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Lynda Ruth Yates Spann
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A study to determine how businesses in the area known as Clark County, Nevada perceive the computer-related skills that high school graduates should possess upon graduation

Spann, Lynda Ruth Yates, M.S.
University of Nevada, Las Vegas, 1990
A STUDY TO DETERMINE HOW BUSINESSES IN THE AREA KNOWN AS CLARK COUNTY, NEVADA PERCEIVE THE COMPUTER RELATED SKILLS THAT HIGH SCHOOL GRADUATES SHOULD POSSESS UPON GRADUATION

by

Lynda Ruth Yates Spann

A thesis submitted in partial fulfillment of the requirements for the degree of

MASTER OF SCIENCE

in

Secondary, Post-Secondary, and Vocational Education

Department of Curricular And Instructional Studies
University of Nevada, Las Vegas

MAY 1990
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UNIVERSITY OF NEVADA, LAS VEGAS

MAY, 1990
ABSTRACT

Spann, Lynda R. Yates: A Study to Determine how local businesses in the area known as Clark County, Nevada perceive the computer related skills that high school graduates should possess upon graduation. Thesis, M.S., 1990, University of Nevada, Las Vegas.

The purpose of the study was to identify (1) what business functions are being performed with computers in the local community of Clark County, Nevada, (2) those entry-level skills required under each of the three major computer applications of word processing, electronic spreadsheet, and data base, (3) the specific "Brand Name" of third party application software programs used in the local business community of Clark County, Nevada.

A questionnaire was mailed to 500 randomly selected businesses, and 141 usable questionnaires were returned. It was determined that 100% of the firms used word processing software; 72% of the firms used electronic spreadsheet software; and 59% used database management software. The respondents rated each skill on a four point scale based on desirability of skill; and rated each skill on a four point scale based on frequency of
use of skill. A calculated mean was then determined for each competency. The highest possible calculated mean a competency could receive was a 4.00 while the lowest possible was 1.00.

The highest calculated mean for word processing received was 3.73 while the lowest calculated mean was 1.99; the highest calculated mean for electronic spreadsheet was 3.76 while the lowest calculated mean was 2.43; and the highest calculated mean for database management was 3.75 while the lowest was 2.93.

It was recommended that those competencies in all three categories receiving a calculated mean of 3.00 or higher should be included in an entry-level high school business education curriculum; while those competencies which received a calculated mean of below 2.99 should be offered in an advanced business education curriculum.
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CHAPTER ONE
INTRODUCTION

The business office of today is vastly different from the business office ten years ago, or even five years ago. Out-of-date office equipment has been replaced by new technologies that require and demand new skills. No longer is a secretary faced with a 10-key adding machine, self-correcting Selectric typewriters, dial phones and copy machines. Today's secretary must face microcomputers; computer terminals; modems; fax machines; hi-speed printers; sophisticated voice/data phone systems; laser printers; scanners; digitizers; and the list goes on and on with new technological innovations constantly on the horizon.

According to a Personal Computing Survey, (Personal Computing, May 1985); between 1981 and 1984 the computer industry saw a seven hundred percent growth in personal computer shipments. The business market boomed in the number of personal computers growing from 300,000 in 1981
to 5.7 million in 1984/85. IBM (International Business Machines) took leadership of the business market from Apple in 1982 and has continued to remain at the top of the business market with approximately forty-two percent of the businesses having IBM's or IBM-compatibles (Personal Computing, October 1986, pp 53-61).

Apple computers comprise the majority of personal computers found on school desks. A Dataquest study quotes that Apple's main strength is in the grade and high schools, where they control fifty-one percent of the market; at the college and university level Apple leads the way with thirty-two percent of the market compared to twenty percent for IBM (Personal Computing, October 1986, pp 53 - 61).

A major responsibility of schools of the future will be to prepare students to enter a rapidly changing job market. If the United States is to continue to compete in the world marketplace, American workers must be better trained than at present. Schools will be responsible for preparing students who are more adaptable and able to respond quickly to the requirements of new technologies.

Looking to the future, by the year 2000, workers' jobs will change dramatically every five to ten years. It will be necessary for schools to train both youth and adults; adults will need to be reeducated and retrained.
when business and industry update operations. Adults will need retraining periodically because each new job will be different from the previous one.

Many advances and changes will occur by the year 2000 that have implications for schools, especially programs in business/computer education. These include technological advances and labor market changes as well as sociological developments.

Business educators are responsible for teaching information processing. For a decade now, they have been defining and developing instructional materials in this microcomputer dominated field. It is time to ask whether current instructional approaches are likely to accomplish the primary goal, employable students who can work independently with computing technology (Ristau, p 25).

Microcomputer technology is transforming many business, professional, and service occupations into more dynamic and productive endeavors. Researchers at the Hudson Institute, in a study completed in 1987, concluded that the jobs of the future will demand much higher skill levels than the jobs of today (Johnston and Packer, 1987).

According to a report released jointly by the United States Department of Labor, United States Department of Education, and United States Department of Commerce, it
was concluded that the gap between what business needs and the qualifications of entry-level workers in technologically oriented workplaces is widening.

Business educators must keep current with the technological changes happening in the business world, to enable students upon graduation to be employable and productive in industry.

STATEMENT OF THE PROBLEM

The problem addressed in this study, was to determine how local businesses in the area known as Clark County, Nevada, perceive the computer related skills that high school graduates should possess upon graduation. The main emphasis of the study was to determine:

1. What computer applications are needed for successful employment in business and industry?
2. What computer skills are performed on the job?
3. What is the frequency of each computer skill used on the job?

A selective review of the literature revealed several similar types of studies that have been performed in various geographical locations throughout the United States. However, none of these studies examined the three major software application programs and analyzed them into specific computer skills that businesses
require; nor did any of the identified studies perform frequency distributions of skills. Most of the studies were of a broader range of questions and not specific to computer applications.

PURPOSES OF THE STUDY

The purposes of the study were:

1. To identify what business functions were being performed with computers in the local community of Clark County, Nevada.

2. To identify those entry-level computer skills by listing the skills required under each of the three major computer applications of word processing, electronic spreadsheet, and database.

3. To identify the specific "Brand Name" of third party application software programs used in the local business community of Clark County, Nevada.

In order to obtain this information, the following questions needed to be answered:

1. What kind of businesses (classified by industrial classification, total number of employees, number of employees utilizing word
processing software, electronic spreadsheet software, data base software) were using computers?

2. What word processing skills/functions would be desirable for entry-level employees?

3. What word processing skills/functions were used most frequently in the business?

4. What electronic spreadsheet skills/functions would be desirable for entry-level employees?

5. What electronic spreadsheet skills/functions were used most frequently in the business?

6. What database skills/functions would be desirable for entry-level employees?

7. What database skills/functions were used most frequently in the business?

8. What software brands were being used for each major computer application?

9. What kind of computer systems were being used and which microcomputer brands were found most frequently?

10. Were Local Area Networks (LAN’s) currently being used by local businesses?

11. What computer languages, if any, were presently being used by local businesses?
OUTCOMES

The study identified the entry-level computer skills needed by the local business community in the three major microcomputer applications (word processing, electronic spreadsheet, and database); as well as the specific "brand names" of software being used in local industry.

The results from the study will be used by the Clark County School District curriculum and instruction department to design a new curriculum for the school district in the area of Computer Applications. The results from the study will also be used by the Clark County School District, Occupational Education division, in compiling a Computer Skill Hierarchy Chart to be incorporated at the Junior High School and the Senior High School level.

DEFINITION OF TERMS

For the purposes of this study, definitions were established for specific terms peculiar to the subject.

They are as follows:

**Computer Education:** A course of study containing information from the disciplines of Business Education.
**Application Software:** Precoded sets of generalized computer instructions that are designed to resolve particular dataprocessing needs. Application software can be divided into five core applications: electronic spreadsheets, word processing, database management, communications and graphics (Duffey, Tim p 65).

**Major Computer Applications:** Those three major software applications identified as word processing, electronic spreadsheet, and database that are most widely used in industry; whether as an individual module or as an integrated package.

**Microcomputer:** The smallest and least expensive of the computers, also known as a personal computer. Built around a microprocessor, these computers have many of the logical capabilities of larger machines. An important characteristic of this computer is its economic price.

**IBM Compatibles:** Those microcomputers which are capable of running under the MS-DOS operating system, and can use all the software packages that were designed to run under the IBM Personal Computer.

**Local Area Network (LAN):** An integrated data communications system of connections and switching capabilities within a limited geographic area, typically a building or department (Smith, Alexander, and Medley, 1986).
Brand Names: The specific name of a third party application software the business is currently utilizing on their computer system to perform certain jobs.

Mainframe Computer: Fully configured computers intended for substantial, high-volume data processing. These computers are characterized by large primary memories that usually exceed several million characters, the ability to execute millions of instructions per second, and the ability to support thousands of online terminals at once (Simkin, 1987).

Mini Computer: Typically multiuser systems with processing speeds and related capabilities that generally exceed those of microcomputers (Simkin, 1987).

LIMITATIONS OF THE STUDY

This was a one time survey performed during a defined time frame for the singular purpose of gathering information regarding the current status of computer skills that would be desirable by the business community of Clark County, Nevada for an entry-level job. There was no planned follow-up to this survey.

Finally, the survey was to be completed by the individual who performed the skills in each of the major computer application areas at that particular place of business surveyed, however, one cannot be sure that the correct individual received and completed the survey.
CHAPTER TWO

OVERVIEW OF LITERATURE

Booker (1987) states, the 1980's will be remembered as the decade during which personal computers (PCs) became essential tools of modern business management. The transition has required difficult choices by educators in business related disciplines. To embrace PC's has meant incurring substantial costs for computer systems, support facilities, software, and curriculum development by businesses. It has meant hoping that the investment in computer systems would pay off in some tangible way before the new computer technology, always looming on the horizon, arrives and makes existing systems obsolete. And, for many business education faculty, it has meant exerting substantial energy in the development of new skills and the search for meaningful ways to integrate PC's into courses.
COMPUTERS IN BUSINESS

Tremendous changes are taking place in the job market. Vaughan (1989) states that fifteen to twenty percent of the current jobs did not exist five years ago. Campbell and Ballenger (1984) predict that by the year 2000 one-third of the work-force in industrialized countries will be teleworking (using telecommunications to link themselves with central work sites); and that one-half of all managers and executives will be using electronic workstations.

The introduction of the microcomputer in the early 1980's has brought about an explosion of computers in the small businesses. Prior to this, computers were limited to large businesses who could afford the luxury of a large mainframe or minicomputer. With the invention of the microprocessor, microcomputers have become available to the masses of small businesses. With this massive infusion of microcomputers into small businesses there has arisen a problem of what software programs should be used.

Small business is defined by the government as firms with fewer than 500 employees, whereas others define them as enterprises with fewer than 100 employees. A recent
Dun and Bradstreet survey found that two-thirds of the three million jobs expected to be generated in 1986 would be created by firms with fewer than 100 employees (Koretz, 1986).

Levin and Rumberger (1986), found in a 1983 report by Schiller, that the lack of specific attention to the education needs of small businesses is especially surprising because it appears that the vast majority of workers obtain their first employment in these firms, even if they later work for larger enterprises. Because a high proportion of workers eventually take jobs in large firms, the quality of their employment experience and training in small enterprises will affect their productivity in large ones as well.

This report addresses the education and training needs of small businesses for using computers in their operations. Although larger firms have used computers extensively for some time, it is only with the advent of the microcomputer that smaller firms have been able to take advantage of computer capabilities. Since 1980 the availability of relatively low-cost microcomputers with substantial performance capabilities and software that is easy to use for productive business applications has led to a virtual explosion in the adoption of computers by small businesses.
In general, there has been a deep concern about the implications for educational policy of the rapid proliferation of computers in the workplace (Levin and Rumberger, 1986). Some national reports have suggested a need for greater technological and computer literacy for the workplace of the future (National Commission on Excellence in Education, 1983; Task Force on Education for Economic Growth, 1983); whereas, others have suggested that the computer skills most workers need can easily be taught on the job to workers with a strong general education (National Academy of Sciences, 1984).

