A study of allied health care entry-level employee workplace basic skills and competencies

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A STUDY OF ALLIED HEALTH CARE ENTRY-LEVEL EMPLOYEE WORKPLACE

BASIC SKILLS AND COMPETENCIES

by

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Bachelor of Science
University of Nevada Las Vegas
1989

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University of Nevada Las Vegas
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A dissertation submitted in partial fulfillment
of the requirements for the degree of

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ABSTRACT

A Study of Allied Health Care Entry-Level Employee Workplace Basic Skills and Competencies

by

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This study utilized quantitative research methodologies to investigate the perceptions of Nevada allied health care providers regarding the importance of the workplace basic skills and competencies identified by the United States Department of Labor Secretary's Commission on Achieving Necessary Skills (SCANS, 1991). Since it was assumed that employers possess direct knowledge of their employees' work skills, a questionnaire was developed and distributed to allied health care department supervisors in all of the identified hospitals within the state of Nevada.

A primary purpose of this study was to determine the extent to which allied health care providers in Nevada considered each of the SCANS (1991) skills and competencies as adequately identifying those necessary for entry-level employment into the allied health care industry. Additionally, the study determined to what extent Nevada allied health care employers perceived their entry-level employees as sufficiently possessing SCANS (1991) skills and competencies. Existing differences between perceived allied health care
industry requirements and perceived entry-level skills and competencies were also determined. Finally, the study determined the importance of the SCANS (1991) skills and competencies to the productivity and profitability of respondent’s hospitals.

This study suggested that the workplace basic skills and competencies identified by the United States Department of Labor Secretary’s Commission on Achieving Necessary Skills (SCANS, 1991) are perceived to be valid and necessary for the allied health care industry. Furthermore, the study indicated that “skill gaps” are apparent between perceived allied health care industry requirements and perceived entry-level skills and competencies of entry-level employees. Finally, it was determined that the identified workplace skills and competencies of employees were considered very necessary for a hospital’s productivity and profitability.
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CHAPTER 1

INTRODUCTION

Students' preparation for the future requires that educators know and understand the skills, knowledge, attitudes and abilities their students will need to become literate, contributing citizens who can earn an adequate income in the world that awaits them upon graduation (Adler, 1982). Until the 1970's the value of a college education was assumed. Students enrolled in classes, professors professed, and no one questioned the value of higher education. However, beginning with the publication of A Nation at Risk (The National Commission on Excellence in Education, 1983) and several other reports issued in the early 1980’s, public and political pressure gained momentum in calling for reform at all levels of education (Southern Regional Education Board, 1985; Association of American Colleges, 1985; National Institute of Education, 1984; and Bennett, 1984). One of the major issues at that time, and continuing throughout the 1990’s, was the concern that “college graduates did not have the skills and abilities needed in the workplace” (Huba and Freed, 2000, p. 16).

Within the last fifteen years, major issues concerning health care reform have gained attention as well. Health care reform was one of the major issues of the 1990 Conference of Governors (Kaplan, 1991) and was a major focal point of the 1992 presidential campaign. While there were fewer than forty types of health care providers before 1940 there are over 200 different types of health care providers today.
For the past decade, public opinion regarding the affordability, accessibility, accountability, and overall quality of the United States health care system has diminished as more and more Americans have lost faith in the current delivery system (Van Servellen, 1997). Managed-care programs, with a greater focus on, and frequency in multifaceted patient-provider engagements are predicted to replace an outdated system once predominated by inpatient care.

Spurred by the biotechnology revolution, contemporary issues in health care and related education link to two primary issues: (a) "How will health care be delivered?" and, (b) "What will be required of providers in this new delivery?" (Van Servellen, 1997, p. xiii).

We must face the fact that a majority of students, even good ones, believe that much of the present academic curriculum is not worth the effort to learn it . . . . The answer is not to try to make them work harder; the answer is to increase the quality of what we ask them to learn . . . . We should never forget that people, not curriculum, are the desired outcomes of schooling (Glasser, 1992, p. 691).

According to Whitehead (1957), education should be useful, whatever an individual's aim is in life. He believed in a national system of education that had three curriculums: a) literary, the study of language; b) scientific, training in observing natural phenomena; and, c) technical, utilizing knowledge for the manufacture of material products. For the most part, public schools and universities have traditionally focused their attention and efforts on the first two of these curricular concerns, while leaving the third for community and technical colleges or on-the-job training. Arguably, the traditional educational institutions have done a credible job in preparing the nation's
workforce for the past 150 years. The public schools have graduated individuals literate enough to be laborers, while universities have prepared students for management positions.

However, the new and emerging workplace will require a rethinking of traditional education and the role people will have as literate, productive employees. Brower, Walker and Wichowski (1996, p. 233) stated, “High performance jobs require high performance workers, who are products of high performance schoolhouses.” These include semi-skilled and skilled technicians with knowledge, skills and attitudes to be productive workers in the 21st century.

The Total Quality Movement (TQM), as first proposed by Deming (1986), has led to a rethinking of how workers function and how they should be prepared previous to employment. The Commission on the Skills of the American Workforce predicted in a report entitled America’s choice: High skills or low wages (1990a) that tasks previously completed by unskilled workers will be performed by fewer, more skilled employees. Workplace know-how, the ability to use one’s mind, has and will continue to replace physical prowess as the primary prerequisite to obtaining a job and earning a decent income (Toffler, 1990).

