digitizing, QuickTime movies, frame rates, full motion playback, image manipulation, non-linear editing, real time, rendering, storyboarding, and thumbnails; the list could go on and on. Not only has there been an explosion of new terms, but some definitions have been altered because of multimedia (Careers in Multimedia, 1995).

More than the terminology is changing. There are products and services that are providing tangible value to people and companies around the world. Video games today bring in more revenue than the entire film industry. Half of the Dow Jones & Company's \$2 billion in revenue is derived from electronic information (Careers in Multimedia, 1995). Where are the employees that these companies are hiring coming from? They are graduating from our high schools and colleges. But are they graduating with the necessary skills to handle today's multimedia development and technologies?

When pursuing a career in multimedia, Vivid's Careers in Multimedia (1995) lists the following 32 roles or occupations a multimedia specialists title could entail.

Executive Producer	Scriptwriter	Video Producer
Producer	Editor/Moderator	Videographer
Lawyer	Content Expert	Performer/Actor
Financial Consultant	Visual Designer	Lighting, Props, Sets
Agent	2D Animator	Technical Lead
Recruiter	3D Animator	Programmer
Marketing Roles	Sound Producer	Test Manager
Creative Director	Voice Artist/Vocalist	Tester
Art Director	Sales Roles	Interface Designer
Effects Specialist	Customer Support	Game Designer
Sound Engineer/Editor	Composer/Musician/Sound	

## **The Problem**

The overall question is whether classroom multimedia instruction is closely related to the skills used by individuals working in multimedia careers. As business educators continually update class curricula to stay current with today's work force trends, do they need to incorporate multimedia skills into their classrooms to prepare students for future job opportunities?

## Statement of Problem

The purpose of this study is to determine (1) the availability of multimedia jobs within the central states region, and (2) whether high school business instructors are preparing today's students for careers in multimedia.

This study will answer the following research questions:

1. What jobs are available in the multimedia field?
2. What are the career development opportunities in multimedia-related occupations?
3. What are the skills needed to obtain and hold multimedia-related positions?
4. How many multimedia jobs are available in Kansas and the central United States?
5. Are multimedia skills being taught in today's high school business departments in Kansas?
6. What multimedia software programs are being taught in today's high schools?
7. Can students obtain employment with the multimedia skills they receive in high school?
8. Where does one search for multimedia-related job openings?

## Importance of Study

"Although multimedia is not yet a mature technology that has been completely defined, the basic idea is almost 50 years old. Different media systems used for organizing and viewing information have been developed since the 1940's." (Jaeggli, 1992, p. 30)

Multimedia peripherals, hardware and software are becoming more user-friendly. It has become so user-friendly that many individuals are starting their own businesses after teaching themselves how to use multimedia equipment and software. Not only have multimedia tools become easy to use, they have sparked the interest of many young college graduates seeking to get a jump on technology-oriented careers (Jerram, 1994).

One may not see many multimedia "help wanted" ads, but media jobs in graphics, programming, producing and even marketing are waiting to be filled. Other positions have yet to be created. Virtually every information industry, from the chip makers on up, has decided that multimedia is in its future (Jerram, 1994).

As occupational careers tend to shift more toward advanced technologies, business educators need to prepare students for these opportunities. Of all the disciplines that exist within a total school curriculum, none has traditionally been as impacted or responsive to change as has the business education curriculum. As opposed to core curriculum instructors, business teachers are accustomed to and comfortable with curriculum change (Stout, 1997).

Agneberg (1997) indicates that multimedia courses and curricula are becoming a more relevant part of students' education in community colleges and in four year colleges and universities, high school business educators must consider opening these areas in their high school curriculums as well.

## Delimitations

The survey was delimited to all accredited Kansas high schools and the business chairs in these schools. Other departmental educators who could have possibly taught multimedia instruction were not surveyed. The survey was also delimited to business chairs who taught at the grade levels of 9 - 12.

Because the study did not include direct input from businesses that hire individuals for multimedia-related occupations, it was delimited to those businesses that published multimedia job openings in newspaper want ads.

The research in the classified ads section of daily newspapers was delimited because it did not include every major metropolitan newspaper in the central United States. The newspapers that were included in the research were The Denver Post, The Kansas City Star, The Wichita Eagle, and the Omaha World-Herald.

## Limitations

Data for this study was gathered from business department chairs in every accredited school in the state of Kansas.

There were limitations to the study because of the lack of control of the following factors: (1) it was not feasible to conduct a nationwide job availability survey, and (2) every business department chair in every school in Kansas did not complete and return the survey.

## Definition of Terms

The following definitions are provided as a reference to technological terms used throughout this study.

<u>Animation</u>	A sequence of illustrations that give the illusion of motion. The two basic branches of animation are 2D and 3D animation ( <u>Careers in Multimedia</u> , 1995).
<u>Authoring Tools</u>	Authoring systems, otherwise known as an authoring language, are used to develop interactive software ( <u>Careers in Multimedia</u> , 1995).
<u>Digitizer</u>	Any multimedia device that records media to a computer disc in digital form. There are sound, video, and image digitizers ( <u>Careers in Multimedia</u> , 1995).
<u>Editing Package</u>	A software package that allows the user to edit and manipulate media such as video, sound, graphics, text, and animation ( <u>Careers in Multimedia</u> , 1995).
<u>Frame Rate</u>	The number of frames displayed per second. Used with animation and video. TV and film support frame rates of 24-30 frames per second. Digital video often has frame rates that are far less due to performance limitations ( <u>Careers in Multimedia</u> , 1995).
<u>Full Motion</u>	Used to describe video that moves at 24 to 30 frames per second, a rate fast enough to give the eye the perception of continuous motion ( <u>Careers in Multimedia</u> , 1995).
<u>Graphic Design</u>	The discipline of communicating messages visually ( <u>Careers in Multimedia</u> , 1995).
<u>Illustration</u>	Any picture drawn to depict a subject ( <u>Careers in Multimedia</u> , 1995).
<u>Image Manipulation</u>	The art of using software tools to create and modify pixellated images ( <u>Careers in Multimedia</u> , 1995).
<u>Interactive</u>	The ability of the audience to become an active participant, both productively and creatively, through feedback and control ( <u>Careers in Multimedia</u> , 1995).

<u>Multimedia</u>	Including or involving the use of several media--text, graphics, sound, animation, and video--commonly assumed to be in digital format ( <u>American Heritage Dictionary</u> , 1990).
<u>Multimedia Careers</u>	A career where there is a convergence of two or more forms of media manipulated on a computer to create multimedia products, which are then distributed not just on computers, but on electronic medium such as television, kiosk, the Internet, and the World Wide Web ( <u>California Occupational Guide</u> , 1995). Reference to available multimedia careers is listed on Page 2 ( <u>Careers in Multimedia</u> , 1995).
<u>Multimedia Industry</u>	A general term used to identify businesses and people who create, promote, or distribute multimedia products ( <u>California Occupational Guide</u> , 1995).
<u>Multimedia Specialist</u>	Another term used to describe a person working in the multimedia industry ( <u>California Occupational Guide</u> , 1995).
<u>New Media</u>	Another term for interactive multimedia ( <u>Careers in Multimedia</u> , 1995).
<u>Non-linear Editing</u>	A video editing system, usually digital, that allows video editors greater flexibility in manipulating video segments almost instantly ( <u>Careers in Multimedia</u> , 1995).
<u>Portfolio</u>	Materials collected that are representative of a person's work. Portfolios can be printed or electronic or both ( <u>Careers in Multimedia</u> , 1995).
<u>Presentation Software</u>	Computer software that helps users create presentations ( <u>Careers in Multimedia</u> , 1995).
<u>QuickTime</u>	A system extension developed by Apple computer that displays video and animation on Macintosh and Windows computers without additional video hardware. It gives developers a common set of routines for manipulating, compressing, and synchronizing moving images and sound in real time ( <u>Careers in Multimedia</u> , 1995).
<u>Real Time</u>	Transmitting, receiving, processing, and displaying results as they happen ( <u>Careers in Multimedia</u> , 1995).

<u>Rendering</u>	The final stage of painting the image in the creation of a 3D image. It includes the blending of various light sources and surface textures ( <u>Careers in Multimedia</u> , 1995).
<u>Sound Engineer</u>	A person trained to manipulate both analog and digital sound signals ( <u>Careers in Multimedia</u> , 1995).
<u>Storyboard</u>	An illustrated scene-by-scene plan portraying the story behind a multimedia concept ( <u>Careers in Multimedia</u> , 1995).
<u>Video Editor</u>	A trained individual who can manipulate both non-linear and linear video ( <u>Careers in Multimedia</u> , 1995).
<u>Videographer</u>	An individual who creates appropriate, compelling, and high quality video that uses technology to its greatest advantage. The videographer needs to have traditional film making skills and be appreciative of the current state of digital video technology ( <u>Careers in Multimedia</u> , 1995).
<u>Voice Artist</u>	An individual who makes off-screen delivery of scripted material. Voice-overs are used to create appropriate dramatic effect ( <u>Careers in Multimedia</u> , 1995).

### **Methods of Procedure**

This study was conducted in five stages. The first step was collecting periodical information and analyzing literature. The second step was to search the Internet for multimedia-related careers and record job openings that required multimedia skills. The third step was to collect newspapers from four Midwestern metropolitan cities and record job openings in the multimedia field. The fourth step was to send surveys to all of the business department chairs of every accredited secondary school in the state of Kansas. The final step was to analyze, report and make recommendations on the data received from the surveys.



To obtain the review of periodical literature and abstracts, computer searches were done using the ERIC and INFOTRAC systems at the University of Kansas Library and the Shawnee County/Topeka Public Library. Further periodicals were also obtained by investigating the education and business education indexes.