The increased use of computers and advanced office machinery will have an impact on the job market of the future. Many managers, executives, and other workers presently in the work force will need to be retrained to use the technology of today and tomorrow.

Schools today have a tremendous responsibility in educating our youth for the current job market. Schools should not train for specific jobs as in the past but, rather, train students to survive in this technological age and train them with the ability to continue their education beyond high school.
STUDIES ON COMPUTER USAGE IN LOCAL COMMUNITIES

A recent study conducted in Fort Collins, Colorado surveyed seventy-five businesses in the Fort Collins business community to obtain the five top computer skills and the five top general office skills that the local community found important (Dickmann, 1987). The findings showed the following:

1. Keyboarding/typing accuracy, word processing, and keyboard/typing speed skills were computer skills rated as very important to all business types. They should be included and emphasized in business curricula.

2. Spelling/grammar/punctuation skills, proofreading skills, and the ability to operate general office machines were very important to all business types and should be included and emphasized in business curricula.

3. Shorthand/stenographic skills were not rated by businesses as having high importance.

4. Human relations skills were found to be very important to businesses.

5. Personal computer operating systems, spreadsheet, and data base skills are becoming
more important to businesses.

6. Desktop Publishing skills and electronic mail skills were rated as somewhat important to businesses.

The business education department at Carlisle High School, Pennsylvania recently conducted a survey to determine whether the department was adequately preparing students for initial employment in the business world. The results of the survey merely stated that it enabled the department to update their curriculum and equipment that is presently being used, but no specific information was provided (Cantalupi, 1988).

In another study, a national survey (Levin and Rumberger, 1986) was mailed to approximately 10,000 randomly selected members of the NFIB (National Federation of Independent Business), which has a total membership of over half a million businesses, representing roughly one of every ten employers in the United States. A response rate of about twenty-eight percent was received back from which the following statistics were compiled. About forty percent of the respondents had acquired computers and many small businesses were using computers and have invested heavily in hardware and software. This survey also showed that about one-half or more of all firms used computers for
word processing, financial spreadsheets, accounting, or billing; about two-fifths used them for payroll, mailing lists, and inventory.

As a result of the Levin and Rumberger study, was a major concern that small businesses might face difficulties in acquiring employees with adequate skill levels or in training employees to use computers for office applications. On the basis of the responses, it appears that the general education view, that is, that focus should be placed on general educational skills that can enhance learning, is more compelling. Respondents considered reading and comprehension skills and reasoning skills to be very important by 67% and 56%, respectively. In contrast, mathematical skills, prior computer experience, and formal computer training were thought to be important by only 16%, 8%, and 16% of the respondents respectively.

O’Neill and Prarat’s (1982) study found that productive electronic office workers should possess the following competencies:

1. Effective communication skills.
2. Proofreading skills.
3. Information processing skills.
5. Transcription proficiency.
Employers also indicated that workers should have good personal characteristics, accept new technologies, understand the automated office management information system concept, and have the ability to adapt in a machine oriented environment. The study indicated that the development of these proficiencies will equip the office worker with the necessary balance of skills to effectively cope with the real world of work.

In a 1981 survey of 139 respondents, Holley found that office managers anticipated the following seven changes in job requirements:

1. Forty percent of the respondents believed that future job requirements would be upgraded.
2. Forty-eight percent cited the anticipation of a need for better communication skills.
3. Forty-five percent cited a need for an understanding of information processing systems.
4. Fifty-five percent responded that more diversified skills would be needed.
5. Thirty percent cited a need for more data processing training.
6. Twenty-two percent of the respondents cited less need for shorthand.
7. Eighteen percent cited a need for better typing skills.
In judging the importance of selected personal and work characteristics in task performance for business office positions, supervisors indicated that accounting principles, analytical skills, human relations skills, and oral and communications skills were important for entry-level task performance (Olney, 1980).

A report by Lynton and Seldin (1981), indicated that employers preferred the following training for their employees. Basic education received the heaviest emphasis followed by an introduction to business systems and procedures. Next came training in the use of keyboards, coupled with exposure to the range of electronic office equipment with stress on developing the much desired machine orientation. The task force of employers agreed that skills such as flexibility, a readiness to continue learning, and well formed generic basic skills would be needed for the office of the future.

As a result of a study of businesses, Moon (1983) urged business educators to provide an introduction of office technology to all students; to provide hands-on training in word processing, keyboarding, and machine transcription; and to stress the importance of productivity, efficiency, and cost effectiveness at advanced levels of all business courses.
Two studies have been completed concerning the use of computers in the Utah area. Homer (1981) conducted a survey of businesses in the Salt Lake City area to determine the perceived importance of applied data processing instruction in business courses. The target population for the study was all business firms identified in the "Million Dollar Directory" published by Dun & Bradstreet that were located in Bountiful, Draper, Midvale, North Salt Lake, Salt Lake City, and Sandy, Utah. The results of the study indicated that seventy-nine percent of the firms used either minicomputers or microcomputers for business applications. However, the researcher speculated that eighty-five to ninety percent would have indicated they used computers if mainframes had been included in the study. The major business use was determined to be accounting functions. It was not possible to determine the extent of business use of computerized word processing from the study. The conclusion of the study was that "the entire business community surveyed perceived the instruction of applied data processing in business courses to be of major importance or higher" (p. 31).

Dockter (1984) completed a survey of Utah businesses to determine the microcomputer applications in business. The target population for this study was all firms
licensed to do business in the state of Utah. The results of the random sample indicated that approximately twenty-four percent of the firms surveyed used microcomputers to process business information. No effort was made to determine the use of mainframes or minicomputers. The follow-up study of the firms using microcomputers indicated that approximately fifty percent of the respondents worked for firms with ten or fewer employees. Of the various microcomputer applications listed on the survey instrument, file management, word processing, and accounting/financial forms ranked highest in terms of importance.

Peart (1987) conducted a survey of 370 businesses in the service area of Central Wyoming College to identify (1) how extensively computer systems were being used by area businesses, (2) what business functions were being performed and (3) what assistance area business managers may require of their employees in the use of this technology. From this study the following conclusions were derived.

1. Sixty-five percent of the firms surveyed used computers.

2. Twenty-nine percent of the respondents used either a mainframe or minicomputer system.
3. Fifty-three percent of the respondents used microcomputers.

4. IBM was the leading brand with fifty percent of the mainframe/minicomputers identified as IBMs, while seventy-four percent of the microcomputers were IBMs or IBM-compatibles.

5. Word processing, accounting, and database/records management were the most frequently used applications, with approximately two-thirds of the respondents indicating their firm uses these types of applications.

6. Programming and graphics were those applications being performed the least.

CURRICULUM IMPLICATIONS IN BUSINESS EDUCATION

Wood (1985) stresses the fact that we are on a quest, almost unchartered, to modify virtually our entire field of enterprise: our teacher education programs, our equipment laboratories, our text material, our instructional methodology, and the content and structure of most of our courses and programs. The microcomputer, with its wide availability and use in the home, business, industry, government, and education, has launched us into the new century.
The only assurance we have regarding the future of business education is that additional modifications will follow continually, almost in an unending chain. But we are not alone. Every discipline and level within education must deal with the advent of the small computer and the power, problems, and promise that it brings to education.

Because of the rapid infusion of computers into the business office, it is obvious that some changes must take place in the curriculum offerings of business education.

The National Commission on Excellence in Education (United States Department of Education, 1983) recommended that computer science should be taught in all high schools. The teaching of computer science in high school should equip graduates to:

1. Understand the computer as an information, computation, and communication device;

2. Use the computer in the study of the other basics and for personal and work-related purposes; and

3. Understand the world of computers, electronics and related technologies. (p. 26)

Neal (1987) mentions that a recent statement by the Policies Commission for Business and Economic Education
entitled "This We Believe About Computer Literacy" states: "High-quality, affordable computers affect information processing tasks at home, school, and work. It is imperative, therefore, that all students be computer literate" (p. 14).

Several studies and professional publications have tackled the problem of identifying what is computer literacy. Most of these define a computer-literate person as one who can:

1. Understand the computer's capabilities and limitations.
2. Demonstrate a fundamental knowledge of computers and their effects on society.
3. Communicate with others using computer vocabulary.
4. Operate the computer effectively.
5. Access information in the computer.
6. Input information with speed and accuracy using keyboarding skills.
7. Use the computer as a tool for solving problems.

In his book Megatrends, Naisbitt, (1984) lists 10 "megatrends," or broad outlines that he believes will define and shape the new society. He identified the number one megatrend as the shift from an industrial
society to an information society. In the industrial society, the strategic resource was capital. Today, suggests Naisbitt, it is information.

Previous eras have been labeled the Agricultural Age and the Industrial Age. Our new era is often called the Information Age. Therefore, as America moves towards an information society, our students may actually need to go beyond computer literacy skills and demonstrate information literacy skills. Information literacy may be defined as the ability to manage the effective use of information technology and information resources, rather than merely an understanding of computer hardware and software (Neal, 1987).

Egry (1980) states that in order to prepare personnel for entry-level positions in a word processing environment, educators must:

1. Incorporate word processing concepts and terminology into already existing programs, i.e., typing, shorthand, secretarial office procedures, business English, and office management courses;

2. Implement new word processing curricula in order to train initial entry-level workers for this new area of specialized communication services.
Curricula must make provisions which enable future employees to cope with the technological processes they will encounter in the electronic office; therefore, future office workers will need to be technologically literate. Dr. William Roe of Nicholls State University (1985), reported the following as components of technological literacy.

1. Awareness of key processes and governing principles (what it is and how it works).
2. Understanding of essential relationships among key principles and areas of technology.
3. Comfort with basic technological hardware (willingness to use and capability of using tools, machines, and materials).
4. Ability to conceptualize how an unfamiliar technological process or machine operates.
5. Imagination to apply existing technology to new problems or situations.
6. Sense of personal limits (when to call an expert).
7. Familiarity with technology's effects on individuals and society.
8. Ability to evaluate a technological process or
product in terms of personal benefit as a consumer.

9. Ability to choose among technological alternatives in daily life.

10. Insight as to the relationship between careers and the technological future.

11. Ability to project alternative futures based on technological capacities and applications.

12. Knowledge of technological information accessing methods and sources.

According to Jaffe (1982) business educators have a threefold role to play, given the advances currently taking place in business. First, they must provide computer literacy for all current students. Second, they need to re-evaluate their curricula to make certain obsolete skills are deleted and current skills are taught with emphasis on adaptability to change. Third, they must provide retraining in both computer literacy and specific job-related computer skills to the entire population of existing office workers.

SUMMARY OF LITERATURE

The electronic office is rapidly taking hold in our world. In many offices, electronic technology is already
present. Many offices contain word processing centers, reprographics centers, data processing centers, telecommunications centers, and MIS (Management Information Systems) departments. The electronic office does exist in today’s business world. Businesses which do not currently use electronic equipment will one day evolve into an electronic office.

Studies have proven that the computer and changing technologies are with us and are going to continue to dominate the business world. We must prepare our students to be able to adapt to the new technologies that are constantly changing, as well as prepare our students with skills that will enable them to function in today’s electronic office.

Skills that are needed for employment and success in the technological office must be determined. Determinations must be made on the local level, as each geographic area is unique. The findings of this study, as reported in chapter four, supports the fact that determinations of each area should be made. The findings of this study also support results of previous studies as cited within this chapter.
CHAPTER III

METHODS AND PROCEDURES

The purposes of this study were:

1. To identify what business functions were being performed with computers in the local community of Clark County, Nevada.

2. To identify those entry-level computer skills by listing the skills required under each of the three major computer applications of word processing, electronic spreadsheet, and data base.

3. To identify the specific "Brand Names" of third party application software programs used in the local business community of Clark County, Nevada.

The procedures that were followed in selecting the population and sample, developing and testing the questionnaire, collecting the data, and analyzing the data are explained in this chapter.
POPULATION AND SAMPLE

The population for this study included 12,000 businesses located in the area of Clark County, Nevada. Clark County encompasses Las Vegas, Las Vegas townships, Henderson, Boulder City, Indian Springs, Logondale, Mesquite, Glendale, Laughlin, North Las Vegas, and Overton. The businesses included in the population were those businesses which had paid into the State of Nevada unemployment fund. The Center for Research and Development, University of Las Vegas, Nevada utilizes this data base for survey purposes.