Herschbach (1996) suggested that today’s jobs require employees to possess several different kinds of skills. These include basic skills in reading and mathematics; reasoning skills, such as critical thinking and problem-solving; job-specific skills, including techniques and processes applied in specific work settings; psychomotor skills including the manipulation of tools, equipment and machinery; and affective skills, including work habits, attitudes, values and beliefs concerning work. Additionally,
Packer and Pines (1996) suggested frontline workers today and in the future must not only be problem-solvers but also decision-makers who can communicate clearly and possess the personal characteristics to work well with others.

Considering this shift toward more knowledge-based occupations, two questions arise: (1) What specific set of basic skills and competencies do these occupations require? and, (2) Are potential employees within these categories being adequately prepared? The answers to both of these questions are important for occupational curriculum developers and instructors to know and understand as they prepare students for future employment. As, according to Saveri (1991), identification of the critical workplace basic skills and competencies for the 21st century “must be the foundation of training and educational programs for workers in the next decade” (p. 150).

Though policy-makers, administrators, curriculum developers, and teachers are all stakeholders in what our educational institutions do, ultimately, their students hold the greatest stake. According to Berryman, Knuth & Law (1992), low-skill, entry-level jobs provide little opportunity to earn sufficient wages to support a family. Conversely, higher wages will only be available to those workers who possess the skills that help business and industry remain productive, competitive, and profitable in the new global marketplace (Belcher, 1987; Cappelli and Rogovsky, 1995; Gomes, 1998; Grub, 1992; Marshall and Tucker, 1992; Murnane and Levy, 1995; Pauly, Kopp, and Haimson, 1995). Joyce and Voytek, (1996) concluded that, "Young people will not be able to find jobs unless they are well-educated and skilled” (p. 32).

Business and industry are also major stakeholders in the quality of our educational institutions. Though nationally, approximately $300 billion is being spent annually on
public education, and an additional $200 billion on higher education (Carnevale, 1998). Sixty percent of manufacturers report that they typically reject half of all job applicants as unqualified (Jasinoski, 1998). Consequently, employers nationally have seen their formal training costs for employees rise from $40 billion in 1983 to $63 billion in 1991. Furthermore, current estimates indicate annual employer training expenditures will have to increase by $15 billion by 2005 just to keep pace with the 1991 level of training (Carnevale, 1998).

Finally, the consumers who rely on the goods and services provided by the workforce are also major stakeholders. In the health care industry alone, Americans who spent $4 billion on health care in 1950, and an estimated three-quarters of a trillion in 1992, were projected to spend three times the amount spent in 1990 during the year 2000 (Kaplan, 1991).

Though business and industry in America have always found it necessary to provide for various employee training (Denison, 1985), the current rise in the percent of total payroll expenditures can be attributed to recent industrial and occupational shifts from labor intensive to mind intensive jobs (Carnevale, 1998; Packer & Pines, 1996; Gray & Herr, 1998; Cappelli, Bassi, Katz, Knoke, Osterman, and Useem, 1997; et. al.). The top-down management method of organizing the workforce as heralded by Frederick Taylor (The Principles of Scientific Management, 1919/1998) during most of the twentieth century, whereby unskilled labor was organized and directed by a few college-educated thinkers and planners, no longer exists in corporate America (Postrel, 1998).

During the last two decades of the twentieth century, a more knowledge-based economy has emerged (Barton, 1997). "Gone is the concept of the heroic manager who..."
makes all the decisions. Ensuring quality . . . products and services that exceed customer expectations . . . calls for a new involvement of workers at all levels of the business enterprise” (Gray & Herr, 1998, p. 50). "Nowadays, pretty much everyone gets paid for thinking" (Postrel, 1998, p. A5), and employers have become more dependent upon their employees' knowledge for maintaining and increasing productivity and profitability (Wirth, 1992).

Furthermore, employment trends have moved dramatically toward the need for better-prepared professionals, technicians, administration and support occupations (Carnevale, 1998). Unfortunately, according to O'Neil, Jr. (1997) most of these new skills and abilities now being demanded by business and industry were not emphasized in the past, therefore, not learned on the job or taught in the classroom. This has left workers lacking in the full range of skills necessary to operate effectively in high-performance jobs (Commission on the Skills of the American Workforce, 1990b).

Doing more of the same, educationally, certainly is not a solution. Extended school days and longer school years have not had the effect expected in the preparation of high school graduates. Recent changes in our economic base, from labor-intensive work and seemingly unlimited resources to an economy based on knowledge with dwindling or misused natural resources, have had dramatic effect on current job skills. The solution lies in our ability to ensure that new employees have the skills needed to assume broadened responsibilities in this time of change, and that incumbent workers quickly receive necessary training in newly required skills and competencies as they become apparent.
Background of the Study

At the turn of the century most health care workers were physicians. Today, physicians make up only ten percent of health care providers (Erickson and McHamey-Brown, 1998). Biotechnology, escalating costs of care, agency efficiency studies, and regulated restrictions on service providers by health insurance providers have dramatically impacted the health care industry and reshaped the health care workplace (Acello, 2000; Van Servellen, 1997).