Following the researching of periodicals and abstracts, an Internet search was conducted to locate information relating to multimedia and careers. The combination of the words multimedia **and** careers typically unveiled job availabilities for companies in search of multimedia specialists or resumes of individuals seeking employment in multimedia-related fields. Because of EXCITE'S excellent Classified Ads section on the Internet, employment opportunities with multimedia experience as one of the qualifications, was also searched. During this search, the states in which job openings were available were identified.

After searching the Internet, the Classified Ads section of four major Midwestern cities were collected for two different time frames. The four newspapers were The Denver Post (Colorado), The Kansas City Star (Missouri), Omaha World-Herald (Nebraska), and The Wichita Eagle (Kansas). The time frame used was during the month of July, 1998. From these papers, the number of multimedia-related job openings in each respective city was obtained.

The next step incorporated a cover letter (Appendix A) and a survey instrument (Appendix B) being mailed to all business department chairs at each accredited secondary school in Kansas. The survey was to determine if, how, where, and to what extent

multimedia was being taught in Kansas high school curriculums. The survey also helped to determine job availability in the multimedia area.

A follow-up letter and survey (Appendix B and C) were sent to schools who had not responded by October 5, 1999.

The results of the survey were used to determine if high school business instructors were preparing students for multimedia-related jobs in the working world.

## **CHAPTER 2**

### **REVIEW OF RELATED LITERATURE**

This chapter's goal is to summarize findings of other research studies and articles related to careers that are available in the multimedia field. Seven main topics will be discussed: trends in multimedia technology, career development opportunities in multimedia, the advantages and disadvantages of pursuing a multimedia career, skills employers seek in multimedia-related occupations, locations of multimedia occupations, where to search for jobs in the multimedia field, and multimedia opportunities for high school students.

#### **Trends in Multimedia Technology**

Currently, the major trend in telecommunication technology is the merging of voice, data, video, text, and graphics in a single stream of electronic communications. Integration through digitization is leading to many technological career opportunities for educational institutions via desktop multimedia, video file servers for on-demand video, video transfers on the Internet, and data and voice handling by cable operators (Stammen, 1995).

Jerram's (1994) research notes that digital video solutions (desktop tools) are having an even larger impact on smaller broadcasting and video production companies across the country that can not afford expensive, dedicated video production equipment.

The use of video editing suites is allowing individuals the opportunity to learn how to operate and manipulate video, audio, and animation without having to spend a great deal of money on training and equipment.

### **Career Development Opportunities in Multimedia**

As the expanded use of multimedia in the business and entertainment world evolves, numerous opportunities arise for individuals to seek careers in or associated with the multimedia industry.

Changes in the evolving use of multimedia can be seen in the telecommunications and Hollywood industries, but there are also vast opportunities for talented and creative individuals in the computer entertainment fields. With interactive television and the Internet, there is an enormous demand for exciting content, which in turn, creates career options for people with a knowledge of video production technology and creative talent (Jerram, 1994).

No one knows exactly what kinds of new jobs will emerge over the next 10 to 15 years, but some indications have been given to where the expansion might occur. CD and video disc librarians, computer graphics specialists, and software talent agents were included on a list of over 35 job titles that identified "careers of tomorrow" (Austin, 1997). The list was compiled by Andy Hines of Coates & Jarrat, a firm that specializes in identifying and reporting future trends.

*Working Women's* Tenth Annual 25 Hottest Careers issue covered the best job options in a work force being reshaped by the twin forces of advancing technologies and

globalization (Austin, 1997). Career titles included on this list were computer-software engineer, multimedia manager, and film and video editor (Austin, 1997). The film and video editor was on the "10 Best of the Best" list, which meant that the career offered great money, growth, and was hospitable to both sexes (Austin, 1997).

Across the country, desktop multimedia is affecting the careers of thousands of people. While there may be fewer than 100,000 people who are working directly in "multimedia," that doesn't include the many educators, trainers, salespeople, MIS directors and media executives whose jobs are changing as they incorporate interactivity and digital media into their work (Jerram, 1994). Not only will job descriptions change, but multimedia career opportunists must also enhance their knowledge, skills and capabilities by continually learning and staying ahead in the field through the use of computer tools and media programs such as PhotoShop or a 3-D modeling package (Jerram, 1994).

Not only is the multimedia industry rapidly growing, but its emergence is creating more jobs in the business world. Many multimedia development companies are small companies that emphasize creativity at the expense of business knowledge, which increases opportunities for professionals who are also trained in finance, marketing, sales, administration and manufacturing (Jerram, 1994).

Although there may not be an existence of a multimedia department in many businesses, the trend to hire on a temporary or contract basis, or completely farm out work to audio technicians, animators and video editors have created opportunities for entrepreneurs. A typical multimedia development group may end up paying scores of

people for contributions to a project, but the full-time staff is usually small with typically a writer, producer, a graphic artist, a programmer and a production assistant. (Jerram, 1994)

As for an outlook on career opportunities in the multimedia industry, Alan Gershenfeld, vice president of creative affairs and production at Activision, one of the leading makers of "cinematic" games for CD-ROM, Sony Playstation and Sega Saturn platforms had this to say, "We have negative unemployment. It's very hard to find good people; we're always looking for talented producers, designers and writers." (Matzer, 1996, p. 23)

As careers in multimedia are developing, the salaries vary depending upon the area of multimedia that is pursued. Some computer animators have earned as high as six figure salaries (Matzer, 1996). Although some studios and industries are seeking individuals to hire within their corporations for multimedia production, the market for multimedia companies will continue to grow, with most of the success stories occurring with smaller businesses that are equipped and knowledgeable in the multimedia production area (Jerram, 1994).

### **Advantages and Disadvantages in Pursuing a Multimedia Career**

Just as there are advantages and disadvantages to every career, there are various advantages and disadvantages to pursuing a career in multimedia. Following are some of the advantages.

Although the pay varies greatly depending on an individual's job title, one's employer, or the cost-per-project, the work is plentiful and the pay will follow success (Matzer, 1996).

If individuals are not interested in actually seeking a career in the area of multimedia production, they can pursue other avenues that venture from this field, such as executive producer, lawyer, agent, director, designer, scriptwriter, videographer, programmer, and many more (Careers in Multimedia, 1995).

In an article titled "*Young, Gifted and Dyslexic*", Peter Fowler wrote about a young multimedia master, Iain Arnison, who is profoundly dyslexic, but has designed various multimedia software programs, such as a math number package for slow learners (Fowler, 1996). Fowler (1996, p. B18) also wrote:

Iain might be exceptional because of his dyslexia, but it is undeniably the case that many of those working alongside him have the same combination of great visualization techniques and relatively poor traditional academic skills.

In Iain's case, and in the case of many poor academic students, the ability to be creative and work with multimedia is a great opportunity. Working with multimedia equipment and software not only provides educational benefits to many students with disabilities, but it also provides potential career opportunities for some.

While there are advantages, there are also disadvantages. Following are some of the disadvantages that can be encountered when pursuing a career in multimedia.

Because companies are changing at a very slow pace, full-time multimedia jobs with corporate benefits are relatively few and far between. "Looking for a job in this industry is a challenge; there are more people interested than there are jobs," warns Geoff

Workman, formerly of Zelos, a San Francisco interactive media developer (Jerram, 1994, p. 36). The expense of multimedia equipment, personnel and training is proving to be a barrier to corporations interested in implementing multimedia programs in-house, although there have recently been innovative applications developed in such companies as Northwest Airlines, Coca-Cola, Ben and Jerry's and L.A. Gear (Jerram, 1994).

Many times independent multimedia producers have a difficult time finding jobs or projects on their own; therefore, they hire an agent (Matzer, 1996). However, agents are not very active in setting up deals for their clients because there is relatively little money to be made for the agent (Matzer, 1996).

Matzer (1996, p. 23) cites another disadvantage:

In the multimedia industry, it's still the Wild West, which means having to forge your own trail while working insane hours, meeting crushing deadlines and often taking lower pay.

Jerram (1994) also notes as a disadvantage that because corporate-style jobs are typically hard to find in the multimedia industries, many individuals decide to become entrepreneurs, but most of these companies are at high risk of going under.

There are also some aspects of pursuing a career in multimedia that can be both an advantage and a disadvantage. Following are two of those aspects.

Today most big companies are too busy cutting costs to create new multimedia positions. "What we've seen is that a lot of the larger companies during this 'right-sizing' period, have unloaded people or whole graphics or media departments, and then gone back and re-hired those people as consultants," says Bruce Ryon, principle multimedia analyst for Dataquest (Jerram, 1994, p. 36). In the long term, multimedia should become



an important part of mainstream corporate jobs, ranging from computer technicians to human resource officers (Jerram, 1994).

Finally, Matzer (1996, p. 23) indicates:

As a multimedia producer, one is more likely to get work and actually see it produced than if he/she were writing a screenplay, but, as a minus, it's essentially nonunion work, which doesn't reap many of the major benefits of unionized work.

### **Skills Employers Seek in Multimedia-related Occupations**

Businesses no longer need just blue-collar workers and white-collar workers, but blue-and-white-striped-collar workers--production employees who are paid to think (Cauley, 1997). Employees must be smarter and more flexible today and able to perform many tasks requiring cognitive, as well as psychomotor skills (Cauley, 1997). According to workplace skills research conducted jointly by the U.S. Department of Labor and the American Society for Training and Development, 85 percent of the jobs are or will be technical in nature in the 21st Century (Cauley, 1997).

In order to provide these types of workers, educators and those involved directly or indirectly with education are looking for ways to produce a more skilled, competent, and knowledgeable product that will meet the requirements or expectations of employers, parents, legislators, and post-secondary institutions (Stout, 1997).