This master list of approximately 12,000 businesses is updated every year at the end of January, by the State of Nevada sending an update tape to the Center for Research and Development to replace their existing data base. The population used for this mail-out was updated January, 1989.

SELECTION OF THE SAMPLE

A random sample of 500 businesses were selected from the total population of 12,000 through a computer generated random selection. The random selection was prepared by the Center of Economic Research and Development, University of Las Vegas, Nevada staff and
mailing labels were prepared by the Center for the mail-out at the time businesses were being randomly generated.

**DEVELOPMENT AND TESTING OF THE SURVEY**

A pilot questionnaire was developed to measure the kind of firms using computers, what word processing skills are desirable for entry-level employees, what word processing skills are used the most frequently, what electronic spreadsheet skills are desirable for entry-level employees, what electronic spreadsheet skills are used the most frequently, what database skills are desirable for entry-level employees, what database skills are used the most frequently, the software brands being used, what kind of computer systems are being used and which microcomputer brands are found most frequently, use of Local Area Network, and what computer languages are presently being used.

This questionnaire was reviewed several times; suggestions were given by the Center of Research to refine the instrument and then a field test questionnaire was then mailed to twelve different businesses. The business firms selected, represented each of the twelve classifications listed on the questionnaire, and included firms of all sizes. The person in the firm having the best overall knowledge of computer applications and uses
in the firm was asked to complete the pilot questionnaire and return the questionnaire with any suggestions they had regarding ambiguities contained in the instrument or problems that were encountered in completing the questionnaire.

Six businesses returned the questionnaire, which represented a fifty percent response rate. Of the questionnaires returned no suggestions or comments were received from any of the firms returning the questionnaire. After the pilot questionnaire had been reviewed, a meeting with the Director of Occupational Education for the Clark County School District, his assistant, and the Principal of Southern Nevada Vocational Technical Center met with the researcher for final approval of the instrument prior to mailing out.

The final questionnaire in its entirety (Appendix A) included thirty-four questions. Questions 1, 2, 3, 4, and 5, identified the number of persons employed in the company, the number of people involved in utilizing each specific software application of word processing, electronic spreadsheet, and database, and the type of business represented. Respondents were asked to check one response for each question.

Question 6 asked the respondent to rate twenty-two specific computer skills/functions of word processing
according to the desirability of the skill using a Lickert Scale of 4 = Very Important, 3 = Important, 2 = Limited Importance, and 1 = Not Applicable; a second column asked the respondent to rate the Frequency of Use of each computer skill/function using a Lickert Scale of 4 = Daily, 3 = Weekly, 2 = Monthly, and 1 = Rarely/Never.

Question 7 asked the respondent to identify the brand of word processing software currently being utilized by the company. Questions 8, 9, and 10 related to any other word processing functions that the company rates highly, and whether they would choose the same software package that they currently use or give the name of the software they would change to if given the opportunity.

Questions 11, 12, and 13 asked the respondent to identify the brand of software currently being utilized for electronic spreadsheet; if given the choice would they continue with the same brand or if given the opportunity to change what package would they choose.

Fourteen specific spreadsheet skills/functions were listed on Question 14, and the respondents were asked to check column A for each skill/function that they considered desirable using a Lickert Scale of 4 = Very Important, 3 = Important, 2 = Limited Importance, and 1 = Not Applicable; a second column asked the respondent to rate the Frequency of Use of each skill/function using a
Lickert Scale of 4 = Daily, 3 = Weekly, 2 = Monthly, and 1 = Rarely/Never. Question 15 provided space for the respondent to add any additional skills/functions that they would consider desirable and the frequency of use that particular skill/function.

Question 16 asked the respondent to rate seven specific computer skills/functions of database management according to the desirability of the skills/function using a Lickert Scale of 4 = Very Important, 3 = Important, 2 = Limited Importance, and 1 = Rarely/Never; a second column asked the respondent to rate the Frequency of Use of each skill/function using a Lickert Scale of 4 = Daily, 3 = Weekly, 2 = Monthly, and 1 = Rarely/Never.

Question 17 asked the respondents to identify the brand of software currently being utilized for database management. Question 18 provided space for the respondents to add any additional skills/functions that they would consider desirable and the frequency of use of each skill/function. Question 19, and 20 asked the respondents if they were given a choice would they continue to utilize the same package or if given the opportunity to change packages what would they choose.

Questions 21 and 22 related to the firms utilization of Desktop Publishing and to identify the brand, if any,
of the package currently in use. Questions 23 and 24 related to the firms utilization of Local Area Networks (LAN) and to identify the brand, if any, of the package currently in use.

Questions 25, 26, 27, 28, 29 and 30 were used to identify the type of computer system presently in use; and to identify the brand names of the computers being used in their firm.

Questions 31 and 32 related to the firms utilization of any graphic packages and to identify the brand, if any, of the package currently in use. The last two questions, Question 33 and 34 related to the firms use of in-house programming and maintenance of programs as well as asking the firm to identify the languages being used.

**PROCEDURE OF DATA COLLECTION**

The questionnaire was mailed to 500 firms which had been randomly selected from a total population of 12,000 businesses in the area of Clark County, Nevada. A cover letter (Appendix B), signed jointly by the principal of Southern Nevada Vocational Technical Center and the researcher, identified the purposes of the study and also assured the respondents of the confidentiality of their
response. A pre-addressed, stamped return envelope was included.

Respondents were given three weeks to complete and return the questionnaire. Of the 500 questionnaires sent, 36 were returned because the firms were no longer in business; 30 were returned incomplete because the firm responding was not computerized. A total of 141 usable surveys were completed and returned which represented 32.49% based on an adjusted sample population of 434.

ANALYSIS OF DATA

Each of the 141 returned surveys was reviewed, and all were considered usable for the study. Of the 141 returned surveys, all 141 reported that they used word processing software, 101 reported they used electronic spreadsheets software, and 83 reported they used database management software.

The respondents were asked to rate different software application skills and their frequency of use by using a Lickert Scale as follows:

Desirability Scale: 4 = Very Important, 3 = Important, 2 = Limited Importance, 1 = Not Applicable.

Frequency of Use Scale: 4 = Daily, 3 = Weekly, 2 = Monthly, 1 = Rarely/Never.
For purposes of computing statistical results each rating was assigned a number value. The four-point scale used was:

- Very Important = 4
- Important = 3
- Limited Importance = 2
- Not Applicable = 1
- Daily = 4
- Weekly = 3
- Monthly = 2
- Not Applicable = 1

A calculated mean was then computed for each skill based on desirability and frequency of use by summing the scores obtained from the respondents and dividing by the number of responses. The highest possible calculated mean was 4.00 while the lowest possible calculated mean was 1.00. A calculated mean was then determined for each skill.

**SUMMARY OF METHODS AND PROCEDURES**

A random sample of 500 selected businesses in the area of Clark County, Nevada was generated from the database housed at the Center of Economic Research and Development at the University of Nevada, Las Vegas. Based on the preliminary survey sent to twelve firms, no
revisions were made on the survey instrument. Questionnaires were then mailed to the 500 firms, with a cover letter asking that the survey be directed to the person with the most knowledge in that particular area. No follow-up letters were mailed.

The data obtained from the responses to the questionnaire were compiled through a spreadsheet program and percentages and calculated means were generated for each response.
The purposes of the study were:

1. To identify what business functions were being performed with computers in the local community of Clark County, Nevada.

2. To identify those entry-level computer skills by listing the skills required under each of the three major computer applications of word processing, electronic spreadsheet, and database.

3. To identify the specific "Brand Names" of third party application software programs used in the local business community of Clark County, Nevada.

In order to obtain this information, it was necessary to answer the following questions:

1. What kind of businesses (classified by industrial classification, total number of
employees, number of employees utilizing word processing software, electronic spreadsheet software, database software) were using computers?

2. What word processing skills/functions would be desirable for entry-level employees?

3. What word processing skills/functions were used most frequently in the business?

4. What electronic spreadsheet skills/functions would be desirable for entry-level employees?

5. What electronic spreadsheet skills/functions were used most frequently in the business?

6. What database skills/functions would be desirable for entry-level employees?

7. What database skills/functions were used most frequently in the business?

8. What software brands were being used for each major application?

9. What kind of computer systems were being used and which microcomputer brands were found most frequently?

10. Are Local Area Networks (LAN’s) currently being used by local businesses?

11. What computer languages, if any, were presently being used by local businesses?
The purpose of this chapter is to present descriptive statistics based on the data obtained from the respondents' answers to the questionnaire. The sections of this chapter correspond to the questions listed above.

DEMOGRAPHICS OF RESPONDING FIRMS

Questionnaires were sent to 500 randomly selected businesses in the geographical area of Clark County, Nevada. Thirty-six questionnaires, representing 7.2% were returned due to businesses no longer in business; thirty questionnaires, representing 6%, indicated they were not computerized, therefore were unusable. There were 141 usable questionnaires returned from this sample population representing a 32.49% of usable questionnaires, based on an adjusted sample population of 434. Of the 141 usable questionnaires, 141 or 100% of these used word processing software; 101 or 72% used electronic spreadsheet software; and 83 or 59% used database management software.

The percentage distribution of the responding firms by industrial classification, number of employees in firm, number of employees utilizing word processing equipment/software, number of employees utilizing database software, and number of employees utilizing
electronic spreadsheet software, are presented in Tables 1, 2, 3, 4, and 5 respectively.

**TABLE 1**

**Industrial Classification of Responding Firms**

<table>
<thead>
<tr>
<th>Industrial Classification</th>
<th>Responding Firms</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Service</td>
<td>24</td>
<td>17%</td>
</tr>
<tr>
<td>Wholesale/Manufacturing</td>
<td>22</td>
<td>16%</td>
</tr>
<tr>
<td>Insurance, Real Estate, &amp; Banking</td>
<td>23</td>
<td>16%</td>
</tr>
<tr>
<td>Construction/Engineering</td>
<td>19</td>
<td>13%</td>
</tr>
<tr>
<td>Other&lt;sup&gt;a&lt;/sup&gt;</td>
<td>14</td>
<td>10%</td>
</tr>
<tr>
<td>Legal</td>
<td>14</td>
<td>10%</td>
</tr>
<tr>
<td>Transportation/Utilities</td>
<td>5</td>
<td>4%</td>
</tr>
<tr>
<td>Medical</td>
<td>6</td>
<td>4%</td>
</tr>
<tr>
<td>Hotel/Casino</td>
<td>6</td>
<td>4%</td>
</tr>
<tr>
<td>Government/Education</td>
<td>3</td>
<td>2%</td>
</tr>
<tr>
<td>Retail</td>
<td>3</td>
<td>2%</td>
</tr>
<tr>
<td>Food Industry</td>
<td>2</td>
<td>1%</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>141</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

<sup>a</sup> Other industries included Timeshare, Aircraft Leasing, Aircraft Maintenance, Union, Mining, Mobile Home Sales, Security Guard Alarms, Property Management, and Real Estate Development.
## TABLE 2