Many of today’s hospitals have streamlined staffs that provide a broader spectrum of care services to patients. Differentiated staffing patterns, utilizing nursing and technical assistants, require employees to have multi-skills or be cross-trained (Acello, 2000) and be able to function effectively in an inter-professional health care team environment (Erickson and McHamey-Brown, 1998). Each of these changes has lead to a new focus on the quality of the patient-provider relationship as the crucial component of the new, emerging health care delivery system (Del Mar, 1994). Such delivery systems center on managed health care requiring inter-facility communication and cooperation, multi-level intervention, alternative health care approaches, and require health care providers to have teamwork and problem-solving skills (Acello, 2000; Van Servellen, 1997).

Allied health care providers include those individuals who generally require state licensure and are graduates of either two-year or four-year preparation programs. Particular fields in allied health include dietetics, clinical laboratory, medical records, physical and occupational therapy, radiology, respiratory therapy, and speech-language pathology and audiology (O’Toole, 1997).
The allied health care industry is composed primarily of technologists who would fit into the occupational categories identified by Carnevale (1998) and Field (1996) as one of the fastest growing career areas in the foreseeable future. Not surprisingly, of the 30 fastest growing jobs for the twenty-first century, eight were identified from the field of allied health care (Occupational Outlook Handbook, 1994). The Occupational Outlook Handbook compiled by the United States Department of Labor (1994) identifies the allied health care industry as a multi-billion dollar industry employing hundreds of thousands of health care providers nationwide.

This industry has been especially vibrant in Nevada over the past decade because of the state's rapid population growth. This trend is not expected to change in any near future (Nevada Employment Security Department, 1992). "The current emphasis on wellness and health promotion, as well as on meeting the needs of an increasing elderly population, has dramatically expanded the demand for allied health professionals" (Stoecker, 1990, p. 325).

A comprehensive listing of the job-specific technical skills, including techniques and processes, required of technologists in each allied health care field is available in the Dictionary of Occupational Titles (1991) and other publications. Unfortunately a similar listing of non-technical basic skills and competencies (i.e., basic skills in reading and mathematics; reasoning skills, such as critical thinking and problem-solving; and affective skills, including work habits, attitudes, values and beliefs concerning work) is not available. This lack of information is problematic for educators. As Joyce and Voytek (1996) asked, "How can educators prepare young people for the workplace when employers can't agree on the skills they want workers to possess?" (p. 31). It is almost
impossible to develop proper workplace basic skills training and applicable education programs without an essential identification, definition, and agreement of the relative skills in question (Darrah, 1991). We must determine precisely what skills are important in the workplace (Hull, 1995).

Furthermore, according to Kolde (1991) a growing gap continues between the skills demanded by employers and the skills available in the current workforce, creating dissatisfaction and disenfranchisement among employers toward current educational programs. However, without the knowledge of what employers expect from applicants, it is difficult to know whether complaints are more, or possibly less, significant than those at other times (Cappelli et al., 1997, p. 157). Identifying the critical basic skills for the 1990s “must be the foundation of training and educational programs for workers in the next decade” (Saveri, 1991, p. 150).

Perhaps the most extensive attempt to date to identify workplace basic skills was the work of the Secretary’s Commission on Achieving Necessary Skills (SCANS, 1991) established by then United States Secretary of Labor, Elizabeth Dole. The SCANS Commission, composed of 30 representatives of education, business, labor, and state government was charged with defining a common core of skills that constitute job readiness in the current economic environment. Specifically, the SCANS (1991) report identified essential foundation skills that fall into three domains. These domains include: a) basic skills--reading, writing, speaking, listening, and knowing arithmetic and mathematical concepts; b) thinking skills--reasoning, making decisions, thinking creatively, solving problems, and knowing how to learn; and c) personal qualities--responsibility, self-esteem, sociability, self-management, integrity, and honesty. The
report also identified the following five workforce competencies necessary for effective work: 1) knowledge of resources, 2) interpersonal skills, 3) information, 4) systems, and 5) technology.

**Statement of the Problem**

Since its publication in 1991, the SCANS report remains a recognized national benchmark by which most workplace basic skills are defined. Unfortunately, SCANS (1991), as a national report and other representative literature fail to identify regional and occupation-specific differences that may exist among the workforce throughout the United States. Campbell (1996) emphasized that long-term, national workforce data are not always accurate and dependable, and need to be validated on a regional or local level before curricular plans are initiated. Thus, the first step in curriculum development is to analyze the job(s) under consideration. “Job analysis answers the questions of what tasks, performed in what manner, under what conditions, to what standards, makes up the job” (Campbell 1996, p. 58).

Additionally, because of the ever and rapid changes in workplace materials, technology, processes and tasks, workforce educators need to constantly update and revise the content of their curriculum (Gray and Herr, 1998). Understanding today’s basic skill requirements of Nevada allied health care providers, if available workplace basic skill definitions are based only upon a ten year old broadly developed set of national benchmarks, may lack the validity and reliability required for the development of necessary curricular changes. Obtaining reliable and valid information within the Nevada allied health care industry, therefore, provides several advantages.
1. Because data loses reliability over time, confirmation or disconfirmation of the reliability of the SCANS (1991) report, through test and retest procedures can be established (Van Dalen, 1973).

2. Additionally, external validity concerning the perception and needs of the population studied (e.g., Nevada allied health care providers) can be established. These, conversely, provide:

1. Reliable and valid data for curriculum writers, teachers, administrators in developing educational programs.

2. Reliable and valid confirmation to the instructor and the student that what is taught and learned will actually be used in the workplaces they will be employed.