In a 1996 research project conducted by the University of North Carolina-Charlotte, employers and educators in North Carolina formed a partnership to survey the job skills employers in North Carolina wanted and to help shape work force development programs to meet those needs now and in the future (Cauley, 1997). The North Carolina

employers were asked to identify the top five technical/job specific skills needed in their workplace (Cauley, 1997). They ranked computer-related skills first, office related skills (such as secretarial, clerical and filing) second, and management related skills (such as planning, presentations and scheduling) third (Cauley, 1997). Two of these top three technical/job specific skills sought by employers were computer related, with the computer skills relating to multimedia usage.

As the definition of multimedia expands, so does the range of skills the industry needs. Creative talent is very important. Kaplan (1996, p. D6) states:

When a home page on the World Wide Web was considered the cutting edge of technology, people who could program in hypertext markup language were in great demand. Now the most sought-after people are the ones who can program in three dimensions and use advanced software packages. Multimedia employers are looking for artistic people with solid training in graphic design and, as multimedia products find their way into more business applications; jobs for writers are cropping up too.

At Interplay Productions, Executive Producer Alan Pavlish looks for "people who are passionate about gaming and understand the qualities that make a game fun--people who work because it's fun, not because it's a job (Kaplan, 1996, p. D6)." Other employers say that when it comes to artistic skill, computer experience is desirable but it takes a back seat to creative talent; therefore, more employers are looking for individuals who possess creative abilities (Kaplan, 1996).

Graphic artists working in multimedia are called upon to handle a wide variety of tasks, such as creating original art with traditional tools, followed by scanning it, and then using computer tools to design a screen, interface or 3-D image (Jerram, 1994). This

shows the tremendous change that has evolved in the specific job descriptions of individuals in the multimedia field.

Vivid Studios summarized the job skills and characteristics needed for all multimedia-related occupations as follows: work as a member of a team, clearly communicate ideas, quickly and accurately understand the goals and objectives of a project, be organized, use the computer tools required to complete a project, willing and able to frequently seek employment on new projects, join projects without much advanced notice, continually update skills by learning new tools and techniques, be an expert in one or a few areas, but yet have a general understanding of as many areas as possible, and have a passion for work, a good sense of humor, and patience (Careers in Multimedia, 1995).

As the business world embraces multimedia, the industry needs people with strong writing and marketing skills, as well as other basic workplace skills (Kaplan, 1996). The same pool of North Carolina employers who identified the top five technical/job specific skills, also ranked the top five thinking skills, which were problem-solving, learning new skills, decision-making, understanding diverse cultures and people, and understanding graphs and charts (Cauley, 1997). All of these are thinking skills that are incorporated into various facets of most multimedia careers.

In addition to the basic required workplace skills such as reading, writing and arithmetic, the well-rounded 21st century employee will have to acquire other specific skills. Three of these other areas that are related to the multimedia field include: (1) communication--listening and oral, (2) adaptability--creative thinking and problem

solving, and (3) group effectiveness--interpersonal skills, negotiation, and teamwork (Cauley, 1997).

Each of these types of skills will be beneficial in obtaining a career in the multimedia area, but serious career seekers must have more. According to both high school and college graduates, not having practical work experience is often an insurmountable obstacle to finding a job, therefore, entry-level employees must have participated in work-based learning that reinforces basic skills and provides for new learning (Cauley, 1997).

### **Locations of Multimedia Occupations**

Most of the multimedia jobs, according to Careers in Multimedia (1995), are located in major metropolitan cities, due to proximity to universities, research facilities, and key industries; although knowledge of the tools and access to equipment is creating a market for multimedia specialists in smaller areas across the nation and the world.

Some of the multimedia hotspots in the United States are San Francisco, Los Angeles, New York City, Atlanta, Austin, and Seattle, which are all metropolitan cities that have established multimedia as a major industry in their area (Jerram, 1994).

### **Where to Search for Jobs in the Multimedia Field**

Many people look in newspaper classified ads when they search for job opportunities. For interactive media jobs, newspaper classified ads are not the most qualified sources for finding good opportunities (Jerram, 1994). With the increasing use

of online services, the majority of multimedia companies are beginning to turn to online areas to announce job openings (Careers in Multimedia, 1995).

Attending university extension programs, art school programs, film and video study programs, conferences, seminars and workshops are not only good for developing skills, but also for finding jobs (Careers in Multimedia, 1995). To find more about openings in the multimedia field, as well as about multimedia occupations, one can contact local libraries, universities, computer companies, design studios and professional organizations (Careers in Multimedia, 1995).

### **Multimedia Opportunities for High School Students**

A portion of the Goals 2000 School-to-Work Opportunities Act has special significance for business education. This act, passed in 1994, focuses on integrating vocational and academic education so students can learn realistic problem-solving skills in the classroom for use on their jobs. The major focus of the School-to-Work Opportunities Act is not only on students planning to go directly into the work force, but also opening additional opportunities for the college-bound student (Neal, 1997). The act encourages expanding programs such as apprenticeships, career schools, cooperative education, simulations, and tech prep, which allows the students to move from school to the work site in a realistic manner. (Neal, 1997). With this Act, the opportunity for multimedia instruction in the high school setting has been expanded.

With the integration of multimedia into a wide variety of career fields, there is actually more opportunity than ever in interactive media for talented people just out of school, much more so than in the traditional media of film and television (Matzer, 1996).

Although multimedia instruction is being taught in some preschool and elementary classrooms, there are still other avenues of multimedia that can be pursued as students continue into their middle school and high school education (Broughton, 1997). One of the most basic and commonly used multimedia software programs at the high school level is PowerPoint. PowerPoint enables the user to create a professional computer-generated presentation. It also enables the user to deliver a presentation on the computer and to print the presentation in a variety of formats. Once the presentation is created, the user can make 35-mm slides or overhead transparencies, as well as provide handouts of the presentation. PowerPoint also provides the ability to print the completed presentation in various ways for distribution to audiences or classes. Speaker notes can also be prepared for use during delivery of a presentation.

Through the use of this simple multimedia software program, students can obtain many of the basic workplace skills and thinking skills that employers are seeking in new employees. Speer (1999), 1996 Wellsville High School graduate, stated:

Because of the PowerPoint instruction I received in high school, I was able to obtain a position upon graduation with the Western Auto Corporation. Among many other clerical and administrative duties, I was also in charge of creating and presenting PowerPoint presentations. Without a college education, my salary started at approximately \$24,000. Learning the skills necessary to not only develop creative PowerPoint presentations, but also to communicate and work as a team player, provided me with the edge I needed to obtain this position. Since my initial employment, I have received three advancements, along with several pay increases.

Higher levels of multimedia instruction and programs can be taught at the high school level, but all multimedia technologies have potential to empower the learner's mastery of high-order thinking skills. Sophisticated multimedia programs provide learning via structured discovery, motivational power, and the ability to tap multiple learning styles (Stammen, 1995). Because multimedia taps different learning styles in various ways, many times multimedia instruction reaches students who seem to be otherwise unreachable by a teacher (Fowler, 1996).

Those with disabilities can take great strides in developing a career in multimedia; even the socially challenged can make it big with talent and the right set of skills to complete projects, such as high-end computer animation (Matzer, 1996). Although the opportunities for students to develop an interest in multimedia careers is growing, there is concern about huge segments of our society who may not have the motivation to learn or who may be denied access to some of the new learning technologies (Bartholome, 1997). Not every school can afford the expensive equipment to support high level multimedia production or have the teaching personnel who can instruct students on how to use the equipment or the software. (Bartholome, 1997)

As for teachers using multimedia to reach students and make learning and teaching more exciting, the opportunities are readily available if a teacher is willing to put forth the extra time and effort. Multimedia is a powerful tool for making an instructor more effective. It increases the instructor's power of communication within a learning environment to convey a message more forcefully while still being an innovative way to share information and motivate learning (Stammen, 1995).

There are limited opportunities for employment directly out of high school. Although there are corporate marketing/communication departments that create presentations for in-house meetings using programs such as PowerPoint, they will typically turn to a production company for more ambitious and elaborate projects (Jerram, 1994). Creating high level multimedia production is when continuing education or technical training becomes very important.

The interest in multimedia instruction appears to be increasing with most of the top-notch continuing education facilities and universities located on the West Coast in the California vicinity (Jerram, 1994). When San Francisco State University, the largest multimedia studies program in the world, added a careers class to its multimedia studies program, 550 students enrolled (Jerram, 1994). The interest in multimedia careers is certainly growing.

## **Overview**

As more parents, employers, and even the government continue to express concern about students leaving the high school setting not being prepared for the work force, schools begin to feel the burden of this onslaught of complaints. Although most schools are focusing on this problem by reinforcing the core curriculum courses, many business teachers have taken it upon themselves to better prepare their students for a new work force dealing with technology. As the 21st century rolls around, the major forces influencing the need for new training for jobs are technological change and global competition (Cauley, 1997). Not only will there be global competition for products being



sold, but there will be global competition for jobs as well--jobs our students must be preparing for now.

All teachers must take an active role in preparing the students, but especially business education teachers need to prepare the students with necessary technological skills that will be needed in the new millennium. Business education teachers must take the lead to ensure the business curriculums reflect current and future needs of the students. (Stout, 1997)

The attitude with which business educators, administrators, school boards, and school improvement teams approach changes in technology is critical for the continued vitality of business education (Ramey, 1997). No matter how excited or motivated a teacher is to use and teach technology in the classroom setting, it cannot be done without the support of the entire school district system.