Total Number of Employees in Responding Firms

<table>
<thead>
<tr>
<th>Total Number of Employees</th>
<th>Responding Firms</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - 3 employees</td>
<td>29</td>
<td>21%</td>
</tr>
<tr>
<td>4 - 9 employees</td>
<td>43</td>
<td>31%</td>
</tr>
<tr>
<td>10 - 19 employees</td>
<td>17</td>
<td>12%</td>
</tr>
<tr>
<td>20 - 49 employees</td>
<td>16</td>
<td>11%</td>
</tr>
<tr>
<td>50 - 99 employees</td>
<td>20</td>
<td>14%</td>
</tr>
<tr>
<td>100 - 249 employees</td>
<td>6</td>
<td>4%</td>
</tr>
<tr>
<td>250 - 499 employees</td>
<td>6</td>
<td>4%</td>
</tr>
<tr>
<td>500 - 999 employees</td>
<td>2</td>
<td>1.5%</td>
</tr>
<tr>
<td>1000 or more employees</td>
<td>2</td>
<td>1.5%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>141</td>
<td>100.0%</td>
</tr>
<tr>
<td>Number of Employees Using Word Processing</td>
<td>Responding Firms</td>
<td>Percentage</td>
</tr>
<tr>
<td>----------------------------------------</td>
<td>-----------------</td>
<td>------------</td>
</tr>
<tr>
<td>0 - 3 employees</td>
<td>83</td>
<td>59%</td>
</tr>
<tr>
<td>4 - 9 employees</td>
<td>37</td>
<td>26%</td>
</tr>
<tr>
<td>10 - 19 employees</td>
<td>11</td>
<td>8%</td>
</tr>
<tr>
<td>20 - 49 employees</td>
<td>8</td>
<td>5%</td>
</tr>
<tr>
<td>50 - 99 employees</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>100 - 249 employees</td>
<td>1</td>
<td>1%</td>
</tr>
<tr>
<td>250 - 499 employees</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>500 - 999 employees</td>
<td>1</td>
<td>1%</td>
</tr>
<tr>
<td>1000 or more employees</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>141</td>
<td>100%</td>
</tr>
</tbody>
</table>

Of the 141 firms responding, 141 (100%) reported the use of word processing equipment and/or software within their firm.
Table 4

Number of Employees in Responding Firms using Database Software

<table>
<thead>
<tr>
<th>Number of Employees Using Database Software</th>
<th>Responding Firms</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - 3 employees</td>
<td>41</td>
<td>49%</td>
</tr>
<tr>
<td>4 - 9 employees</td>
<td>13</td>
<td>16%</td>
</tr>
<tr>
<td>10 - 19 employees</td>
<td>22</td>
<td>26%</td>
</tr>
<tr>
<td>20 - 49 employees</td>
<td>7</td>
<td>8%</td>
</tr>
<tr>
<td>50 - 99 employees</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>100 - 249 employees</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>250 - 499 employees</td>
<td>1</td>
<td>1%</td>
</tr>
<tr>
<td>500 - 999 employees</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>1000 or more employees</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>83</td>
<td>100%</td>
</tr>
</tbody>
</table>

Of the 141 firms responding, 83 (59%) reported the use of database software within their firm.
### TABLE 5

**Number of Employees in Responding Firms using Electronic Spreadsheet Software**

<table>
<thead>
<tr>
<th>Number of Employees</th>
<th>Responding</th>
<th>Firms</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - 3 employees</td>
<td>61</td>
<td>60%</td>
<td></td>
</tr>
<tr>
<td>4 - 9 employees</td>
<td>28</td>
<td>28%</td>
<td></td>
</tr>
<tr>
<td>10 - 19 employees</td>
<td>7</td>
<td>7%</td>
<td></td>
</tr>
<tr>
<td>20 - 49 employees</td>
<td>3</td>
<td>3%</td>
<td></td>
</tr>
<tr>
<td>50 - 99 employees</td>
<td>1</td>
<td>1%</td>
<td></td>
</tr>
<tr>
<td>100 - 249 employees</td>
<td>0</td>
<td>0%</td>
<td></td>
</tr>
<tr>
<td>250 - 499 employees</td>
<td>1</td>
<td>1%</td>
<td></td>
</tr>
<tr>
<td>500 - 999 employees</td>
<td>0</td>
<td>0%</td>
<td></td>
</tr>
<tr>
<td>1000 or more employees</td>
<td>0</td>
<td>0%</td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>101</td>
<td>100%</td>
<td></td>
</tr>
</tbody>
</table>

Of the 141 firms responding, 101 (72%) reported the use of electronic spreadsheets within their company.
Desirability of Word Processing Skills/Functions of Potential Employees of Responding Firm

Of the 141 responding businesses, 100% reported the use of Word Processing equipment and/or software. The respondents were asked to rate the desirability of specific word processing skills/functions of potential employees. A Likert scale was used to record responses with a scale of 4 = Very Important to 1 = Not Applicable. Table 6 shows the calculated mean response for each specific skill/function.

Keyboarding and accuracy rated the highest of all desirable skills, followed by the ability to create, edit, and print documents. Tabulations, indents, keyboarding and speed, and use of a spell checker all rated very closely. Least desirable of all skills was the utilization of boilerplate text, however with a calculated mean of 1.99 for this skill it would still be considered by most firms as somewhat desirable.

Table 7 shows a breakdown by business category as to the top five word processing skills as rated by each business category. In some instances the skill was tied, this is reflected in the table.
TABLE 6
Desirability Rating of Specific Word Processing Skills/Function of Potential Employees

<table>
<thead>
<tr>
<th>Word Processing Skill/Function</th>
<th>Calculated Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Create, edit, print documents</td>
<td>3.46</td>
</tr>
<tr>
<td>Keyboarding and accuracy</td>
<td>3.73</td>
</tr>
<tr>
<td>Keyboarding and speed</td>
<td>3.29</td>
</tr>
<tr>
<td>Copy/Move (Cut/Paste)</td>
<td>2.84</td>
</tr>
<tr>
<td>Search/Replace</td>
<td>3.06</td>
</tr>
<tr>
<td>Bold/Center/Underline</td>
<td>3.06</td>
</tr>
<tr>
<td>Pagination</td>
<td>2.72</td>
</tr>
<tr>
<td>Dual/Multi Columns</td>
<td>2.75</td>
</tr>
<tr>
<td>Mathematical Functions</td>
<td>2.94</td>
</tr>
<tr>
<td>Mail Merge Function</td>
<td>2.51</td>
</tr>
<tr>
<td>Glossary (Macros)</td>
<td>2.51</td>
</tr>
<tr>
<td>Tabulations/Indents</td>
<td>3.28</td>
</tr>
<tr>
<td>Formats</td>
<td>3.30</td>
</tr>
<tr>
<td>Style Sheets</td>
<td>2.77</td>
</tr>
</tbody>
</table>
TABLE 6 (Continued)

<table>
<thead>
<tr>
<th>Word Processing Skill/Function</th>
<th>Calculated Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Templates</td>
<td>2.27</td>
</tr>
<tr>
<td>Boilerplate Text</td>
<td>1.99</td>
</tr>
<tr>
<td>Hyphenation</td>
<td>2.70</td>
</tr>
<tr>
<td>Use a spell checker</td>
<td>3.26</td>
</tr>
<tr>
<td>Use a Thesaurus</td>
<td>2.94</td>
</tr>
<tr>
<td>Utilize headers/footers</td>
<td>2.95</td>
</tr>
<tr>
<td>Utilize subscripts/superscripts</td>
<td>2.38</td>
</tr>
<tr>
<td>Table of Contents usage</td>
<td>2.29</td>
</tr>
</tbody>
</table>

Several respondents added the following skills to the list:
1. Common Sense
2. Disk/File Management
3. Design/Layout of documents
4. Backup Procedures
<table>
<thead>
<tr>
<th>Business Type</th>
<th>Word Processing Skill</th>
</tr>
</thead>
<tbody>
<tr>
<td>Service</td>
<td>1. Keyboarding and accuracy</td>
</tr>
<tr>
<td></td>
<td>2. Keyboarding and speed</td>
</tr>
<tr>
<td></td>
<td>2. Mail Merge Function</td>
</tr>
<tr>
<td></td>
<td>3. Tabulations/Indents</td>
</tr>
<tr>
<td></td>
<td>3. Use a spell checker</td>
</tr>
<tr>
<td>Legal</td>
<td>1. Create, edit, print</td>
</tr>
<tr>
<td></td>
<td>1. Keyboarding and accuracy</td>
</tr>
<tr>
<td></td>
<td>2. Keyboarding and speed</td>
</tr>
<tr>
<td></td>
<td>2. Copy/Move</td>
</tr>
<tr>
<td></td>
<td>2. Pagination</td>
</tr>
<tr>
<td></td>
<td>2. Tabulations/Indents</td>
</tr>
<tr>
<td></td>
<td>2. Use a spell checker</td>
</tr>
<tr>
<td>Construction/</td>
<td>1. Keyboarding and accuracy</td>
</tr>
<tr>
<td>Engineering</td>
<td>2. Create, edit, print</td>
</tr>
<tr>
<td></td>
<td>2. Keyboarding and speed</td>
</tr>
<tr>
<td></td>
<td>2. Formats</td>
</tr>
<tr>
<td></td>
<td>3. Use a spell checker</td>
</tr>
<tr>
<td>Business Type</td>
<td>Word Processing Skill</td>
</tr>
<tr>
<td>-----------------------</td>
<td>------------------------------------------------------------</td>
</tr>
<tr>
<td>Government/Schools</td>
<td>1. Keyboarding and accuracy</td>
</tr>
<tr>
<td></td>
<td>1. Create, edit, print</td>
</tr>
<tr>
<td></td>
<td>2. Bold, Center, Underline</td>
</tr>
<tr>
<td></td>
<td>3. Mathematical Functions</td>
</tr>
<tr>
<td></td>
<td>3. Use a spell checker</td>
</tr>
<tr>
<td>Wholesale/Manufacturing</td>
<td>1. Keyboarding and accuracy</td>
</tr>
<tr>
<td></td>
<td>1. Create, edit, print</td>
</tr>
<tr>
<td></td>
<td>1. Keyboarding and speed</td>
</tr>
<tr>
<td></td>
<td>2. Search/Replace</td>
</tr>
<tr>
<td></td>
<td>3. Formats</td>
</tr>
<tr>
<td>Transportation/</td>
<td>1. Keyboarding and accuracy</td>
</tr>
<tr>
<td>Utilities</td>
<td>1. Create, edit, print</td>
</tr>
<tr>
<td></td>
<td>2. Keyboarding and speed</td>
</tr>
<tr>
<td></td>
<td>3. Use a spell checker</td>
</tr>
<tr>
<td></td>
<td>4. Copy/Move</td>
</tr>
<tr>
<td>Insurance, Financial,</td>
<td>1. Keyboarding and accuracy</td>
</tr>
<tr>
<td>Real Estate, Banking</td>
<td>2. Create, edit, print</td>
</tr>
<tr>
<td></td>
<td>2. Use a spell checker</td>
</tr>
<tr>
<td></td>
<td>3. Keyboarding and speed</td>
</tr>
<tr>
<td></td>
<td>3. Tabulations/Indents</td>
</tr>
<tr>
<td>Business Type</td>
<td>Word Processing Skill</td>
</tr>
<tr>
<td>--------------------</td>
<td>----------------------------------------</td>
</tr>
<tr>
<td>Medical</td>
<td>1. Keyboarding and accuracy</td>
</tr>
<tr>
<td></td>
<td>1. Keyboarding and speed</td>
</tr>
<tr>
<td></td>
<td>1. Create, edit, print</td>
</tr>
<tr>
<td></td>
<td>2. Use a spell checker</td>
</tr>
<tr>
<td></td>
<td>2. Formats</td>
</tr>
<tr>
<td></td>
<td>2. Tabulations/Indents</td>
</tr>
<tr>
<td>Retail</td>
<td>1. Create, edit, print</td>
</tr>
<tr>
<td></td>
<td>2. Keyboarding and accuracy</td>
</tr>
<tr>
<td></td>
<td>3. Keyboarding and speed</td>
</tr>
<tr>
<td></td>
<td>4. Use a spell checker</td>
</tr>
<tr>
<td></td>
<td>5. Tabulations/Indents</td>
</tr>
<tr>
<td>Hotels/Casinos</td>
<td>1. Create, edit, print</td>
</tr>
<tr>
<td></td>
<td>1. Formats</td>
</tr>
<tr>
<td></td>
<td>1. Use a spell checker</td>
</tr>
<tr>
<td></td>
<td>2. Keyboarding and accuracy</td>
</tr>
<tr>
<td></td>
<td>2. Keyboarding and speed</td>
</tr>
<tr>
<td>Food Industry</td>
<td>1. Create, edit, print</td>
</tr>
<tr>
<td></td>
<td>1. Keyboarding and accuracy</td>
</tr>
<tr>
<td></td>
<td>2. Keyboarding and speed</td>
</tr>
<tr>
<td></td>
<td>4. Search/Replace</td>
</tr>
<tr>
<td></td>
<td>5. Formats</td>
</tr>
</tbody>
</table>
TABLE 7 (Continued)

<table>
<thead>
<tr>
<th>Business Type</th>
<th>Word Processing Skill</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other</td>
<td>1. Keyboarding and accuracy</td>
</tr>
<tr>
<td></td>
<td>2. Use a spell checker</td>
</tr>
<tr>
<td></td>
<td>3. Create, edit, print</td>
</tr>
<tr>
<td></td>
<td>4. Formats</td>
</tr>
<tr>
<td></td>
<td>5. Keyboarding and speed</td>
</tr>
</tbody>
</table>

Frequency of Use of Word Processing Skills/Functions of Potential Employees of Responding Firm

Of the 141 responding businesses, 141 (100%) reported the use of word processing equipment and/or software. The respondents were asked to rate the frequency of use of specific word processing skills/functions of potential employees. A Likert scale was used to record responses with a scale of 4 = Daily, 3 = Weekly, 2 = Monthly, and 1 = Rarely/Never. A combined percentage was used to find the frequency of use for each specific skill. The ratings of daily and weekly were combined; and the ratings of monthly and rarely/never were combined to determine the frequency of use.