Bott (1996) suggests that the traditional and an effective method for developing a course of study (curriculum) is through the use of “expert” groups from the industry in question (p. 34). Or, according to Cappelli, et al., (1997), “[the most] direct way to learn about the demand for workers’ skills is to ask employers directly about the skills they need” (p. 157). Furthermore, the American Business Conference (n.d.) called on businesses to identify and communicate the skill standards needed by employees to succeed in tomorrow’s workplace. Likewise, those who developed the SCANS report further challenged stakeholders to “test their conclusions” regarding the common core of skills that constitute job readiness in the current economic environment (1991, p. ix).

With this in mind, to develop or maintain valid and reliable allied health care programs for Nevada, three questions need to be answered:
1. Do allied health care employers in Nevada have the same perceptions of the importance of SCANS (1991) skill requirements and competencies for their entry-level employees?

2. Are the various workplace basic skills identified throughout the literature, such as those described in the national SCANS (1991) report, necessary for entry-level employment in the Nevada allied health care industry? And, if so,

3. Do the new employees into the allied health care industry sufficiently possess, in the perceptions of their employers, the skills and competencies deemed necessary in the SCANS (1991) report?

**Purpose of the Study**

Only two studies of note in Nevada have attempted to ascertain business and industry responses to the information reported in SCANS (1991). Using the SCANS skills and competencies as benchmarks, Ramakka (1997) studied the effects pre-employment preparation had on the workplace. She found that “Seventy-one percent of respondents agreed that their employees’ reading, writing, mathematics, speaking and listening skills were generally adequate for their current job” (p. iv). However, she also found that employers, collectively, had clearly encountered detrimental effects of inadequate basic skills preparation of their entry-level employees. Unfortunately, Ramakka’s study did not focus upon whether Nevada employers agree upon a set of uniformly accepted and necessary workplace basic skills.

Conversely, Richens and McClain (2000) sought to specifically validate the importance or verify the applicability of the SCANS (1991) general workplace skills among Nevada employers and to determine if they considered the SCANS (1991) skills
as necessary skills for entry-level employment. These findings concluded that employers, in general, perceived the SCANS (1991) skills and competencies to be important for employment in their businesses.

However, both of these studies included a broad range of employers from across the eleven major standard industrial classification (SIC) codes and did not focus specifically on any particular industry. Though it may be possible to generalize these or other findings to the health care industry, specific data need to be gathered to provide valid and reliable employability skills specific to that industry. Such information is important for educators to adequately address the needs of Nevada health care providers.

Utilizing quantitative research methodologies the purpose of this study was to determine the perceptions of Nevada allied health care providers regarding the importance of the workplace basic skills and competencies identified by the United States Department of Labor Secretary's Commission on Achieving Necessary Skills (SCANS, 1991). Specifically, the focus of this study was to determine the extent to which allied health care respondents considered each of the SCANS (1991) skills and competencies as adequately identifying those necessary for entry-level employment into the allied health care industry.

Additionally, the study was conducted to determine to what extent Nevada allied health care employers perceived their entry-level employees as sufficiently possessing SCANS (1991) skills and competencies. Existing differences between perceived allied health care industry requirements and entry-level skills and competencies were also determined. Finally, the purpose of the study was to determine how important each of
the SCANS (1991) skills and competencies were to the productivity and profitability of
the employers’ place of business.

Significance of the Study

If the necessary workplace basic skills and competencies required within Nevada’s
allied health care industry can be validly and reliably identified, then this information
could help educators, employers, policymakers, etc., better understand employers’ needs.
Furthermore, those involved in the pre-employment or in-service development of allied
health care providers in Nevada could be provided with a clearer picture of the workplace
basic skills and competencies required of their students/future employees.

If it can be determined that allied health care employers in Nevada believe the
skills identified in the national SCANS (1991) report are prerequisites for entry-level
employment, it will assist in the development of relevant educational curricula for
Nevada’s Allied Health students. Furthermore, since researchers have found a positive
correlation between the basic skills of a firm’s workforce and its ability to improve
productivity, businesses are more than likely to benefit from curricula adjusted
according to the results of the study (Joyce and Voytek, 1996). The development of a
workplace basic skills curriculum, validated by employer input, could also better assist
students in their transition from school-to-work, and ultimately, help them succeed in
their chosen careers.

Conceptual Framework

Areas of study and practice (i.e., workforce education) are grounded both implicitly
and explicitly in theoretical frameworks. “Theoretical frameworks allow scholars to
organize and synthesize knowledge and conjecture within a field and serve to describe.
explain and predict behavior and experience” (Doolittle and Camp, 2000, p. 2). For at least the past ninety years in America’s schools, behaviorism has been the implicit and explicit learning theory underpinning workforce education, previously known as vocational or occupational education (Dobbins, 1999; Wirth, 1972). Following the so-called social efficiency doctrine (Camp, 1982, 1983), workforce education programs adhered for most of the twentieth century to the visions of David Sneddon and Charles Prosser, early leaders in vocational education (Camp and Hillison, 1993; Doty and Weissman, 1984). These and other social efficiency proponents believed that an efficient society could create an environment in which individuals could prosper and find satisfaction.

Thus, schools had an inherent mission to contribute to such a society by preparing well-trained compliant workers (Wirth, 1972). Workforce education today still adheres to this behavioral learning theory through the use of performance objectives in lesson plans, criterion-referenced measures of learner proficiency, and a reliance on incumbent worker task lists for curricular content (Newcomb, McCraken and Warmbrod, 1993; Finch and Crunkilton, 1999).