Multimedia courses and curricula are becoming a more relevant part of students' education in community colleges, as well as in four year colleges and universities. (Agneberg, 1997) All levels of schools are now beginning to use multimedia products in their curriculums, as do businesses and other organizations in their training programs (California Occupational Guide, 1995). The learning environment that once only existed in a classroom is now including apprenticeships, internships, and on-the-job training, at both the secondary and post-secondary levels (Stout, 1997). Through these learning environments, students receive actual work experience that better prepares them for a particular career.

As the ability to use computers to bring together text, graphic art, sound, animation, and video is used to educate, inform and entertain; specialized occupations are arising that require specific knowledge and skills (California Occupational Guide, 1995). Business educators must know these needed skills, as well as basic employability skills to better prepare course content and prepare students for emerging technologies; therefore, partnerships are necessary between employers and educators to communicate current and developing work force needs and issues (Cauley, 1997).

If business educators are going to train students for career opportunities in multimedia, they must also know if there are jobs available in the multimedia industry for their students. Many experts believe that multimedia will fundamentally change the way people learn, communicate and entertain themselves in the future; therefore the possibilities for employment are promising (California Occupational Guide, 1995).

## **Summary**

The literature survey shows that there are a wide variety of multimedia-related careers and that more multimedia careers will be available in the 21st century. Multimedia jobs are available to individuals with a wide range of learning styles and abilities; however, full-time positions in large corporations are sometimes few and far between. In multimedia jobs, creative talent is often more important than computer-related skills. The multimedia hotspots for jobs include San Francisco, Los Angeles, New York City, Atlanta, Austin, and Seattle.

With the School-to-Work Opportunities Act, more schools have and will provide multimedia training for high school students.

## CHAPTER 3

### PRESENTATION OF DATA

The purpose of this study was to determine (1) the availability of multimedia jobs within the central states region, and (2) whether high school business instructors are preparing today's students for careers in multimedia. To determine multimedia job availabilities, two main avenues were researched. The first was classified ads from four major metropolitan newspapers from four central states. The second was an online search for multimedia jobs. To determine the preparation of high school students for careers in multimedia, a survey was mailed to the business department chairs in all accredited high schools in the state of Kansas.

For the job listings, the newspapers that were searched included: The Denver Post (Denver, CO), The Kansas City Star (Kansas City, MO), Omaha World-Herald (Omaha, NE), and The Wichita Eagle (Wichita, KS). Three to five daily newspapers from each city were monitored, during approximately a one month time span in July, 1998.

When searching for multimedia-related jobs in the newspapers, key skills were sought. For instance, if an ad was seeking an individual with specific experience in Web Design, PhotoShop, Illustrator, or Quark, then that company was considered to be seeking a person with multimedia talent. The use of those particular programs or skills fall into the job descriptions of many multimedia-related occupations. In the want ads, if a business was seeking an employee with MS Office 97 skills, usually the employer only

wanted employees with Word or Excel knowledge, although PowerPoint knowledge was sometimes useful. If a business was seeking an employee with the knowledge to operate the MS Office Suite, generally the employer wanted employees to operate the PowerPoint program, as well as the other Office Suite programs.

Table 1 represents available multimedia-related openings that were found in the sets of newspapers, while Table 2 represents available PowerPoint-related openings for the same newspapers. Table 1 shows that 56% of the selected job listings in The Denver Post were multimedia-related, while 44% were PowerPoint-related. In The Kansas City Star, 100% of the selected job listings were related to PowerPoint and in the Omaha World-Herald, 36% of the selected job listings were related to multimedia, while 64% dealt with PowerPoint. Finally, The Wichita Eagle showed 13% of the selected job listings as being multimedia jobs and 87% being PowerPoint specific.

The second avenue used to research employment in the multimedia field was by searching online employment advertisements. Although there are many sites on the Internet to seek employment ads, the site used was *EXCITE: Classifieds2000*. At this site there are thousands of continually updated job openings that can be easily searched by using key words. *EXCITE: Classifieds2000* presents available jobs across the United States.

When searching for multimedia-related jobs on the *EXCITE: Classifieds2000* website, the chosen career field, such as "administration" or "educators", along with the word "multimedia" were used as the search criteria words. The July 15, 1998 search

**Table 1**

**Newspaper Classified Advertisements--Available Multimedia-Related Openings**  
**(For the Month of July, 1998)**

<b>NAME OF PAPER (DATE)</b>	<b>TITLE OF POSITION</b>	<b>KEY WORD</b>
The Denver Post (7-1-98)	Communications Specialist Web Administrator Creative Artist Map Department Project Manager Media Marketing Manager Marketing Assistant	PhotoShop Interactive/Graphics PhotoShop & Illustrator PhotoShop & Illustrator Design Internet Publications Director
The Denver Post (7-7-98)	Computer Graphics Graphic Artist Multimedia Graphic Designer Senior Marketing Assistant	PhotoShop & Illustrator PhotoShop & Illustrator Animation & Programming Video Production
The Denver Post (7-27-98)	Administrative Assistant Artist Web Designer/Producer Information Technology Specialist Software Administrator/Trainer Visual Basic Programmer Web Site Designer Computer Science Graphic Designer Marketing Assistant	Web Page Design & MS Office 97 PhotoShop & Corel Draw Web Base & Database Design Focus of Designs Web Page Design & Digital Imagery Web Page Design Web Page Design Variety of Multimedia Packages PhotoShop & Illustrator Video Production Knowledge
The Kansas City Star (7-8-98)	NONE	
The Kansas City Star (7-13-98)	NONE	
The Kansas City Star (7-20-98)	NONE	
The Kansas City Star (7-24-98)	NONE	
The Kansas City Star (7-30-98)	NONE	

**Newspaper Classified Advertisements--Available Multimedia-Related Openings Cont.**

<b>NAME OF PAPER (DATE)</b>	<b>TITLE OF POSITION</b>	<b>KEY WORD</b>
Omaha World-Herald (7-1-98)	Graphic Artist/MAC Operator	PhotoShop & Illustrator
Omaha World-Herald (7-7-98)	Producer/Director	Corporate Video
Omaha World-Herald (7-8-98)	NONE	
Omaha World-Herald (7-10-98)	Director	Corporate Video
Omaha World-Herald (7-29-98)	News Director/Program Director Network Technician	Video Production Web Page Design & MS Office 97
The Wichita Eagle (7-7-98)	NONE	
The Wichita Eagle (7-8-98)	NONE	
The Wichita Eagle (7-12-98)	Receptionist	PhotoShop
The Wichita Eagle (7-22-98)	NONE	

**Table 2**

**Newspaper Classified Advertisements--Available PowerPoint-Related Openings**  
**(For the Month of July, 1998)**

NAME OF PAPER (DATE)	TITLE OF POSITION	KEY WORD
The Denver Post (7-1-98)	Customer Service Representative Data Entry Specialist Legal Secretary Purchasing Specialist Contract Administrator 48 Temporary Opportunities Administrative Assistant Administrative	MS Office Suite (PowerPoint) MS Office Suite (PowerPoint) MS Office Suite (PowerPoint) MS Office Suite (PowerPoint) MS Office Suite (PowerPoint) PowerPoint PowerPoint MS Office Suite (PowerPoint)
The Denver Post (7-7-98)	Accounting/Administration Assistant Word Processor Receptionist Legal Secretary	MS Office Suite (PowerPoint) PowerPoint MS Office Suite (PowerPoint) MS Office Suite (PowerPoint)
The Denver Post (7-27-98)	Accounting Controller Administrative Assistant Inside Sales Coordinator Secretary/Receptionist	PowerPoint MS Office Suite (PowerPoint) MS Office Suite (PowerPoint) MS Office 97
The Kansas City Star (7-8-98)	NONE	
The Kansas City Star (7-13-98)	Administrative Assistant Administrative Assistant/Receptionist Administrative Assistant Administrative Assistant	PowerPoint MS Office Suite (PowerPoint) MS Office Suite (PowerPoint) MS Office Suite (PowerPoint) MS Office Suite (PowerPoint)
The Kansas City Star (7-20-98)	Administrative Assistant Administrative Assistant/Receptionist	PowerPoint MS Office Suite (PowerPoint) MS Office Suite (PowerPoint)
The Kansas City Star (7-24-98)	Secretary/Receptionist	MS Office 97
The Kansas City Star (7-30-98)	NONE	



**Newspaper Classified Advertisements--Available PowerPoint-Related Openings Cont.**

NAME OF PAPER (DATE)	TITLE OF POSITION	KEY WORD
Omaha World-Herald (7-1-98)	Sales Support Assistant Administrative Support Person	PowerPoint PowerPoint
Omaha World-Herald (7-7-98)	Systems Engineer	MS Office Suite (PowerPoint)
Omaha World-Herald (7-8-98)	Administrative Secretary	PowerPoint
Omaha World-Herald (7-10-98)	Systems Engineer	MS Office Suite (PowerPoint)
Omaha World-Herald (7-29-98)	Senior Secretary Computer Instructor Contractor Administrative Support Staff Senior Secretary	PowerPoint MS Office 97 MS Office Suite (PowerPoint) PowerPoint
The Wichita Eagle (7-7-98)	NONE	
The Wichita Eagle (7-8-98)	NT Administrator	MS Office 97
The Wichita Eagle (7-12-98)	Administrative Assistant Secretary Administrative Coordinators	MS Office 97 MS Office 97 PowerPoint
The Wichita Eagle (7-22-98)	Administrative Assistant Assistant Account Coordinator Executive Assistant	PowerPoint MS Office Suite (PowerPoint) MS Office 97

resulted in the information found in Table 3. For example, the input of "Administration" and "Multimedia" provided two available job openings. The first available job opening was for an Assistant/Associate Librarian in California and the second was for a Software Developer in New York.