Of the 141 responding businesses, 93% rated the use of keyboarding and accuracy on a daily/weekly basis;
followed by 91% for create, edit and print; 89% for keyboarding and speed; with 78% for spell check and 78% for tabs and indents.

Of the 141 responding businesses, 74% rated the use of boilerplate text on a monthly/rarely never basis; followed by 72% for table of contents, and 72% for templates.

Desirability of Electronic Spreadsheet Skills/Functions of Potential Employees of Responding Firm

Of the 141 responding businesses, 101 or 72% reported the use of electronic spreadsheet software. The respondents were asked to rate the desirability of specific electronic spreadsheet skills/functions of potential employees. Table 8 shows the calculated mean for each specific skill/function.

Defining rows and columns, and defining cell and range values rated equally in the desirability of skills with a calculated mean of 3.76 each. The lowest rating of any skill was generate graphic output from a spreadsheet with a calculated mean of 2.43, which would indicate that responding businesses consider all skills for electronic spreadsheet important.
TABLE 8
Desirability Rating of Specific Electronic Spreadsheets
Skills/Functions of Potential Employees

<table>
<thead>
<tr>
<th>Electronic Spreadsheets Skill/Function</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Define rows and columns</td>
<td>3.76</td>
</tr>
<tr>
<td>Define cell and range values</td>
<td>3.76</td>
</tr>
<tr>
<td>Manipulate rows and columns</td>
<td>3.70</td>
</tr>
<tr>
<td>Use delete/copy/move/insert</td>
<td>3.50</td>
</tr>
<tr>
<td>Manipulate cells/range of cells</td>
<td>3.38</td>
</tr>
<tr>
<td>Compute values through formulas</td>
<td>3.49</td>
</tr>
<tr>
<td>Print complete spreadsheets</td>
<td>3.68</td>
</tr>
<tr>
<td>Print selected portions</td>
<td>3.44</td>
</tr>
<tr>
<td>Create and retrieve macros</td>
<td>2.85</td>
</tr>
<tr>
<td>Create templates for future use</td>
<td>2.43</td>
</tr>
<tr>
<td>Link spreadsheets for consolidated reporting</td>
<td>2.77</td>
</tr>
<tr>
<td>Define absolute cell references</td>
<td>2.80</td>
</tr>
<tr>
<td>Define relative cell references</td>
<td>2.71</td>
</tr>
<tr>
<td>Generate graphic output from spreadsheets</td>
<td>2.43</td>
</tr>
</tbody>
</table>

The following skills were also added by respondents:
1. Design and appearance of spreadsheet
2. Ability to import data from other programs
3. Determining formulas for proper output
4. Ability to design financial models
Frequency of Use Rating of Specific Electronic
Spreadsheets Skills/Functions of Potential Employees

Of the 141 responding businesses, 101 (71.63%) reported the use of electronic spreadsheet software. The respondents were asked to rate the frequency of use of specific electronic spreadsheet skills/functions of potential employees. A Likert scale was used to record responses with a scale of 4 = Daily to 1 = Rarely/Never. A combined percentage was used to find the frequency of use of each specific skill. The ratings of daily and weekly were combined; and the ratings of monthly and rarely/never were combined to determine the frequency of use for each skill.

Of the 101 responding businesses utilizing electronic spreadsheets; 81% rated the use of defining rows and columns on a daily/weekly basis; 78% stated printing complete spreadsheets; 77% stated defining cell and range values; while the use of delete/copy/move/insert; compute values through formulas; and manipulate cell/range of cells were all used 73%.

Of the 101 responding businesses utilizing electronic spreadsheets; 72% rated the use of creating templates for future use on a monthly/rarely/never basis.
Desirability of Database Management Skills/Functions of Potential Employees of Responding Firms

Of the 141 responding businesses, 83 or 59% reported the use of database management software. The respondents were asked to rate the desirability of specific database management skills/functions of potential employees. Table 9 shows the calculated mean response for each specific skill/function. All skills rated highly, with a range from a high of 3.75 to a low of 2.93. This would indicate that all database skills are important.

TABLE 9
Desirability Rating of Specific Database Management Skills/Functions of Potential Employees

<table>
<thead>
<tr>
<th>Database Management Skill/Function</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conceptualize and organize a database structure</td>
<td>3.57</td>
</tr>
<tr>
<td>Create a database</td>
<td>3.53</td>
</tr>
<tr>
<td>Add data to a database</td>
<td>3.72</td>
</tr>
<tr>
<td>Edit data in a database</td>
<td>3.58</td>
</tr>
<tr>
<td>Select and retrieve data</td>
<td>3.75</td>
</tr>
<tr>
<td>Design reports for output</td>
<td>3.30</td>
</tr>
<tr>
<td>Modify the structure of a database</td>
<td>2.93</td>
</tr>
</tbody>
</table>
Frequency of Use Rating of Specific Database Management Skills/Functions of Potential Employees

Of the 141 responding businesses, 83 or 59% reported the use of database management software. The respondents were asked to rate the frequency of use of specific database management skills/functions of potential employees. A Likert scale was used to record responses with a scale of 4 = Daily to 1 = Rarely/Never. A combined percentage was used to find the frequency of use of each specific skill. The ratings of daily and weekly were combined and the ratings of monthly and rarely/never were combined to determine the frequency of use for each skill.

Of the 83 responding businesses utilizing database management software, 84% rated the use of selecting and retrieving data on a daily/weekly basis; 81% stated adding data to a database; and 78% stated editing data in a database were the most frequently used skills.

Of the 83 responding businesses utilizing database management software; 59% rated the function of modifying the structure of a database on monthly/rarely never basis and was determined to be the least frequently used skill.
Brand Names of Software Being Used

Respondents were also asked to identify the brand names of each specific application software currently being used. Word Perfect was used by 60% of the firms reportedly using Word Processing software; Lotus 1-2-3 was used by 89% of the firms reportedly using Electronic Spreadsheet software; and DBase III/IV was used by 30% of the firms reportedly using Database Management software.

The most frequently used Word Processing software was Word Perfect and WordStar, with numerous other packages being used on a small scale. Lotus 1-2-3 definitely dominated the Electronic Spreadsheet software with a variety of other packages being used on a limited scale. Although DBase III/IV rated the highest amongst the Database Management software, there were a variety of other packages being used. Brand names of Word Processing software, Electronic Spreadsheet software, and Database Management software, are shown in Tables 10, 11, and 12, respectively. It should be noted that several respondents indicated their firm used more than one brand of software, and consequently these firms were included in more than one category for brand of software.
TABLE 10

Brand Names of Word Processing Applications

Software Currently Being Used

<table>
<thead>
<tr>
<th>Brand Name of Software</th>
<th>Responses</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Word Perfect</td>
<td>84</td>
<td>60%</td>
</tr>
<tr>
<td>WordStar</td>
<td>25</td>
<td>18%</td>
</tr>
<tr>
<td>Others(^b)</td>
<td>11</td>
<td>8%</td>
</tr>
<tr>
<td>Leading Edge W.P.</td>
<td>6</td>
<td>4%</td>
</tr>
<tr>
<td>Word</td>
<td>4</td>
<td>3%</td>
</tr>
<tr>
<td>SmartWare</td>
<td>4</td>
<td>3%</td>
</tr>
<tr>
<td>IBM DisplayWrite</td>
<td>3</td>
<td>2%</td>
</tr>
<tr>
<td>MacWrite</td>
<td>3</td>
<td>2%</td>
</tr>
<tr>
<td>MultiMate</td>
<td>3</td>
<td>2%</td>
</tr>
<tr>
<td>MicroSoft Works</td>
<td>2</td>
<td>1%</td>
</tr>
<tr>
<td>PFS Write</td>
<td>2</td>
<td>1%</td>
</tr>
<tr>
<td>Volkswriter</td>
<td>2</td>
<td>1%</td>
</tr>
</tbody>
</table>

\(^b\) Others include: Q & A Write, PCWrite, Psion, First Choice, Samna, TMSLIB, Xerox, Sony, WordWriter, Superview and CPT.
TABLE 11

Brand Names of Electronic Spreadsheet Applications

Software Currently Being Used

<table>
<thead>
<tr>
<th>Brand Name of Software</th>
<th>Responses</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lotus 1-2-3</td>
<td>90</td>
<td>89%</td>
</tr>
<tr>
<td>Other(^c)</td>
<td>10</td>
<td>10%</td>
</tr>
<tr>
<td>Customized Software</td>
<td>2</td>
<td>2%</td>
</tr>
<tr>
<td>Symphony</td>
<td>2</td>
<td>2%</td>
</tr>
<tr>
<td>SmartWare</td>
<td>2</td>
<td>2%</td>
</tr>
<tr>
<td>MultiPlan</td>
<td>2</td>
<td>2%</td>
</tr>
<tr>
<td>VPPlanner</td>
<td>2</td>
<td>2%</td>
</tr>
</tbody>
</table>

\(^c\) Others include: Microsoft Works, Excel, Psion, Quatro, SuperCalc, SE4/5, SmartWare, Filepro16, Lucid3D, and Abucus.
TABLE 12

Brand Names of Database Management Applications

Software Currently Being Used

<table>
<thead>
<tr>
<th>Brand Name of Software</th>
<th>Responses</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Database III/IV</td>
<td>25</td>
<td>30%</td>
</tr>
<tr>
<td>Fox Base</td>
<td>19</td>
<td>23%</td>
</tr>
<tr>
<td>Customized Software</td>
<td>17</td>
<td>20%</td>
</tr>
<tr>
<td>Other(^d)</td>
<td>12</td>
<td>14%</td>
</tr>
<tr>
<td>Built-in with Word Processing</td>
<td>8</td>
<td>10%</td>
</tr>
<tr>
<td>Twin</td>
<td>3</td>
<td>4%</td>
</tr>
<tr>
<td>MicroSoft Works</td>
<td>3</td>
<td>4%</td>
</tr>
<tr>
<td>MAC</td>
<td>3</td>
<td>4%</td>
</tr>
<tr>
<td>Excel</td>
<td>2</td>
<td>2%</td>
</tr>
<tr>
<td>Language as a Database</td>
<td>2</td>
<td>2%</td>
</tr>
</tbody>
</table>

\(^d\) Others include: WestLaw, PFSFile, PCFile, SmartWare, Filepro, Psion, Reflex, TIMS, Paradox, RBase, First Choice, and Q & A.
Satisfaction of Current Software Applications

The respondents were asked, if they were given a choice to choose an application software package today, would they stay with the same package their firm was currently using or would they choose a different package.

Of the 141 respondents for word processing 106 or 75% stated that they were satisfied with their current word processing software and would not change.

Of the remaining 35 respondents or 25% that stated they were dissatisfied; 19 or 13% of the total respondents responded that they would switch to Word Perfect if given the choice; 14 or 10% wanted to change but didn’t know what to; 1 or 1% wanted to change to MacWrite, and 1 or 1% wanted to change to Word.