Though this competency-based approach to learning has continued to pervade workforce education, in recent years general educators have begun to adopt the ideas set forth in constructivist learning theory. Constructivist learning theory, rooted in history by philosophers such as Dewey (1938), Kant (1781; 1946) and others, holds that learners actively construct their own knowledge and meaning from their experiences (both individual and social), resulting in a personally unique reality (Fosnot, 1996; Steffe and Gale, 1995).
According to Doolittle and Camp (2000), the essential tenants of constructivist pedagogy include:

1. Learning should take place in authentic and real-world environments.
2. Learning should involve social negotiation and mediation.
3. Content and skills should be made relevant to the learner.
4. Content and skills should be understood with the framework of learner's prior knowledge.
5. Students should be assessed formatively to inform future learning experiences.
7. Teachers serve primarily as guides and facilitators of learning, not instructors.
8. Teachers should provide for and encourage multiple perspectives and representations of content.

Though the behaviorist learning theory remains predominant in career and technical education programs (Finch and Crunkilton, 1999), recent initiatives, encouraged through the federal school-to-work grants and the SCANS (1991) report, have moved workforce education programs closer to a constructivist learning theory. School-to-work funding initiatives along with insights provided by SCANS (1991) have promoted an emerging new understanding among workforce education professionals that students also need to be prepared to adapt to the knowledge and skills which will be needed in the future.

The worker of today and tomorrow, according to McNab (1997), no longer will perform repetitive, manipulative tasks but instead must be prepared for solving problems individually and collaboratively. Workforce educators need to appreciate that student's have a need to understand, not just know, the content to which they are asked to study; that
career and technical knowledge and skills are dynamic: and that their program goals should include the development of self-regulated, self-mediated, and self-aware individuals. At the same time, in order for workforce education programs "to meet their obligations to society, to the education community, to business and industry, and to its student-clients. [they] must continue to identify employability and workforce skills and transmit those skills to students" (Doolittle and Camp, 2000 p. 10). The important question that remains is, "What knowledge, understandings and skills will students need in the workplace?" To answer this question, Joyce and Voytek (1996) suggest that, "There is no better way of ensuring that young people attain the right skills than asking local employers about the skill requirements of their firms" (p. 44).

It is the author's hope that at the convergence of these two perspectives a new and dynamic workforce education will emerge. For whether a behaviorist or constructivist, or as a hybrid thereof, workforce educators must continue to "meet their obligations to society, to the education community, to business and industry, and to its student-clients, [and] must continue to identify employability and workforce skills and transmit those skills to students" (Doolittle and Camp, 2000, p.10). Thus the two important questions remaining are: 1) What knowledge, understandings and skills will student need in the workplace? and. 2) How will we teach them to our students?

Conceptually, this framework supports the need to investigate both historically reliable, domain-specific knowledge as well as generalized skills, including complex reasoning abilities and individual attitudes and work values. At the same time, this framework illuminates the need for individuals to be prepared for certain innovation and change as autonomous, life-long learners.
Research Questions

This study utilized quantitative research methodology and incorporated a descriptive research design to describe the perceptions of Nevada allied health care providers regarding the importance of the workplace basic skills and competencies identified by the United States Department of Labor Secretary's Commission on Achieving Necessary Skills (SCANS, 1991). Specifically, the purposes of this study were to determine the extent to which allied health care providers surveyed considered each of the SCANS (1991) skills and competencies as adequately identifying those necessary for entry-level employment into the allied health care industry.

Additionally, the purpose of the study was to determine the extent Nevada allied health care employers perceived their entry-level employees as sufficiently possessing SCANS (1991) skills and competencies. Existing differences between perceived allied health care industry requirements and entry-level skills and competencies was also determined. Finally, the purpose of the study was to determine the importance of the SCANS (1991) skills and competencies to the productivity and profitability of the employers' place of business.

To this end, the following questions were answered:

1. To what extent, as perceived by Nevada allied health care providers, do the workplace basic skills and competencies identified in the SCANS (1991) report adequately identify those basic skills and competencies necessary for entry-level employment in Nevada's allied health care industry?
2. To what extent do Nevada allied health care providers consider each of the SCANS (1991) skills and competencies necessary for entry-level employment into the allied health care industry?

3. To what extent do Nevada allied health care employers perceive their entry-level employees as sufficiently possessing the SCANS (1991) skills and competencies?

4. To what extent do differences exist between employer perceived allied health care industry requirements and the skills and competencies of entry-level employees?

5. What is the perceived importance of each SCANS (1991) skills and competencies to the productivity and profitability of respondents’ hospitals?

Research Design and Methodology

This study utilized quantitative research methodologies in its analysis of survey responses. Gay (1996) stated, "one common type of descriptive research involves assessing attitudes or opinions" and "are typically collected through a questionnaire survey" (p. 14). Additionally, a "descriptive research design is appropriate when the purpose of your study is to create a detailed description of a phenomenon: for example people's opinions about educational issues" (Gall, Borg, and Gall. 1996. p. 371). Furthermore, the descriptive method is the most basic of the quantitative research methods and "involves describing characteristics of a particular sample of individuals" (Gall, Borg, and Gall. 1996. p. 373).