To gather information about the preparation of high school students for careers in multimedia, a survey was sent to the business department chair in every accredited high school in the state of Kansas. The questions on the survey were therefore based on the perceptions of each business department chair. Table 4 provides information about the classification, number of students, number of schools in the state of Kansas, number of completed surveys received, and the percentage of responses to the survey (KSHAA, 1998-99).

Tables 5 through 20 contain data broken down into school size classifications, as well as combined data from all of the schools who responded to the survey. Due to the large volume of information contained on each table, the data presented in this chapter will focus on the combined totals and percentages of each table.

Question #1 in the survey asked the business department chairs, "*Is multimedia instruction taught in your school district?*" In Table 5, 157 (83%) of the 190 responses stated that multimedia was taught at some level, although it might not be in the business department's curriculum. Twenty-nine (15%) stated that multimedia instruction was not present in their school, and 4 (2%) did not know if multimedia instruction was offered.

Of the 157 schools offering multimedia instruction, questions #1b through #1h were asked. Question #1b asked, "*Which department focuses on the instruction of*

**Table 3**

**Online Internet Classified Advertisements (July 15, 1998)**

CAREER FIELD	# OF POSITIONS	STATE LOCATIONS	JOB TITLES
ADMINISTRATION	2	CA, NY	(1) Assistant/Associate Librarian (1) Software Developer
CREATIVE	5	CA, IL, NY	(1) Developmental Editor (1) Senior Graphic Designer (1) Research Multimedia Project (1) Graphic Designer (1) Interactive Designer
EDUCATION	17	CA, CT, DE, DC, MD, MA, NJ, NY PA, RI, TN, VA	(15) Instructional Designer (1) College Internship (1) Web-Based Training Project
ENGINEERING	OVER 200	AZ, CA, CT, DC, FL, GA, IL, IN, MD, MA, MI, MN, MS, NJ, NY, NC, OR, PA, SC, TX, VA, WA	Controls Engineer II Navigator Developer Database Application Developer Product Manager Senior Server Engineer Systems Engineer Software Design Engineer WebMaster Video DSP Engineer Network Engineer MULTIPLE OTHER TITLES <b>(The above represents the first ten job titles listed.)</b>
FINANCE	2	CA	(1) Multimedia Specialist (1) Staff Accountant

**Online Internet Classified Advertisements Cont.**

CAREER FIELD	# OF POSITIONS	STATE LOCATIONS	JOB TITLES
GENERAL MANAGEMENT	44	AL, CA, FL, GA, IL, MO, MA, MN, NH, NY, OH, OR	Software Configuration Manager Y2K Program Manager Senior Architect Code Change Manager Project Manager Records Management Computer Based Training Manager Business Solutions Delivery Manager Technical Consultant Testing Project Manager MULTIPLE OTHER TITLES (The above represents the first ten job titles listed.)
GRAPHIC DESIGNER	5	CA, IL, NY	(1) Developmental Editor (1) Graphic Designer (1) Interactive Designer (1) Research Media Project (1) Senior Graphic Designer
HEALTH CARE	2	DC	(2) Health Care Data Modeler
HUMAN RESOURCES	4	GA, IL	(1) Human Resources Manager (2) Instructional Designer (1) Project Leader/Manager./Human Resources
INFORMATION SYSTEMS	OVER 200	AL, AZ, AR, CA, CO, CT, DC, FL, GA, IL, IA, KY, LA, MD, MA, MI, MN, NJ, NY, TX, VA, WA	NOT AVAILABLE
LEGAL	0		

**Online Internet Classified Advertisements Cont.**

CAREER FIELD	# OF POSITIONS	STATE LOCATIONS	JOB TITLES
MARKETING	7	CA, IL, MA, MI	(2) Product Marketing Engineer II (1) Account Manager (1) Senior Communications Specialist (1) Art Director for Entertainment (2) Product Design Engineer
OPERATIONS	3	CA, NJ	(1) Database Administrator (1) Systems Administrator (1) Web Development Manager
OTHER	OVER 200	CA, CO, DC, FL, GA, IL, MD, MA, MI, MN, NJ, NY, NC, OH, OR, PA, TX, VA, WA, WI	NOT AVAILABLE
POWERPOINT	OVER 200	AZ, CA, CO, CT, FL, GA, IL, IN, MD, MA, MI, MS, MO, NH, NJ, NY, NC, OH, OR, PA, SC, TN, TX, VA, WA	NOT AVAILABLE
SALES	28	CA, GA, IL, MA, MI, NJ, NY, OR, WA	Licensing Sales Representative Product Marketing Engineer Executive Account Manager Strategic Marketing Manager Sales Manager Multimedia Sales Team Product Design Engineer Sales Engineer Product Planner--Multimedia Multimedia Sales Professional MULTIPLE OTHER TITLES (The above represents the first ten job titles listed.)

**Table 4****School Size Classifications as Assigned by the Kansas State High School Activities Association**

<b><u>School Size Classification</u></b>	<b><u>Student Population</u></b>	<b><u># of Schools</u></b>	<b><u># of Responses Received</u></b>	<b><u>% of Responses Received</u></b>
<b>1A</b>	15 - 89	114	51	45%
<b>2A</b>	89 - 136	64	36	56%
<b>3A</b>	138 - 215	64	29	45%
<b>4A</b>	217 - 491	64	32	50%
<b>5A</b>	499 - 913	32	19	59%
<b>6A</b>	930 - 1449	32	23	72%
<b>COMBINED TOTAL</b>		370	190	51%

**Table 5**  
**Business Department Chairs' Perception of Multimedia Instruction in Accredited Schools in the State of Kansas**

<u>School Classification Size</u>	<u>Number of Responses</u>	<u>Yes</u>	<u>Percentage of Total Responses</u>	<u>No</u>	<u>Percentage of Total Responses</u>	<u>Did Not Know</u>	<u>Percentage of Total Responses</u>	<u>Total Percentage</u>
1A	51	36	71%	15	29%	0	0%	100%
2A	36	32	89%	4	11%	0	0%	100%
3A	29	25	86%	2	7%	2	7%	100%
4A	32	27	84%	4	14%	1	3%	100%
5A	19	19	100%	0	0%	0	0%	100%
6A	23	18	78%	4	18%	1	4%	100%
<b>COMBINED</b>	190	157	83%	29	15%	4	2%	100%

*multimedia?"* The responses showed that multimedia instruction was offered in 14 different departments. Of the 14 departments reported, the top 5 departments in which multimedia instruction was offered were Business (48%), Business/Computer (19%), Computer (14%), English (9%), and Technology (8%). Some schools indicated that multimedia instruction was the responsibility of several departments, not just one. See Table 6.

Question #1c asked, "*At what level is basic multimedia instruction taught?"* Nineteen percent of the respondents stated that multimedia was taught at the elementary level, 26% said it was at the middle school level, and 97% responded that it was at the secondary level. Of those individuals who answered that instruction was either at the secondary, middle or elementary school levels, 34% indicated that it was also taught at another level or levels as well. As seen in Table 7, only 2% of the instructors did not know at what level basic multimedia instruction was taught.

"*What multimedia software programs does the school use to instruct students?"* was question #1d. In Table 8, the top programs used were Microsoft PowerPoint by 109 schools (69%), HyperStudio by 39 schools (25%), Adobe PhotoShop by 19 schools (12%), Adobe Premiere by 16 schools (10%), and Avid Video/Cinema by 16 schools (10%). Adobe PhotoShop, Microsoft PowerPoint, and Adobe Premiere were the only programs that were used by school(s) in every size classification.

"*Do you have high school students who express an interest in multimedia careers?"* was question #1e. Of the schools responding, 69% said "yes," 12% said "no," and 19% stated they did not know. As the school size became larger, for example, 6A,



**Table 8**  
**Business Department Chairs' Perception of Multimedia Software Programs Used to Instruct Students**

Multimedia Software Program	1A	2A	3A	4A	5A	6A	Total Users	Multimedia Software Program	1A	2A	3A	4A	5A	6A	Total Users
<b>3-D Programs</b>								<b>Slide Show Programs Cont.</b>							
3D Architect						1	1	Harvard Graphics					1		1
Extreme 3D		1					1	HyperCard	2			1		1	4
Infini-D		1	1		1		3	HyperStudio	9	11	5	6		8	39
Simply 3-D				1			1	Linkway & Linkway Live			1	1		1	3
<b>Altering Programs</b>								<b>Macromedia Authorware</b>							
KAI Power Tools						1	1	Microsoft Works (Slide Show)	1					1	2
Morph		1					1	Microsoft PowerPoint	23	21	16	22	15	12	109
Super Goo			1				1	Quark Express					2		2
<b>Animation Programs</b>								<b>SuperLink</b>							
Animator Pro		1					1						2		2
<b>Audio Programs</b>								<b>Video Editing Programs</b>							
Real Audio			1				1	Adobe Premiere	4	1	2	4	2	3	16
Shockwave			1				1	Avid Video/Cinema	6	3		4	2	1	16
Sound Edit						1	1	Depco Video Production		1					1
Sound Forge		1					1	Macromedia Director		1		3			4
<b>Special Effects Programs</b>								<b>Media 100</b>							
Adobe After Effects		1	1	1			3	Quick Time			1				1
Macromedia Dreamweaver		3		1			4	ULEAD Media Studio				1			1
<b>Paint/Photo/Draw Programs</b>								<b>Video Toaster</b>							
Adobe Illustrator		2	1	1	1		5	Avid MC XPress		1				1	1
Adobe PhotoShop	4	5	4	2	3	1	19	<b>Web Design Programs</b>							
Aldus Freehand				1	1		2	Adobe PageMill			3				3
Apple QuickTake		1					1	Claris Home Page	1				1		2
I PhotoPlus		1					1	Hyper Text Markup Language		1	1	1	1		4
Paint Shop Pro	1						1	Microsoft Front Page		2			1		3
PhotoPaint				1			1	Netscape Composer		1					1
<b>Slide Show Programs</b>								<b>Web Authoring Tools</b>							
Aldus Persuasion		1					1	Web Publishing			1				1
Claris Works	1			1	2		4	<b>Miscellaneous Programs</b>							
Corel Presentations	4			2	2	1	9	Unknown Categories	3	6	5	7	2	4	26