Of the 141 respondents, 101 respondents used electronic spreadsheets 90 or 89% stated that they were satisfied with their current spreadsheet software and would not change.

Of the remaining 11 respondents or 11% that stated they were dissatisfied, 4 or 4% wanted to change to Lotus 1-2-3; 5 or 5% wanted to change but didn’t know what to; and 2 or 2% wanted to change to the MacIntosh spreadsheet.

Of the 141 respondents, 83 respondents used database management software, 73 or 88% stated that they were
satisfied with their current database management software and would not change.

Of the remaining 10 respondents or 12% that stated they were dissatisfied; 8 or 10% wanted to change but didn’t know what to; 1 or 1% wanted to change to DBase III; and 1 or 1% wanted to change to the MacIntosh database.

It would imply by these percentages that the majority of companies are satisfied with their software in the three major areas of word processing, electronic spreadsheets, and database management.

Use of Desktop Publishing Software

The respondents were asked to indicate whether or not their firm used any type of Desktop Publishing Software; and if their firm did use this type of software, they were asked to identify the brand or type of software currently being utilized. Of the firms responding 114 (81%) indicated that they did not utilize this type of software, and 27 (19%) indicated that they did utilize some form of desktop publishing. Respondents were also asked to identify the specific brand of software being utilized for this application. As shown in Table 13 Aldus Pagemaker was the most frequently utilized software for the purpose of desktop publishing.
TABLE 13

Desktop Publishing Software Being Used

<table>
<thead>
<tr>
<th>Brand of Software</th>
<th>Responding Firms</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aldus PageMaker</td>
<td>19</td>
<td>70%</td>
</tr>
<tr>
<td>Word Perfect</td>
<td>5</td>
<td>19%</td>
</tr>
<tr>
<td>Ventura Publishing</td>
<td>2</td>
<td>7%</td>
</tr>
<tr>
<td>First Publisher</td>
<td>1</td>
<td>4%</td>
</tr>
</tbody>
</table>

Use of Local Area Networks (LANs)

The respondents were asked to indicate whether or not their firm utilized a Local Area Network (LAN) to enable the computers within their firm to communicate with one another. Of the 141 respondents reporting the use of computers, 24 indicated that they did use a LAN, which is 17% of the responding firms. Novelle clearly dominated the brand of software being used, with 18 of the responding firms (75%) indicating they used Novelle. The other 6 responding firms (25%) used a variety including Lantastics, Visinet, CBS, Archnet, Ethernet, and Hewlett Packards software.
Kinds of Computer Systems Being Used

Of the 141 responding firms, 141 (100%) reported the use of computers. As stated earlier, thirty firms returned their questionnaires, but they had not completed the questionnaire because their firm did not utilize any type of computer, therefore, these questionnaires were not taken into consideration for any of the statistical reporting, hence the 100% of responding firms utilize computers.

After the list was compiled of the brand names identified for the mainframes, minicomputers, and microcomputers, discrepancies were observed. In two cases, the same computer was listed on one questionnaire as a mainframe and on another questionnaire as a minicomputer. This discrepancy was resolved by identifying the model number of the computer and then contacting the local dealer as to which classification that particular model should be placed.

Sixteen respondents (11%) reported the use of a mainframe and 22 respondents (16%) reported the use of a minicomputer, while all 141 respondents (100%) reported the use of microcomputers. Of the 141 respondents reporting the use of microcomputers, 136 (96%) indicated they used IBM or IBM compatibles, 19 (13%) indicated they used MacIntoshs, 10 (7%) indicated they used Apple or
Apple compatibles, and 4 (3%) indicated they used a brand not compatible with either IBM or Apple. It should be noted that several respondents indicated their firm used more than one microcomputer, and consequently these firms were included in more than one category. Respondents were asked to identify the brand names of the mainframe, minicomputers and microcomputers they used, these are shown in tables 14, 15, and 16 respectively. IBM definitely dominated the market in all three classifications of computers. Of those firms that utilized mainframes and minicomputers they all specified that their company utilized microcomputers as well.

TABLE 14

Brand Name of Most Frequently Used Mainframe, Within the Firm

<table>
<thead>
<tr>
<th>Brand Name</th>
<th>Total Number of Units in Use</th>
<th>Percentage of Firms Reporting Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>IBM</td>
<td>6</td>
<td>38%</td>
</tr>
<tr>
<td>Texas Instruments</td>
<td>2</td>
<td>12.5%</td>
</tr>
<tr>
<td>Hewlett Packard</td>
<td>2</td>
<td>12.5%</td>
</tr>
<tr>
<td>Digital (DEC)</td>
<td>2</td>
<td>12.5%</td>
</tr>
<tr>
<td>Timeshare</td>
<td>2</td>
<td>12.5%</td>
</tr>
<tr>
<td>CBS</td>
<td>1</td>
<td>6%</td>
</tr>
<tr>
<td>ITT</td>
<td>1</td>
<td>6%</td>
</tr>
</tbody>
</table>
TABLE 15

Brand Name of Most Frequently Used Minicomputers,
Within the Firm

<table>
<thead>
<tr>
<th>Brand Name</th>
<th>Total Number of Units in Use</th>
<th>Percentage of Firms Reporting Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>IBM</td>
<td>8</td>
<td>36%</td>
</tr>
<tr>
<td>Digital (DEC)</td>
<td>7</td>
<td>32%</td>
</tr>
<tr>
<td>Texas Instruments</td>
<td>4</td>
<td>18%</td>
</tr>
<tr>
<td>Hewlett Packard</td>
<td>2</td>
<td>9%</td>
</tr>
<tr>
<td>ITT</td>
<td>1</td>
<td>5%</td>
</tr>
</tbody>
</table>
TABLE 16

Brand Name of Most Frequently Used Microcomputers, Within the Firm

<table>
<thead>
<tr>
<th>Brand Name</th>
<th>Total Number of Units in Use</th>
<th>Percentage of Firms Reporting Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>IBM &amp; IBM Compatibles$^e$</td>
<td>136</td>
<td>96%</td>
</tr>
<tr>
<td>MacIntosh</td>
<td>19</td>
<td>13%</td>
</tr>
<tr>
<td>Apple</td>
<td>10</td>
<td>7%</td>
</tr>
<tr>
<td>Others</td>
<td>4</td>
<td>3%</td>
</tr>
</tbody>
</table>

$^e$ Compatibles included a variety of brand names including Leading Edge, Compac, Epson, NEC, Kaypro, Televideo, Samsung, Talbott, Casper, Acer, CCI, Hyundai, AST, Zenith, ITT, Dell, and generic clones.
Use of Graphic Software for Displaying Output

Respondents were asked whether their firm utilized any type of graphic package for displaying data output. Of the 141 responding firms 101 (72%) indicated that they did not utilize any type of graphic package; and 40 responding firms (28%) indicated that they utilized some type of graphic package for producing graphics. Respondents were also asked to specify the brand of software they utilized for this. As shown in Table 17, the CAD (Computer Aided Design) packages were the most frequently used for graphic output.

TABLE 17
Graphic Software Being Used

<table>
<thead>
<tr>
<th>Brand Name</th>
<th>Responding Firms</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAD Applications</td>
<td>17</td>
<td>42.5%</td>
</tr>
<tr>
<td>Lotus Graphics</td>
<td>13</td>
<td>32.5%</td>
</tr>
<tr>
<td>Harvard Graphics</td>
<td>8</td>
<td>20%</td>
</tr>
<tr>
<td>Smartware</td>
<td>2</td>
<td>5%</td>
</tr>
</tbody>
</table>
In-house Programming and Types of Computer Languages used In-house

Finally respondents were asked to state whether or not their firm did any in-house programming or maintenance of programs. Of the 141 responding firms 96 firms (68%) stated that they did not perform any in-house programming or maintenance of programs, while 45 firms (32%) stated that they did perform in-house programming.

Of the 45 firms responding that they performed in-house programming, Table 18 shows that a variety of languages are being used by these firms. Almost all companies listed more than one language and this is reflected in the table. Several companies identified database management software as their language and these were all classified under databases. The BASIC language was used by 58% of the respondents; and COBAL and RPG II/III were used 31% each by the responding firms.
<table>
<thead>
<tr>
<th>Language</th>
<th>Percentage of Responding Firms</th>
</tr>
</thead>
<tbody>
<tr>
<td>BASIC</td>
<td>58%</td>
</tr>
<tr>
<td>COBOL</td>
<td>31%</td>
</tr>
<tr>
<td>RPG II/III</td>
<td>31%</td>
</tr>
<tr>
<td>DataBases</td>
<td>27%</td>
</tr>
<tr>
<td>Assembler</td>
<td>18%</td>
</tr>
<tr>
<td>&quot;C&quot;</td>
<td>11%</td>
</tr>
<tr>
<td>Pascal</td>
<td>9%</td>
</tr>
<tr>
<td>LISP</td>
<td>4%</td>
</tr>
<tr>
<td>HyperCard</td>
<td>2%</td>
</tr>
</tbody>
</table>
CHAPTER V
SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

The purposes of this chapter are to summarize the procedures followed for this study, to present the findings of the study along with the associated conclusions made by the researcher, and to make recommendations based on the findings and conclusions of this report.

SUMMARY

The purposes of this study were to identify (1) what business functions were being performed with computers in the local community of Clark County, Nevada, (2) what entry-level skills were required for each of the three major software applications of word processing, electronic spreadsheet, and database management, and (3) what specific "brand name" of third party application software programs were used by businesses in the local community of Clark County, Nevada.
Information for this study was obtained through the use of questionnaires sent to 500 randomly selected businesses located in Clark County, Nevada. These businesses were taken from a master database of 12,000 businesses who had paid into the State Unemployment fund for the period 1988. There were 141 usable questionnaires upon which this study is based.

Types of Computer Usage and Extent of Computer Usage

Word processing, electronic spreadsheet, and database management were the most frequently used applications, with approximately 60% of the respondents indicating their firm uses all three applications. One hundred percent of the respondents indicated their firm used word processing; 72% of the respondents indicated their firm used electronic spreadsheets; and 59% of the respondents indicated their firm used database management software. Desktop Publishing, Graphics, and Programming were those applications being performed the least.

It was determined that 141 (100%) of the responding firms currently use computers. Thirty firms replied that they did not utilize computers and these firms were not included in any statistical data. Sixteen respondents (11%) reported their firm used a mainframe computer
system, twenty-two respondents (16%) reported their firm used a minicomputer system, and 141 respondents (100%) reported the use of microcomputers.

IBM is the leading brand of computers being used. Thirty-eight percent of the mainframe computers, and thirty-six percent of the minicomputers were identified as IBMs, while ninety-six percent of the microcomputers were IBMs or IBM-compatible computers.

Of the 141 respondents reporting the use of computers, 24 indicated that they did use a Local Area Network (LAN). Novelle, clearly dominated the brand of LAN software being used with 18 of the responding firms (75%) indicating they use Novelle.

Forty of the respondents (28%) reported their firm used some type of graphic package for displaying output data. Of the 40 respondents 25 (62.5%) used some type of CAD (Computer Aided Design) software.

Entry-Level Skills of Potential Employees Classified by Application Software

Respondents were asked to rate specific skills/functions as to each of the major application software, as to the desirability of the skill and as to the frequency of use of the skill.
Under word processing skills, the most desirable skill was keyboarding and accuracy with 76% of respondents rating it as very important. Sixty-three percent of respondents rated create, edit, print documents as very important; 60% of respondents rated formats as very important; and 59% rated use of a spell checker as very important. The least desirable skill was boilerplate text with 10% of the respondents rating this as very important; and 16% of respondents rated templates as very important.

For frequency of use under word processing the most frequently used skill was keyboarding and accuracy used by 93% of the respondents on a combined daily and weekly basis. Ninety-one percent of the respondents used create, edit, print documents, 89% of the respondents used keyboard and speed; and use of spell checker and tabulations both were used on a 78% use rate. The least frequently used skill was that of boilerplate text which was rated by 26% of the respondents followed by templates with a 28% use rate based on a combined daily and weekly basis.