The survey was conducted according to the steps outlined in McMillan and Schumacher (1997). This method involved defining purpose and objectives, selecting a
target population, developing techniques for gathering data, sampling, and creating a proper letter of transmittal.

The technique utilized to gather data included a mail survey developed by the researcher (Appendix 3). Gay (1996) explained that surveys are a valid research method when attempting to collect data from members of a population in order to determine the current status of that population with respect to one or more variables. The survey method was chosen because surveys "are used frequently in business, politics, government, sociology, public health, psychology, and education because accurate information can be obtained from large numbers of people" and "are adaptable to a wide range of uses" (McMillan and Schumacher, 1997, p. 296).

As noted earlier, the SCANS (1991) report has become a national benchmark for identifying necessary basic skills and competencies required for employment. The SCANS (1991) commission suggested the need for further study, locally and regionally, in specific job classifications to further validate their findings. However, SCANS provided no instrumentation or methodology for researchers to "test their conclusions" and "verify the applicability" of the SCANS workplace skills identified (1991, p. ix). Consequently, it was necessary for a survey instrument to be developed which could measure allied health care employer's attitudes with respect to workplace basic skills.

According to Wallen and Fraenkel (1991) there is no clear-cut rule for determining sample size. Therefore, due to the relatively small number of allied health care hospitals in Nevada, the researcher decided to include the entire population in the study. Consequently, the survey was mailed to the eight identified health care department managers in Nevada's twenty-eight identified hospitals (N=224). For the purposes of
this study, allied health care managers included those individuals with direct supervisory responsibilities of hospital dieticians, medical laboratory technologists, medical records personnel, occupational therapists, physical therapists, radiology technologists, respiratory therapists, and speech/language pathologists and audiologists.

**Definition of Terms**

**Allied Health:** Broadly defined, allied health includes all of the health-related disciplines, with the exception of nursing, medicine, osteopathy, dentistry, veterinary medicine, optometry, pharmacy, and podiatry. It includes those technical positions in dietetics, clinical laboratory, medical records, physical and occupational therapy, radiology, respiratory therapy, and speech-language pathology and audiology, who help health practitioners diagnose and treat patients (Bureau of Labor Statistics, 2000).

**Entry Level Employees:** In the health care industry, entry-level employees generally includes those employees that are recent graduates from accredited institutions hired as new entrants into the workforce at an entry level wage in a beginning level position.

**SCANS:** The Secretary's Commission on Achieving Necessary Skills instituted by the United States Department of Labor in 1991 charged with identifying and defining a common core of skills that constitute job readiness in the current economic environment.

**SIC Code Classification:** The Standard Industrial Classification code of an establishment on a division, a two-digit, a three-digit, and a four-digit basis according to the establishment's primary activity. For a detailed explanation of the classification code, one should consult *The Standard Classification Manual* prepared by the United States Office of Management and Budget.
Unskilled Jobs: Jobs for which previous specialized training would not be required for initial hiring.

Workforce Education: Education programs, past and present, designed to prepare individuals for work. Collectively, includes vocational, occupational, and career and technical education programs.

Workplace Competencies: These are identified in the SCANS (1991) report as knowledge of resources, interpersonal skills, information, systems, and technology.

Workplace Foundation Skills: These are identified in the SCANS (1991) report as basic skills (i.e., reading, writing, speaking, listening, and knowing arithmetic and mathematical concepts); thinking skills (i.e., reasoning, making decisions, thinking creatively, solving problems, and knowing how to learn); and personal qualities (i.e., responsibility, self-esteem, sociability, self-management, integrity, and honesty).

Workplace Know How: For the purpose of this study, workplace literacy, workplace basic skills, and workplace competency will constitute proficiency in the three part foundation skills (Basic, Thinking, Personal) and the five basic competencies (Resources, Interpersonal, Information, Systems, Technology) found in the 1991 Secretary’s Commission on Achieving Necessary Skills (SCANS) report.

Limitations

The results of the study may have been affected by the following limitations:

1. The study was restricted to the geographic boundaries of Nevada and findings only can be generalized to employer respondents. Thus, generalizing the findings to regional, and national employers is limited.
2. The study included only hospital employed allied health care providers identified as dieticians, laboratory therapists, medical records personnel, occupational therapists, radiology technologists, respiratory therapists, and speech/language and audiology therapists. Thus, the ability to generalize the findings to other allied health care providers is limited.

3. In order to avoid sending surveys to firms that do not employ identified allied health care providers, this study included only major medical facilities (e.g., hospitals) that have multiple departments or units and employ multiple kinds of allied health care providers. Doctors' offices and single purpose clinics were not included. Thus, the ability to generalize the findings to allied health care providers of smaller or different facilities is limited.

4. Though every effort was made to contact individuals directly responsible for supervision of allied health care employees, the study was limited by the knowledge and perception of the individuals actually responding to the survey.

5. A final limitation involved respondents being forced to choose from among the alternatives provided in the survey instrument. This limited the information respondents were able to provide.

**Delimitations and Assumptions**

This study was limited to hospitals providing allied health care services within Nevada. The following assumptions were made in conducting the study:

1. Questions on the instrument would elicit appropriate information with respondents possessing accurate knowledge about the characteristics of their allied health care employees and of their hospital.
2. Respondents understood the questions and terminology, had adequate knowledge about their hospital and their employees, and answered all items honestly.