**Table 7**

**Business Department Chairs' Perception of Grade Level at Which Basic Multimedia Instruction is Taught in Their School District**

<u>School Classification Size</u>	<u># of Responses</u>	<u>Sec</u>	<u>% of Total Responses</u>	<u>Mid</u>	<u>% of Total Responses</u>	<u>Elem</u>	<u>% of Total Responses</u>	<u>Do Not Know</u>	<u>% of Total Responses</u>	<u>Multiple Levels</u>	<u>% with Multiple Levels</u>
<b>1A</b>	36	36	100%	2	6%	4	11%	0	0%	12	33%
<b>2A</b>	32	32	100%	10	31%	4	13%	0	0%	11	34%
<b>3A</b>	25	23	92%	7	28%	2	8%	1	4%	7	28%
<b>4A</b>	27	25	93%	10	37%	3	11%	1	4%	10	37%
<b>5A</b>	19	19	100%	5	26%	1	5%	0	0%	6	32%
<b>6A</b>	18	18	100%	7	39%	5	28%	0	0%	7	39%
<b>COMBINED</b>	157	153	97%	41	26%	19	12%	2	1%	53	34%

\*\*Sec= Secondary School

\*\*Mid= Middle School

Table 6

**Business Department Chairs' Perception of High School Business Departments Offering Multimedia Instruction**

<u>Departments</u>	1A	% of Resp. N=36	2A	% of Resp. N=32	3A	% of Resp. N=25	4A	% of Resp. N=27	5A	% of Resp. N=19	6A	% of Resp. N=18	Dept. Total	% of Total Responses N=157
<b>Art</b>			1	3%	4	16%			1	5%	2	11%	8	5%
<b>Business</b>	15	42%	10	31%	10	4%	15	56%	15	79%	10	56%	75	48%
<b>Business/Computer</b>	9	25%	8	25%	4	16%	8	30%			1	6%	30	19%
<b>Business/Tech.</b>			1	3%	1	4%							2	1%
<b>Computer</b>	6	17%	3	9%	8	32%	1	4%	1	5%	3	17%	22	14%
<b>Did Not Know</b>	2	6%	1	3%									3	2%
<b>English</b>	1	3%	4	13%	2	8%			4	21%	3	17%	14	9%
<b>Journalism</b>							1	4%	1	5%	1	6%	3	2%
<b>Library</b>	3	8%			2	8%					1	6%	6	4%
<b>Mathematics</b>			1	3%							1	6%	2	1%
<b>Multimedia</b>			1	3%									1	0.06%
<b>Practical Arts</b>			1	3%			1	4%					2	1%
<b>Science</b>					1	4%					1	6%	2	1%
<b>Social Science</b>			1	3%							1	6%	2	1%
<b>Technology</b>	4	11%	3	9%	2	8%	2	7%	1	5%			12	8%
<b>TOTAL*</b>	40		35		34		28		23		24		168	

\*The TOTAL for the Percentage of Responses for each classification exceeds 100%, due to the fact some schools had multimedia instruction used in more than one department.

the percentage of students who expressed an interest in multimedia careers also increased. See Table 9.

Table 10 represents question #1f, which asked, "*Do the administrators and the school board view technology instruction as a necessity for students?*" Of the teachers who responded, 94% said "yes," 2% expressed a "no" reply, and 4% said they did not know. The two largest school sizes (5A and 6A) show the administrators' and the school boards' view of technology instruction not as favorable as the smaller class sizes.

In Table 11, the teachers were asked, "*Does the school district spend an adequate amount of funds to purchase multimedia equipment?*" Sixty-three percent responded "yes," 26% responded "no," and 11% stated they did not know if enough money was being spent.

Question #1h asked, "*Are an adequate amount of funds being spent by the school district to train teachers and allow them time to learn to use multimedia technologies?*" Because this question actually asked two separate questions, there was difficulty in interpreting the information. The question should have read, "*Are an adequate amount of funds being spent by the school district for professional development on the use of multimedia technologies?*" Table 12 shows 36% of the respondents stated that there was adequate funding to train teachers, while 54% responded that there was not, and 10% said they did not know.

On the survey, question #2 asked, "*Would you like to incorporate multimedia into your curriculum?*" Twenty-four percent indicated "yes," 4 % responded with "no," and another 4% stated they did not know, while 68% stated they already do. See Table 13.

**Table 9****Business Department Chairs' Perception of High School Students' Interest in Multimedia Careers**

<b><u>School Classification Size</u></b>	<b><u>Number of Responses</u></b>	<b><u>Yes</u></b>	<b><u>Percentage of Total Responses</u></b>	<b><u>No</u></b>	<b><u>Percentage of Total Responses</u></b>	<b><u>Did Not Know</u></b>	<b><u>Percentage of Total Responses</u></b>	<b><u>Total Percentage</u></b>
<b>1A</b>	36	17	47%	10	28%	9	25%	100%
<b>2A</b>	32	22	69%	4	12%	6	19%	100%
<b>3A</b>	25	18	72%	3	12%	4	16%	100%
<b>4A</b>	27	20	74%	1	4%	6	22%	100%
<b>5A</b>	19	15	79%	0	0%	4	21%	100%
<b>6A</b>	18	17	94%	0	0%	1	6%	100%
<b>COMBINED</b>	157	109	69%	18	12%	30	19%	100%

**Table 10****Business Department Chairs' Perception of Administrators' and School Boards' Views of Technology Instruction as a Necessity for Students**

<u>School Classification Size</u>	<u>Number of Responses</u>	<u>Yes</u>	<u>Percentage of Total Responses</u>	<u>No</u>	<u>Percentage of Total Responses</u>	<u>Did Not Know</u>	<u>Percentage of Total Responses</u>	<u>Total Percentage</u>
1A	36	35	97%	0	0%	1	3%	100%
2A	32	30	94%	1	3%	1	3%	100%
3A	25	25	100%	0	0%	0	0%	100%
4A	27	27	100%	0	0%	0	0%	100%
5A	19	15	79%	1	5%	3	16%	100%
6A	18	16	88%	1	6%	1	6%	100%
<b>COMBINED</b>	157	148	94%	3	2%	6	4%	100%

**Table 11**

**Business Department Chairs' Perception of Adequate Funding for Multimedia Equipment**

<b><u>School Classification Size</u></b>	<b><u>Number of Responses</u></b>	<b><u>Yes</u></b>	<b><u>Percentage of Total Responses</u></b>	<b><u>No</u></b>	<b><u>Percentage of Total Responses</u></b>	<b><u>Did Not Know</u></b>	<b><u>Percentage of Total Responses</u></b>	<b><u>Total Percentage</u></b>
<b>1A</b>	36	16	44%	15	42%	5	14%	100%
<b>2A</b>	32	21	65%	7	22%	4	13%	100%
<b>3A</b>	25	20	80%	4	16%	1	4%	100%
<b>4A</b>	27	17	63%	7	26%	3	11%	100%
<b>5A</b>	19	14	73%	3	16%	2	11%	100%
<b>6A</b>	18	11	61%	5	28%	2	11%	100%
<b>COMBINED</b>	157	99	63%	41	26%	17	11%	100%

**Table 12**

**Business Department Chairs' Perception of Adequacy of Funds Spent by School Districts for Professional Development**

<b><u>School Classification Size</u></b>	<b><u>Number of Responses</u></b>	<b><u>Yes</u></b>	<b><u>Percentage of Total Responses</u></b>	<b><u>No</u></b>	<b><u>Percentage of Total Responses</u></b>	<b><u>Did Not Know</u></b>	<b><u>Percentage of Total Responses</u></b>	<b><u>Total Percentage</u></b>
<b>1A</b>	36	8	22%	25	70%	3	8%	100%
<b>2A</b>	32	12	37%	13	41%	7	22%	100%
<b>3A</b>	25	9	36%	13	52%	3	12%	100%
<b>4A</b>	27	10	37%	16	59%	1	4%	100%
<b>5A</b>	19	7	37%	12	63%	0	0%	100%
<b>6A</b>	18	10	56%	6	33%	2	11%	100%
<b>COMBINED</b>	157	56	36%	85	54%	16	10%	100%



**Table 13**

**Business Department Chairs' Desire to Incorporate Multimedia into Their Curriculums**

<u>School Classification Size</u>	<u>Number of Responses</u>	<u>Yes</u>	<u>Percentage of Total Responses</u>	<u>No</u>	<u>Percentage of Total Responses</u>	<u>Did Not Know</u>	<u>Percentage of Total Responses</u>	<u>Already Do</u>	<u>Percentage of Total Responses</u>	<u>Total Percentage</u>
<b>1A</b>	51	16	31%	2	4%	4	8%	29	57%	100%
<b>2A</b>	36	7	19%	2	6%	1	3%	26	72%	100%
<b>3A</b>	29	5	18%	1	3%	1	3%	22	76%	100%
<b>4A</b>	32	10	31%	0	0%	0	0%	22	69%	100%
<b>5A</b>	19	3	16%	0	0%	0	0%	16	84%	100%
<b>6A</b>	23	4	17%	2	9%	2	9%	15	65%	100%
<b>COMBINED</b>	190	45	24%	7	4%	8	4%	130	68%	100%

Question #3 asked, *"Would you like to create a class based solely upon multimedia instruction?"* Twenty-nine percent responded that they would like to, 22% said they would not like to, 32% already offer a class based solely on multimedia instruction, and 17% said they did not know. As the school classification size became smaller, the percentage of instructors who wanted a multimedia class increased, as shown in Table 14.