Under electronic spreadsheet skills, 84% of the respondents rated define cell and range values as very important; 80% rated define rows and columns as very important; 75% rated manipulate rows and columns as very
important; and 74% rated print complete spreadsheets as very important. The least desirable skill was create templates for future use with 24% of respondents rating this skill as very important; 28% of respondents rated create and retrieve macros, and define absolute cell references as very important.

For frequency of use under electronic spreadsheets skills 81% of respondents on a combined daily and weekly basis used define rows and columns; 78% of respondents used print complete spreadsheets; 77% of respondents used define cell and range values; and 74% used manipulate rows and columns. The least frequently used skill was that of create templates for future use with a 28% use rate based on a combined daily and weekly basis; followed by 31% use rate for define relative cell references.

Under database management skills, 77% of the respondents rated select and retrieve data as very important; 73% rated add data to a database as very important; and 71% rated conceptualize and organize a database structure as very important. The least desirable skill was modify the structure of a database with 46% of respondents rating it as very important.

For frequency of use under database management skills, 84% of respondents on a combined daily and weekly basis used select and retrieve data; 81% of respondents
used add data to a database; and 78% used edit data in a database. The least frequently used skill was that of modify the structure of a database with a 20% use rate based on a combined daily and weekly basis.

**Specific Brands of Software**

Respondents were asked to indicate the brand name of software that their firm uses to perform word processing, electronic spreadsheets, and database management skills. Word Perfect software was used by 60% of the respondents and 18% of the respondents used WordStar. Seventy-five percent of the respondents stated that they were satisfied with their current software and would not change. Of the 25% that stated they were dissatisfied with their word processing software, 13% stated that they would change to Word Perfect if given the choice.

Eighty-nine percent of the respondents indicated that they use Lotus 1-2-3 to perform electronic spreadsheet functions. Eighty-nine percent of the respondents also indicated that they were satisfied with their current software and would not change. Of the 11% that stated they were dissatisfied with their electronic spreadsheet software, 4% stated that they would change to Lotus 1-2-3 if given the choice.
There were a variety of database management programs being used in the area of Clark County, Nevada. No one program was dominant. Thirty percent of respondents used DBase III/IV; 23% used Fox Base; 20% used Customized Software; and the remaining respondents used a wide variety of programs. Even though there was a wide variety of database management programs being used, 88% of the respondents stated that they were satisfied with their current software.

CONCLUSIONS

On the basis of the data presented in the study, the following conclusions appear warranted:

1. Computers are being used on an extensive basis in the area of Clark County, Nevada.

2. IBM is the dominant brand name of computers for mainframes, minicomputers, and microcomputers being used in the area.

3. Word Perfect and WordStar are the main word processing packages being used in the area.

4. Lotus 1-2-3 is the main electronic spreadsheet program being used in the area.

5. DBase III/IV, Fox Base and customized database software are the main database programs being used in the area.
6. Word processing skills found to be the most desirable for potential entry-level employees are:
   i. Keyboarding and accuracy
   ii. Create, edit, print documents
   iii. Formats
   iv. Keyboarding and speed
   v. Tabulations and indents
   vi. Use a spell checker

7. Word processing skills used the most frequently for potential entry-level employees are:
   i. Keyboarding and accuracy
   ii. Create, edit, print documents
   iii. Keyboarding and speed
   iv. Use a spell checker
   v. Tabulations and indents
   vi. Formats

8. Electronic spreadsheet skills found to be the most desirable for potential entry-level employees are:
   i. Define cell and range values
   ii. Define rows and columns
   iii. Manipulate rows and columns
   iv. Print complete spreadsheets
9. Electronic spreadsheet skills used the most frequently for potential entry-level employees are:
   i. Define rows and columns
   ii. Print complete spreadsheets
   iii. Define cell and range values
   iv. Manipulate rows and columns

10. Database management skills found to be the most desirable for potential entry-level employees are:
    i. Select and retrieve data
    ii. Add data to a database
    iii. Edit data in a database

11. Database management skills used the most frequently for potential entry-level employees are:
    i. Select and retrieve data
    ii. Add data to a database
    iii. Edit data in a database

12. Businesses in the Clark County area are satisfied with their current brand of software for word processing, electronic spreadsheet, and database management programs.

13. A limited number of firms in the area are utilizing some form of Desktop Publishing.
14. A limited number of firms in the area have their computer system networked through a LAN.

15. Graphic software is strong in the specialized field of CAD in this area.

16. Approximately one-third of respondents in the area use some type of language for in-house programming or maintenance of programs.

**RECOMMENDATIONS**

The following recommendations are based upon the findings and conclusions of the study:

1. IBM or IBM compatible computers should be the type of computers used in business education by high schools in the Clark County School District, since the majority of the area businesses are using that brand.

2. Curriculum in the area of computer applications should stress the training on specific software: Word Perfect and Word Star for word processing; and Lotus 1-2-3 for electronic spreadsheets.

3. Curriculum in the area of database management should stress a thorough understanding of the
concepts of a database structure, so that students can adapt easily to any software package.

4. Desktop Publishing should be included in the curriculum on a limited basis.

5. Graphic programs for data output should be included in the curriculum on a limited basis.

6. Programming languages should continue to be offered as a separate course from Computer Applications.

Recommended Course of Study

Listed on page 83 were those word processing skills which received calculated means of 3.00 or higher. It was the writer's opinion that all of the skills listed on page 83 were considered necessary for successful entry-level employment within the field of word processing and, therefore, should be included in a basic word processing unit.

Listed on page 84 were those word processing skills which received calculated means of 2.00 or higher. It was the writer's opinion that all of the skills listed on page 84 were considered necessary for an advanced unit in word processing.
RECOMMENDED BASIC COURSE OF STUDY IN
WORD PROCESSING SKILLS
FOR A HIGH SCHOOL BUSINESS EDUCATION PROGRAM

Includes all Skills/Functions with a
Calculated Mean of 3.00 or higher

Keyboarding and Accuracy
Create, Edit, Print Documents
Formats
Keyboarding and Speed
Tabulations and Indents
Use a Spell Checker
Bold, Center, Underline
Search and Replace
RECOMMENDED ADVANCED COURSE OF STUDY IN
WORD PROCESSING SKILLS
FOR A HIGH SCHOOL BUSINESS EDUCATION PROGRAM

Includes all Skills/Functions with a
Calculated Mean Between 2.00 and 2.99

Headers and Footers
Use a Thesaurus
Mathematical Functions
Copy/Move (Cut/Paste)
Style Sheets
Dual/Multi Columns
Pagination
Hyphenation
Mail Merge Function
Glossary (Macros)
Subscript and Superscripts
Table of Contents
Templates
Boilerplates (if time permits)
Only one skill (boilerplates) received a calculated mean of below 2.00. This skill could be included in an advanced word processing unit if time permits.

Listed on page 86 were those electronic spreadsheet skills which received calculated means of 3.00 or higher. It was the writer’s opinion that all of the skills listed on page 87 were considered necessary for successful entry-level employment within the field of electronic spreadsheets and, therefore, should be included in a basic unit on electronic spreadsheets.

Listed on page 87 were those electronic spreadsheet skills which received calculated means of 2.00 or higher. It was the writer’s opinion that all of the skills listed on page 88 were considered necessary for an advanced unit in electronic spreadsheets.

No skills received a calculated mean of below 2.00, therefore all skills would be included in either a basic or an advanced unit on electronic spreadsheets.

Listed on page 88 were those database management skills which received calculated means of 3.00 or higher. It was the writer’s opinion that all of the skills listed on page 88 were considered necessary for successful entry-level employment within the field of database management and, therefore, should be included in a basic unit on database management.
RECOMMENDED BASIC COURSE OF STUDY IN
ELECTRONIC SPREADSHEET SKILLS
FOR A HIGH SCHOOL BUSINESS EDUCATION PROGRAM

Includes all Skills/Functions with a
Calculated Mean of 3.00 or higher

Define cell and range values
Define rows and columns
Manipulate rows and columns
Print complete spreadsheets
Delete/Copy/Move/Insert
Compute values through formulas
Print selected portions of spreadsheets
Manipulate cells/range of cells
RECOMMENDED ADVANCED COURSE OF STUDY IN ELECTRONIC SPREADSHEET SKILLS FOR A HIGH SCHOOL BUSINESS EDUCATION PROGRAM

Includes all Skills/Functions with a Calculated Mean Between 2.00 and 2.99

Create and retrieve macros
Define absolute cell references
Link spreadsheets for consolidated reporting
Generate graphic output from spreadsheets
Define relative cell references
Create templates for future use
RECOMMENDED BASIC COURSE OF STUDY IN
DATABASE MANAGEMENT SKILLS
FOR A HIGH SCHOOL BUSINESS EDUCATION PROGRAM

Includes all Skills/Functions with a
Calculated Mean of 3.00 or higher

Select and retrieve data
Add data to a database
Edit data in a database
Conceptualize and organize a database structure
Create a database
Design reports for output
Only one skill (modify the structure of a database) received a calculated mean of less than 3.00, therefore it is the recommendation of the writer that this skill be incorporated in an advanced unit on database management, along with the skills of conceptualize and organize a database structure and create a database as listed on page 90. As these skills involve a higher cognitive level of learning, an advanced course in database management would involve the higher taxonomies of Analysis, Synthesis, and Evaluation.

Additional Recommendations

1. The information provided by this survey should be made available to all secondary education business teachers and to the curriculum department of the Clark County School District. Teachers and curriculum planners must be made aware of the relative importance of the entry-level computer application skills desired by the local business community.

2. Secondary teachers and counselors should use the results of this study to guide students who want to enter a particular business with entry-level skills.
RECOMMENDED ADVANCED COURSE OF STUDY IN
DATABASE MANAGEMENT SKILLS
FOR A HIGH SCHOOL BUSINESS EDUCATION PROGRAM

Includes all Skills/Functions with a
Calculated Mean Between 2.00 and 2.99

Conceptualize and organize a database structure**
Create a database**
Design reports for output**
Modify the structure of a database

** Due to the nature of these skills, the basic
foundation could be acquired through a basic unit.
However, for the student to become proficient in
these skills a more indepth study involving the
taxonomies of Analysis, Synthesis, and Evaluation
would be introduced in an advanced unit of database
management skills.
3. Business teachers instructing in Computer Applications should conduct local mini-surveys similar to the one conducted in this study. This would help the teacher ascertain local computer needs and thus further improve their curricular content.

4. Business teachers instructing in Computer Applications should strive to base their instruction as much as possible upon those skills actually identified as necessary for successful entry-level employment within the various business classifications. This could result in (a) greater student interest and participation by providing instruction which is realistic and relevant to student needs, and (b) the accomplishment of one of the basic goals of vocational education which is to prepare students for successful employment when the training program is completed.

5. A certificate should be offered in all three applications which would state that the student has achieved the basic requirements for an entry-level position. An advanced certificate should also be offered to those students who can accomplish a higher degree of learning than
that of entry-level. This would not only be an indicator to the potential employer, but would possibly motivate a large number of students to strive for a higher goal.

6. All business education departments in the Clark County School District should be surveyed as to the brand of software upon which they are currently instructing word processing and electronic spreadsheet. If a discrepancy exits as to what is being used and what industry is using, then the school district should make necessary changes to ensure that all business departments instruct according to the needs of the local industry.

7. Business educators should start planning for future instruction in Desktop Publishing and training in Local Area Networks (LANs).
APPENDIXES
APPENDIX A:

QUESTIONNAIRE
31. Does your firm utilize any type of graphic package for displaying data output?
   □ Yes   □ No

32. If YES to question #31 please identify brand/type:

33. Does your firm do any in-house programming or maintenance of programs?
   □ Yes   □ No

34. If YES to question #33 please list all the languages that your company uses.

ADDITIONAL COMMENTS:

I request a copy of the results of this survey

Name: __________________________
Address: ________________________
Zip: ________

---

CLARK COUNTY SCHOOL DISTRICT
CURRICULUM INSTRUCTIONAL SERVICES

The Las Vegas Business Perspective:
A Survey of Las Vegas Businesses

The Curriculum Instructional Services at the Clark County School District, Las Vegas, Nevada, in their search for "Excellence in Education", has prepared a survey for the Las Vegas business community to determine the Computer Skills and Applications that should be included in our curriculum at the high school level, to better prepare our students upon graduation from our high schools.