3. Respondents understood the definition of entry-level employment as provided on the survey instrument and as it applied to their respective departments.

Summary

This introductory chapter provides an overview and framed the proposed study. It was pointed out that students' preparation for the future requires that educators know and understand the skills, knowledge, attitudes and abilities their students will need to become literate, contributing citizens who can earn an adequate income in the world that awaits them upon graduation. Furthermore, it was shown that the new and emerging workplace of the future will require a rethinking of traditional education and the role people will have as literate, productive employees, and that "High performance jobs require high performance workers, who are products of high performance schoolhouses" (Brower, Walker & Wichowski, 1996, p. 233).

Rethinking the qualities and abilities of the high performance worker and their educational preparation has become the central focus of numerous studies in recent years. The studies and reports reviewed in this chapter suggest that workplace know-how, the ability to use one's mind, make decisions, solve problems, communicate clearly and work well with others has and will continue to replace a strong back as the only prerequisite to obtaining a job and earning a decent income. These reports further suggest that today's jobs require employees possess basic skills in reading and mathematics; reasoning skills; job-specific understandings in techniques and processes; the ability to manipulate tools. 

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equipment and machinery; and certain work habits, attitudes, values and beliefs concerning work.

Determining the validity of identified workplace basic skills and competencies in the allied health care industry was shown to be a significant and valuable undertaking and worthy of study. The requirement of educators to possess a thorough understanding of allied health care employers' needs, which, in turn, can be used to develop relevant educational curricula for students in allied health care programs, could effect students' better transitioning from school-to-work, and ultimately, help them succeed in their chosen careers.

A conceptual framework for this study was also addressed. Historically, behaviorist learning theory has predominated in educational programs related to work preparation. However, in very recent years, there may exist a movement in workforce education toward a more constructivist theory of learning has emerged.

This chapter also provides the specific research questions that were addressed in an employer survey developed for Nevada allied health care hospital employers. A discussion involving the lack of an available instrument and the subsequent development of a suitable questionnaire for use in the study was also presented. Finally, a brief overview of the methodology utilized in this study was presented. The associated limitations, delimitations, and assumptions of the proposed research were also presented.

**Organization of the Study**

Chapter 2 contains a review of the literature concerning new and emerging workplace requirements and related employee skills, knowledge and abilities. A
synthesis of the research reviewed, along with its relevance to the topic under investigation, was presented in this chapter. Chapter 3 describes the methodology and sequence of procedures utilized in the research. Chapter 4 reports the findings based upon the research questions developed for the study. Chapter 5 presents discussion related to the findings of the study. Conclusions drawn from the study, implications for application of those findings, and recommendations for further study were also provided in the final chapter. References and appendices conclude the document.
CHAPTER 2

REVIEW OF RELATED LITERATURE

Introduction

The primary purpose of this study was to describe the perceptions of allied health care employers in Nevada hospitals concerning the workplace basic skills and competencies identified by the Secretaries Commission on Achieving Necessary Skills (SCANS, 1991) and determine whether those skills were perceived to be necessary for entry-level employment. Its purpose was also to determine whether these allied health employers considered each of the SCANS (1991) skills and competencies as adequately identifying the competencies necessary for entry-level employment in their respective organizations. Additionally, the purpose of the study was to determine the degree to which allied health care employers in Nevada hospitals perceived their entry-level employees as sufficiently possessing SCANS (1991) skills and competencies. A final purpose of the study was to determine the degree to which allied health care employers in Nevada hospitals considered these skills as necessary to their hospital’s productivity and profitability.

The following literature review provides research studies and related discussions relevant to the changing workplace, workplace basic skills, employability standards, and identified experts’ opinions concerning workplace basic skills. The first portion of the review focuses specifically on the current status of the American workplace (e.g.,
workplace requirements and available worker skills) since the initial issuance of the Secretary's Commission on Necessary Skills (SCANS) report in 1991. This is followed by a review of reports identifying workplace basic skills and the reported problems the business community is having in finding workers with these skills.

A review of pertinent literature concerning the allied health care profession and industry is also included, though research concerning required non-technical skills of employees is scant at best. Finally, a synthesis of the literature involving relevant discussion of, and implications for education that have been conducted and reported over the past twenty years is presented.

The New American Workplace

Today's workplace is changing and competitive. The repeated use of terms such as "knowledge worker," "information technology," "resources," "systems" and "global economy" is indicative of a workplace that is increasingly more sophisticated and interwoven (North and Worth, 1998). This rapid transformation in a new emergent workplace has been fueled by recently developed technology and a shift in the kind of tasks workplaces require (Carnevale, 1991; Gendron, 1995; Sullivan, 1990).

According to Howell and Wolff (1991) the United States business community has undergone a massive shift in employment from a product to a service based economy. Furthermore, new technologies, coupled with increasing competition from abroad have forced businesses to develop new operational and organizational structures resulting in "substantial consequences for the level and composition of skills required in the United States workplace" (p. 486). As he addressed the nearly turbulent changes occurring in the economy, Reich (1991) argued that to be successfully competitive in the global market we
must bring together innovative technology with a flexible, intelligent, and engaged workforce. The "world-class worker" of today, according to Gray and Herr (1998), is an individual who is highly educated, technologically skilled, and highly productive. "In the most general terms the implication is that... the standard for skilled workers is no longer set within our borders but by the skill levels of workforces of other nations" (p. 49).