Question #4 asked, *"Are there multimedia job opportunities within a 50 mile radius of your school's location?"* Seventy-three percent stated that there were multimedia job opportunities, while 6% said there were not, and 21% expressed that they did not know. Table 15 shows that the business department chairs in larger schools (4A, 5A & 6A) felt there were more job opportunities available, while the business department chairs in smaller schools were more uncertain. Table 16 shows 61 cities that were mentioned at least once. The top cities were Wichita (22), Topeka (19), Kansas City, Kansas & Missouri (13), Lawrence (11) and Manhattan (10).

*"Are there job opportunities that involve multimedia in larger cities around your school's community?"* was question #5. Eighty-three percent stated "yes," 5% said "no," and 12% did not know. These figures and percentages can be seen in Table 17. In Table 18 there were 34 larger cities mentioned. The top cities included: Wichita (57 responses), Topeka (41), Kansas City, Kansas & Missouri (37), Emporia (20) and Manhattan (20).

Finally, question #6 asked, *"Are there curriculums established in the universities, community colleges, or vo-techs that allow students the opportunity to expand their*

**Table 14****Number and Percent of Business Department Chairs Recommending Creation of a Class Based Solely Upon Multimedia**

<u>School Classification Size</u>	<u>Number of Responses</u>	<u>Yes</u>	<u>Percentage of Total Responses</u>	<u>No</u>	<u>Percentage of Total Responses</u>	<u>Did Not Know</u>	<u>Percentage of Total Responses</u>	<u>Already Do</u>	<u>Percentage of Total Responses</u>	<u>Total Percentage</u>
1A	51	16	31%	11	22%	16	31%	8	16%	100%
2A	36	16	44%	8	22%	6	17%	6	17%	100%
3A	29	10	35%	4	14%	3	10%	12	41%	100%
4A	32	7	22%	6	19%	4	12%	15	47%	100%
5A	19	4	21%	5	27%	1	5%	9	47%	100%
6A	23	2	9%	8	34%	2	9%	11	48%	100%
<b>COMBINED</b>	190	55	29%	42	22%	32	17%	61	32%	100%

**Table 15**

**Business Department Chairs' Perception of the Number of Multimedia Job Opportunities Within a 50 Mile Radius of the School's Location**

<u>School Classification Size</u>	<u>Number of Responses</u>	<u>Yes</u>	<u>Percentage of Total Responses</u>	<u>No</u>	<u>Percentage of Total Responses</u>	<u>Did Not Know</u>	<u>Percentage of Total Responses</u>	<u>Total Percentage</u>
1A	51	27	53%	7	14%	17	33%	100%
2A	36	25	70%	3	8%	8	22%	100%
3A	29	18	62%	2	7%	9	31%	100%
4A	32	29	91%	0	0%	3	9%	100%
5A	19	17	89%	0	0%	2	11%	100%
6A	23	22	96%	0	0%	1	4%	100%
<b>COMBINED</b>	190	138	73%	12	6%	40	21%	100%

**Table 16**

**Business Department Chairs' Perception of Multimedia Job Opportunities Within a 50 Mile Radius of the School (By City)**

Cities	1A	2A	3A	4A	5A	6A	Total Mentions	Cities	1A	2A	3A	4A	5A	6A	Total Mentions
Abilene					1		1	Iola	1	1					2
Arkansas City	1						1	Joplin, MO	1		1	1	1		4
Bartlesville, OK					1		1	Junction City	1					1	2
Beloit	1						1	Kansas City, KS & MO	1	2		4	1	5	13
Canton		2					2	Kingman				1			1
Chanute			1				1	Lawrence		3	4	2	1	1	11
Chapman						1	1	Leavenworth		1					1
Cimmaron						1	1	Liberal		1		1		1	3
Coffeyville					2		2	Manhattan	3	1		2	1	3	10
Colby	1	1					2	McPherson	1	1			1		3
Columbus, MO					1		1	Moundridge		1					1
Concordia	3						3	Newton		2		1			3
Council Grove	1						1	Norton			1				1
Derby						1	1	Oberlin		1					1
Dodge City	1					2	3	Olathe				1			1
Downs	1						1	Ottawa			1	1			2
El Dorado			1				1	Overland Park			1				1
Elkhart		1					1	Parsons			1	1	1		3
Emporia	3	1	3				7	Pittsburg		1	1		1		3
Ft. Scott		2					2	Ponca City, OK					1		1
Garden City		1	1			2	4	Pratt	1	1		1			3
Girard		1					1	Russell	1						1
Goddard				1			1	Salina	1	2	1	2	1		7
Goessel		1					1	Shawnee Mission						1	1
Goodland	1						1	Smith Center	1						1
Great Bend	2	1	1	2			6	St. Joseph, MO		2		1			3
Hays	3	3	1				7	Sublette						1	1
Herington	1						1	Topeka	3	3	5	4	2	2	19
Hesston		1					1	Ulysses				1			1
Hutchinson	1	5	1	1			8	Wichita	2	6	2	6	3	3	22
Independence					1		1								

**Table 17****Business Department Chairs' Perception of the Number of Job Opportunities in Larger Cities Near the School's Community**

<b><u>School Classification Size</u></b>	<b><u>Number of Responses</u></b>	<b><u>Yes</u></b>	<b><u>Percentage of Total Responses</u></b>	<b><u>No</u></b>	<b><u>Percentage of Total Responses</u></b>	<b><u>Did Not Know</u></b>	<b><u>Percentage of Total Responses</u></b>	<b><u>Total Percentage</u></b>
<b>1A</b>	51	38	74%	4	8%	9	18%	100%
<b>2A</b>	36	27	75%	4	11%	5	14%	100%
<b>3A</b>	29	22	76%	1	3%	6	21%	100%
<b>4A</b>	32	30	94%	1	3%	1	3%	100%
<b>5A</b>	19	18	95%	0	0%	1	5%	100%
<b>6A</b>	23	22	96%	0	0%	1	4%	100%
<b>COMBINED</b>	190	157	83%	10	5%	23	12%	100%

**Table 18**

**Business Department Chairs' Perception of the Number of Multimedia Job Opportunities in Larger Cities Near the School's Community (By City)**

Cities	1A	2A	3A	4A	5A	6A	Total Mentions	Cities	1A	2A	3A	4A	5A	6A	Total Mentions
Amarillo, TX		1					1	Lawrence	1	3	5	7		2	18
Bartlesville, OK					1		1	Leavenworth		1					1
Canton		1					1	Lincoln, NE	1						1
Colby	1						1	Manhattan	9	2	1	6		2	20
Colorado Springs, CO						1	1	McPherson		1					1
Denver, CO	7	1		2		2	12	Newton		1					1
Dodge City	1	2					3	Omaha, NE	1						1
Emporia	8	2	4	5		1	20	Overland Park			1				1
Enid, OK				1			1	Pittsburg			1				1
Garden City		1					1	Salina	3	1		1	1		6
Goddard				1			1	Shawnee Mission						1	1
Great Bend				1			1	Springfield, MO			1				1
Hays	3	1		1			5	St. Joseph, MO				1			1
Hutchinson		1		3			4	St. Louis, MO		1					1
Joplin, MO		1	1		1		3	Topeka	13	5	6	12	1	4	41
Kansas City, KS & MO	10	7	3	8	2	7	37	Tulsa, OK	1	1			1		3
Kearney, NE	1						1	Wichita	12	11	9	10	7	8	57

*knowledge of multimedia?"* As shown in table 19, 58% of the respondents indicated that there were programs available, 5% stated there were no programs available, and 37% said they did not know.

Where respondents were to list the universities, community colleges, or vo-techs that allow students to obtain higher learning skills in the multimedia area, 42 post-secondary institutions were mentioned, 17 of which were community colleges, 13 were vocational technical schools, and 12 were colleges or universities. Overall, the top post-secondary institutions mentioned were Kansas State University (22), Fort Hays State University (17), Kansas State University @ Salina (12), Wichita State University (11), and Kansas University (8). See Table 20.



**Table 19**

**Business Department Chairs' Perception of the Number of Multimedia Curriculums or Courses Established in Universities, Community Colleges, or Vo-Techs**

<u>School Classification Size</u>	<u>Number of Responses</u>	<u>Yes</u>	<u>Percentage of Total Responses</u>	<u>No</u>	<u>Percentage of Total Responses</u>	<u>Did Not Know</u>	<u>Percentage of Total Responses</u>	<u>Total Percentage</u>
1A	51	29	57%	0	0%	22	43%	100%
2A	36	20	55%	2	6%	14	39%	100%
3A	29	18	62%	0	0%	11	38%	100%
4A	32	16	50%	3	9%	13	41%	100%
5A	19	12	63%	2	11%	5	26%	100%
6A	23	15	65%	2	9%	6	26%	100%
<b>COMBINED</b>	190	110	58%	9	5%	71	37%	100%

**Table 20**

**Business Department Chairs' Perception of the Number of Multimedia Curriculums or Courses Established in Universities, Community Colleges, or Vo-Techs (By Education Centers)**