Would you please help us by completing this questionnaire? A self-addressed envelope is enclosed for return mailing. If you wish to comment on any question or qualify your answers, please feel free to use the space in the margins. If you would like a copy of the results of this survey please indicate on the box on the back page under "additional comments".

Your comments will be read and taken into account.

Thank you for your help.

---

Thank you for your time and cooperation
Please return to the CCSD in the self-addressed Pre-paid Envelope

---

CLARK COUNTY SCHOOL DISTRICT
Southern Nevada Technical Center
5710 Mountain Vista
Las Vegas, Nevada 89120
Attention: Lynda Spann, Business Department
GENERAL COMPANY INFORMATION:

1. The number of persons presently employed by your company in Southern Nevada is:

   - [ ] 0 - 3
   - [ ] 4 - 9
   - [ ] 10 - 19
   - [ ] 20 - 49
   - [ ] 50 - 99
   - [ ] 100 - 249
   - [ ] 250 - 499
   - [ ] 500 - 999
   - [ ] 1000 or more

2. How many employees in your business utilizing word processing equipment/software?
   (Include owners)

   - [ ] 0 - 3
   - [ ] 4 - 9
   - [ ] 10 - 19
   - [ ] 20 - 49
   - [ ] 50 - 99
   - [ ] 100 - 249
   - [ ] 250 - 499
   - [ ] 500 - 999
   - [ ] 1000 or more

3. Total number of employees in your business utilizing data base software?
   (Include owners)

   - [ ] 0 - 3
   - [ ] 4 - 9
   - [ ] 10 - 19
   - [ ] 20 - 49
   - [ ] 50 - 99
   - [ ] 100 - 249
   - [ ] 250 - 499
   - [ ] 500 - 999
   - [ ] 1000 or more

4. Total number of employees in your business utilizing electronic spreadsheet software?
   (Include owners)

   - [ ] 0 - 3
   - [ ] 4 - 9
   - [ ] 10 - 19
   - [ ] 20 - 49
   - [ ] 50 - 99
   - [ ] 100 - 249
   - [ ] 250 - 499
   - [ ] 500 - 999
   - [ ] 1000 or more

5. Please indicate what type of business your firm is.

   - [ ] Legal
   - [ ] Service
   - [ ] Construction, Engineering
   - [ ] Government, Education
   - [ ] Wholesale, Manufacturing
   - [ ] Transportation, Utilities
   - [ ] Insurance, Real Estate, Financial
   - [ ] Medical
   - [ ] Banking
   - [ ] Retail
   - [ ] Hotel/Casino
   - [ ] Food Industry
   - [ ] Other (Please specify)

COMPANY NAME: ____________________________

DATE: ____________________________

GENERAL

21. Does your firm utilize any type of Desktop Publishing Software?

   - [ ] Yes
   - [ ] No

22. If YES to question #21 what brand/type do you use?

   ________________________________________

23. Does your firm utilize a Local Area Network (LAN) to enable the computers within your firm to communicate with one another?

   - [ ] Yes
   - [ ] No

24. If YES to question #23 what brand/type do you use?

   ________________________________________

25. Does your firm utilize a mainframe computer system?

   - [ ] Yes
   - [ ] No

26. If YES to question #25 please identify brand(s).

   ________________________________________

27. Does your firm utilize a minicomputer system?

   - [ ] Yes
   - [ ] No

28. If YES to question #27 please identify brand(s).

   ________________________________________

29. Does your firm utilize microcomputers (p.c.)?

   - [ ] Yes
   - [ ] No

30. If YES to question #29 are your microcomputers: (check all that apply).

   - [ ] IBM or IBM compatible
   - [ ] Apple or Apple compatible
   - [ ] MacIntosh
   - [ ] Other

   Brand: ____________________________

   Brand: ____________________________

   Brand: ____________________________
16. Please rate the following DATABASE skills/functions of potential employees on a scale of 1 to 4 for DESIRABILITY under column A; and then rate the same skills/functions on a scale of 1 to 4 for FREQUENCY OF USE under Column B:

<table>
<thead>
<tr>
<th>DESIRABILITY COLUMN &quot;A&quot;</th>
<th>FREQUENCY OF USE COLUMN &quot;B&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 = Very Important</td>
<td>4 = Daily</td>
</tr>
<tr>
<td>3 = Important</td>
<td>3 = Weekly</td>
</tr>
<tr>
<td>2 = Limited Importance</td>
<td>2 = Monthly</td>
</tr>
<tr>
<td>1 = Not Applicable</td>
<td>1 = Rarely/Never</td>
</tr>
</tbody>
</table>

Ability to:

- Conceptualize and organize a database structure: 1 2 3 4 1 2 3 4
- Create a database: 1 2 3 4 1 2 3 4
- Add data to a database: 1 2 3 4 1 2 3 4
- Edit data in a database: 1 2 3 4 1 2 3 4
- Select and retrieve data: 1 2 3 4 1 2 3 4
- Design reports for output: 1 2 3 4 1 2 3 4
- Modify the structure of a database: 1 2 3 4 1 2 3 4

17. What database software does your company presently utilize? Please identify brand of software:

__________________________________________________________

18. Other database functions that your company rates highly:

<table>
<thead>
<tr>
<th>DESIRABILITY COLUMN &quot;A&quot;</th>
<th>FREQUENCY OF USE COLUMN &quot;B&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 2 3 4 1 2 3 4</td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>1 2 3 4 1 2 3 4</td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>1 2 3 4 1 2 3 4</td>
<td>1 2 3 4</td>
</tr>
</tbody>
</table>

19. If you were given the choice to choose a database package today, would you stay with the same package currently in use?

☐ Yes  ☐ No

20. If you answered NO to question #19 what package would you choose today?

__________________________________________________________

6. Please rate the following WORD PROCESSING skills/functions of potential employees on a scale of 1 to 4 for DESIRABILITY under column A; and then rate the same skills/functions on a scale of 1 to 4 for FREQUENCY OF USE under Column B:

<table>
<thead>
<tr>
<th>DESIRABILITY COLUMN &quot;A&quot;</th>
<th>FREQUENCY OF USE COLUMN &quot;B&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 = Very Important</td>
<td>4 = Daily</td>
</tr>
<tr>
<td>3 = Important</td>
<td>3 = Weekly</td>
</tr>
<tr>
<td>2 = Limited Importance</td>
<td>2 = Monthly</td>
</tr>
<tr>
<td>1 = Not Applicable</td>
<td>1 = Rarely/Never</td>
</tr>
</tbody>
</table>

Ability to Perform:

- Create, edit, print documents: 1 2 3 4 1 2 3 4
- Keyboarding and accuracy: 1 2 3 4 1 2 3 4
- Keyboarding and speed: 1 2 3 4 1 2 3 4

- Copy/Move (Cut/Paste): 1 2 3 4 1 2 3 4
- Search/Replace: 1 2 3 4 1 2 3 4
- Bold/Center/Underline: 1 2 3 4 1 2 3 4
- Pagination: 1 2 3 4 1 2 3 4
- Dual/Multi Columns: 1 2 3 4 1 2 3 4
- Mathematical Functions: 1 2 3 4 1 2 3 4
- Mail Merge Function: 1 2 3 4 1 2 3 4
- Glossary (Macros): 1 2 3 4 1 2 3 4
- Tabulations/Indents: 1 2 3 4 1 2 3 4
- Formats: 1 2 3 4 1 2 3 4
- Style Sheets: 1 2 3 4 1 2 3 4
- Templates: 1 2 3 4 1 2 3 4
- Boilerplate Text: 1 2 3 4 1 2 3 4
- Hyphenation: 1 2 3 4 1 2 3 4
- Use a spell checker: 1 2 3 4 1 2 3 4
- Use a Thesaurus: 1 2 3 4 1 2 3 4
- Utilize headers/footers: 1 2 3 4 1 2 3 4
- Utilize subscript/superscript: 1 2 3 4 1 2 3 4
- Table of Contents usage: 1 2 3 4 1 2 3 4

7. What word processing software does your company presently utilize? Please identify brand name of software:

__________________________________________________________
8. Other word processing functions that your company rates highly:

<table>
<thead>
<tr>
<th>DESIRABILITY COLUMN &quot;A&quot;</th>
<th>FREQUENCY OF USE COLUMN &quot;B&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 2 3 4</td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>1 2 3 4</td>
<td>1 2 3 4</td>
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<tr>
<td>1 2 3 4</td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>1 2 3 4</td>
<td>1 2 3 4</td>
</tr>
</tbody>
</table>

9. If you were given the choice to choose a word processing package today, would you stay with the same package currently in use?

☐ Yes  ☐ No

10. If you answered NO to question #9 what package would you choose today?

____________________________________________________________________________________

ELECTRONIC SPREADSHEETS:


____________________________________________________________________________________

12. If you were given the choice to choose an electronic spreadsheet package today, would you stay with the same package currently in use?

☐ Yes  ☐ No

13. If you answered NO to question #12 what package would you choose today?

____________________________________________________________________________________

14. Please rate the following SPREADSHEET skills/functions of potential employees on a scale of 1 to 4 for DESIRABILITY under column A; and then rate the same skills/functions on a scale of 1 to 4 for FREQUENCY OF USE under Column B:

DESIRABILITY SCALE:
4 = Very Important  3 = Important  2 = Limited Importance  1 = Not Applicable
FREQUENCY OF USE SCALE:
4 = Daily  3 = Weekly  2 = Monthly  1 = Rarely/Never

<table>
<thead>
<tr>
<th>DESIRABILITY COLUMN &quot;A&quot;</th>
<th>FREQUENCY OF USE COLUMN &quot;B&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 2 3 4</td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>1 2 3 4</td>
<td>1 2 3 4</td>
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<tr>
<td>1 2 3 4</td>
<td>1 2 3 4</td>
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<td>1 2 3 4</td>
<td>1 2 3 4</td>
</tr>
</tbody>
</table>

15. Other spreadsheet functions that your company rates highly:

<table>
<thead>
<tr>
<th>DESIRABILITY COLUMN &quot;A&quot;</th>
<th>FREQUENCY OF USE COLUMN &quot;B&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 2 3 4</td>
<td>1 2 3 4</td>
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<td>1 2 3 4</td>
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</tbody>
</table>
APPENDIX B:

COVER LETTER
IDENTIFICATION OF COMPUTER APPLICATION SKILLS

We at the Clark County School District are aware that the use of computers in business has changed dramatically over the last few years. With the reduced cost of hardware and the improvement of application software, even small businesses are now finding it economically feasible to computerize.

With this rapid change in technology, the School District has found it difficult to keep current with the changes in computers and computer applications, specifically word processing, electronic spreadsheets, and database management.

To help our schools keep up-to-date with our business community, we have prepared a questionnaire which has identified specific skills/functions under the three major areas of word processing, electronic spreadsheets, and database management. We ask that the person in your firm who is responsible for these areas, complete the questionnaire as to the desirability of each skill, and as to the frequency of use of each specific skill.

Please return the completed questionnaire by February 15, 1990, using the enclosed self-addressed, stamped envelope. Your response will be kept strictly confidential. If you would like a copy of the results of the survey, please check the appropriate box on the back of the questionnaire.

We hope that the information obtained through this study will help the School District prepare a computer skills hierarchy, and to up-date our Computer Applications curriculum.

Thank you for your assistance in this questionnaire; we know that your input will help our School District keep abreast with the technological changes of the 21st Century.

Daniel Berg, Principal
SNVTC

Lynda R. Spann, Business Department
SNVTC

cc: Ward Gubler, Director Occupational Education CCSD

Enclosures: Questionnaire
Return Envelope
SELECTED BIBLIOGRAPHY


McClain, Clifford R. (1976). A National Survey to Determine the competencies necessary for initial employment and first level advancement within the potato production industry.