Cities	1A	2A	3A	4A	5A	6A	Total Mentions	Cities	1A	2A	3A	4A	5A	6A	Total Mentions
Allen CCC						1	1	Kansas SU	7	1	4	6	1	3	22
Barton CCC	1		1				2	Kansas SU @ Salina	1	1	5	4	1		12
Beloit Vo-Tech	2						2	Kansas U	3	1			1	3	8
Butler CCC				2		1	3	Kaw Area Tech					1	1	2
Cloud CCC	3						3	Labette CCC				1			1
Colby CC	2		1				3	Manhattan Area Tech			2	2		1	5
Cowley CCC					1	1	2	Missouri Southern SC			1	1			2
DeVry Institute			1				1	Missouri Western SC		1					1
Dodge City CC		1	1			1	3	Nebraska U at Kearney	1						1
Emporia SU	3	1		2		1	7	Newman U						1	1
Flint Hills Tech	2		1	1			4	North Central KS Tech	1						1
Fort Hays SU	8	4	3			2	17	Northeast KS Tech		1					1
Friends U		1				1	2	Northwest KS Tech	1						1
Garden City CC		1	1			1	3	Pittsburg SU		2	1	1	1		5
Goodland Vo-Tech	3						3	Pratt CC				1			1
Hesston CC				1			1	Seward CCC		1					1
Highland CC		1					1	Southeast KS Tech	1						1
Hutchinson CC				1	1		2	Topeka Tech		1		1			2
Independence CC					1		1	Washburn U	1	1		1	2	1	6
Johnson CCC			1	1		2	4	Wichita SU		2	2	2	2	3	11
Kansas City KS CC				1	1		2	Wichita Tech		1	1			2	4

\*\*CC= Community College  
 \*\*CCC= County Community College  
 \*\*SC= State College

\*\*SU= State University  
 \*\*Tech= Technical School or College  
 \*\*U= University

## **CHAPTER 4**

### **SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS**

#### **Summary**

The purpose of this study was to determine (1) the availability of multimedia-related jobs within the central states region, and (2) whether high school business instructors are preparing today's students for careers in multimedia. To determine the availability of multimedia-related jobs within the central states region and whether high school business instructors are preparing today's students for careers in multimedia, a review of related literature was conducted, classified ads in newspapers and on the Internet were analyzed and high school business department chairs in Kansas were surveyed.

The review of literature showed that many businesses are beginning to use a variety of multimedia technologies to complete various projects. These projects range from simple presentations to the most advanced broadcasting and video production.

The literature indicates that there is an optimistic future ahead in multimedia, but there are still a variety of uncertainties. At this point, many small businesses are diving into the area of multimedia production.

One advantage of pursuing a multimedia career is the salary, with salaries being very high for individuals with experience. Excellent career opportunities for some

individuals who are disabled was another advantage, along with the availability of jobs for people who are creative and knowledgeable of multimedia software and hardware. Disadvantages included the limited availability of corporate level multimedia positions, difficulty for independent producers to find jobs/projects, the long hours that sometimes go with an assignment, the crushing deadlines, and the possibility of low pay for those without recognition or experience.

For multimedia jobs, employers specifically look for creative talent with advanced software package knowledge. Employers also want team players, continual learners, organizers, and individuals who can conceptualize ideas and set goals.

Most multimedia opportunities are on the East and West coasts. These jobs are found in larger metropolitan cities.

The literature indicates that many high schools are beginning to dive into multimedia instruction, but employment opportunities for high school students are limited. Due to the increased popularity of multimedia careers, post-secondary education facilities are beginning to offer higher level multimedia courses and programs.

## **Conclusions**

From an analysis of the data collected in this study on advertised positions, both in newspapers and online, the following conclusions were drawn:

1. A majority of the available PowerPoint positions advertised in the newspapers were typically entry-level positions.

2. A majority of the available PowerPoint job openings listed in newspapers required little business related education or no more than a high school business related education.

3. More multimedia-related jobs are available in large cities.

4. A majority of the available jobs online were found in the East and West Coast cities, but very few were located in the central United States. No multimedia jobs were located in Kansas.

5. Most online multimedia-related job openings were in the career fields of engineering, general management, information systems, and sales.

6. More multimedia-related position openings were listed on the Internet than in the classified ads section of newspapers.

From an analysis of the data collected from the survey of high school business department chairs, the following conclusions were drawn:

1. A majority of the respondents include multimedia in their instruction, if PowerPoint is included in the definition.

2. A majority of the business department chairs surveyed believe PowerPoint is the most commonly taught multimedia-related program at the secondary level in Kansas schools.

3. Most business department chairs surveyed stated multimedia or PowerPoint instruction is taught at the high school level, and approximately one-third of the schools teach it at the middle or elementary level as well.

4. A majority of business department chairs surveyed believe multimedia instruction is an important part of education.

5. Twenty-nine percent of the business department chairs expressed they would like to establish a class based solely on multimedia, and 32% stated they already do instruct a multimedia class.

6. Most business department chairs surveyed believe multimedia career opportunities are available within the surrounding communities, and as the school classification sizes become larger, career opportunities in nearby communities become greater.

7. Approximately half of the business department chairs surveyed believe school districts do not spend an adequate amount of funds on professional development.

8. Almost all business department chairs surveyed believe school boards and school administrators in Kansas high schools view technology as a necessity for students.

9. Business department chairs surveyed believe most Kansas major universities, along with a large number of community colleges and vo-techs, have some type of educational training in multimedia or PowerPoint instruction.

10. According to newspaper surveys, the number of actual multimedia job opportunities in Kansas are far fewer than the number of jobs that high school business department chairs believe are available in their communities in Kansas.

## Recommendations

Based on the information gathered from the survey, the following recommendations are being made:

1. All school districts in Kansas should be exposing and instructing a presentation package, such as PowerPoint, Corel Presentations, Claris Works Slide Show, etc. Not only will this provide some technology experience, but it will assist the student with oral and written communications, creativity, problem solving, and planning. For high school graduates, there are entry-level positions available, usually for PowerPoint users, that can be obtained in many businesses of varying sizes in all parts of the country.

2. East and West Coast schools should offer multimedia courses since many of the specialized multimedia opportunities are on the East and West Coasts.

3. Individuals looking for a career in multimedia should also look online for job listings, rather than newspapers only.

4. Business teachers should enlighten students as to the career opportunities available in the multimedia industry since technology will continue to be a major factor in the 21st century. Business teachers must be able to inform students of where multimedia job opportunities are located and whether or not students will have to further their educational studies to obtain these positions.

5. Kansas school districts and administrators should provide adequate money and time for teachers to learn to use multimedia technologies in the classrooms. If teachers are properly trained, students will be able to experience and understand how to use multimedia technologies that are available in today's workplace.

6. Secondary schools in or near larger metropolitan cities in Kansas should instruct multimedia courses because of the career opportunities. Many of the more glamorous and high profile jobs are held in major metropolitan cities, but higher education is usually required.

7. Multimedia course offerings should be based on the actual employment needs of businesses within the state.

8. A survey should be conducted on school boards' and administrators' perceptions of (1) technology instruction as a necessity for students, (2) adequacy of funds being spent to purchase multimedia equipment, and (3) adequacy of time allotted teachers for professional development.



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## APPENDIX A

### Cover Letter to Survey

3017 W. 23rd Terrace  
Lawrence, KS 66047  
September 17, 1999

(Name)  
(School)  
(Address)

Dear Business Educator:

As business instructors we are continually striving to teach our students how to understand and use the latest developments in technology. We do this to better prepare our students for college and tomorrow's workforce. In order to accomplish this goal, we must constantly update our knowledge of the trends that are taking place in the business world. It can be seen that one of the greatest opportunities in career trends lies in the broad area of multimedia.

Enclosed is a brief questionnaire that surveys how high school business instructors are preparing students in the area of multimedia careers. By completing this survey you will provide insight to business teachers as to how your school is incorporating multimedia technologies into the classroom. This information will allow business teachers to compare their curriculum content to that of other schools.

Please take a few minutes to complete and return the questionnaire by October 5, 1999 in the self-addressed stamped envelope. I am mailing this survey to each accredited school in the state of Kansas, in the hopes that I will gain better insight into how business educators are preparing students for careers in multimedia. I plan to compile this information in a research paper I am writing for my Masters.

Your participation in this survey will be greatly appreciated.

Sincerely,

Dawn E. Rottinghaus  
Business/Technology Instructor

Enclosures

## APPENDIX B

### Multimedia in the High School Curriculum Survey



## APPENDIX C

### Follow-up Letter to Business Department Chairs



3017 W. 23rd Terrace  
Lawrence, KS 66047  
October 13, 1999

(Name)  
(School)  
(Address)

Dear Business Educator:

In the middle of September, I sent a letter to the Business Department head of each accredited school in the state of Kansas. This letter requested the completion and mailing by October 20 of an enclosed questionnaire about multimedia instruction at your school.

To date I have received a great number of responses, but in order to compile the most accurate records from the survey, I need to receive a higher percentage of completed surveys.

I realize that you are an extremely busy educator and that it is sometimes easy to forget to fill out a form by a certain deadline. However, your completion of this survey will not only provide insight to business teachers as to how your school is incorporating multimedia technologies into the classroom, but it will allow business teachers to compare their curriculum content to that of other teachers. The findings of this survey will be included in my Master's research paper.

Because of the above reasons, I have enclosed another copy of the questionnaire for you to complete and mail to me in the self-addressed stamped envelope by October 20, 1999. Completion of this survey will assist in providing more accurate findings and a better research recommendation.

Thank you for your participation in this survey. It is greatly appreciated.

Sincerely,

Dawn E. Rottinghaus  
Business/Technology Instructor

Enclosures

APPENDIX D

Copyright Release Letter from Ken Fromm  
for  
Careers in Multimedia  
Published by Vivid Studios

## PERMISSION TO COPY STATEMENT

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Dawn E. Rottinghaus  
Signature of Author

12-9-99  
Date

Career Opportunities in Multimed  
A needs Assessment  
Title of Thesis/Research Project

Dave Cooper  
Signature of Graduate Office Staff

December 15, 1999  
Date Received