The traditional corporate management hierarchy has become flatter resulting in less middle management and an increased level of responsibility and decision-making authority of employees (Yeatts and Hyten, 1998). Because of this redesigned organizational structure, the knowledge, skill and ability requirements of today's jobs are often more demanding than the more traditional jobs they replaced (Hackman, 1990). "The result is a workplace that requires almost constant adaptation by employees" (Yeatts, Folts and Knapp, 2000, p. 565).

In the past, knowing the basic [technical] skills of the workplace was enough. Secretaries were expected to type. Repair people repaired. Electricians wired. But increasingly, people with one-dimensional skills are not getting the better jobs. This is especially true wherever technology is concerned. High-tech employers do not want prima donnas, no matter how skilled; the days of a soloist soldering a circuit board in a cubicle are long gone; and the near-genius who knows his electronics equations but can't tell others what they mean or how to apply them may have difficulty finding employment (Heinemann, 1996 p. 69).

Several predictions underscore the rapid changes occurring in today's workplace. Caudron (1994) predicted that by the year 2005 about twenty-five percent of today's
workplace knowledge and practices would be obsolete. Gray and Herr (1998) further predict that, in the same time frame, only fifteen percent of work will be unskilled while sixty-five percent will be skilled. "Skill obsolescence," "displaced worker," "retraining" and "cross-training" are all terms which have become commonplace in today's workplace vocabulary.

According to the United States Department of Labor (1994), the fastest growing occupational groups include executive, administrative and managerial; professional specialty; and technicians. These "knowledge workers" according to Postrel (1998, p. A5) will increase dramatically over the next few years. Hines (1994) further predicts that by 2010 most American workers will be required to manage information requiring higher-order skills.

Employers today, and in the future, will be looking for a new kind of worker, workers with "people skills," "soft skills," or "employability skills" (Campbell, 1996; Heinemann, 1996; Mumane and Levy, 1995). According to Petty (1996), general employability skills (e.g., work habits, attitudes, values) not occupational knowledge or skills, are most frequently cited by employers as reasons for success or lack of success on the job. But, what specifically are the workplace basic skills? Is there any general agreement among occupational experts regarding what basic workplace skills and competencies are required of today's worker? How critical are they to employers and employees?

Basic Workplace Skills and the Growing The Skills Gap

In accordance with the advice previously cited by Joyce and Voytek (1996), one of the best ways to answer these questions is to ask employers about the skill requirements of their firms. Or, to approach the question from a different perspective, to ask employers...
what workplace skills and competencies do their workers lack. The cumulative data gathered by reviewing responses to these questions has given illumination to what the literature has collectively labeled the “skills gap.”

The gap between skills needed by employees and the skills workers bring to the workplace first became a topic of much controversy in the mid to late 1980’s (Dole, 1989). Beginning with the publication of *A Nation at Risk* (National Commission on Excellence in Education, 1983) there began a substantial review and discussion of the growing skills gap in the United States (Berryman and Bailey, 1992; O’Neil, 1992). These discussions led to a substantial review of the true nature of the skills gap, along with studies to discern specific workplace basic skills.

Three noteworthy commission reports (Commission on Skills of the American Workforce, 1990; United States Department of Labor, Education and Commerce, 1988; Secretaries Commission on Achieving Necessary Skills, 1991) each provided early evidence as to the prevailing skills gap in America. Collectively, these commissioned reports concluded that:

1. Those entering the workforce are generally deficient in basic language usages (reading, writing, speaking) and in mathematics.

2. Employees need better problem solving and learning skills, including the ability to adapt to new situations.

3. Workforce entrants need better interpersonal and work ethic skills (self-discipline, motivation, working with others and the public).

In 1993, O’Connor reported that forty million adults lack basic work skill proficiencies and, according to Baloun (1995), the mismatch between workplace
requirements and the skills of entry-level workers is continuing to grow. Since then, several reports (Cappelli and Rogovsky, 1995; Cappelli and Iannozzi, 1995; Hanser, 1995) have confirmed that there is a growing mismatch between job skill requirements and the skills possessed by the pool of available workers in America today.

Current literature regarding workforce development supports the idea that a deficiency in basic skills exists among the American workforce and that it is having a detrimental affect on businesses (Barton, 1990; Bassi, 1996; Cappelli et al., 1997; Carnevale et al., 1990; Murmane and Levy, 1995; Smith, 1996). To locate the source of the skills gap in the American landscape, Cappelli and Iannozzi (1995) suggest, "it is necessary to consult a map drawn by employers" (p. 2).

Accordingly, in a 1992 survey conducted by the National Association of Manufacturers (NAM), Eisen (1993) reported that firms that are hiring reject five out of every six applicants, usually due to differences between applicant skills and job requirements. It was reported that sixty-four percent of survey respondents (N=360 NAM member companies) said they reject an applicant because of the applicant's inability to adapt to the work environment. They also reported that one-third of the applicants are rejected because of their poor reading and writing skills, while twenty-five percent believe that their applicants have inadequate communication and/or calculation skills. Furthermore, it was reported that twenty-five percent of respondents had serious problem-solving deficiencies throughout their current employee population, and as many as fifty percent reported serious employee deficiencies in basic math and reading skills. Because of these deficiencies, forty percent of the respondents said it was difficult to upgrade their production technology, thirty-seven percent reported problems in reorganizing work.
activities, twenty-five percent reported difficulties in upgrading the quality of their products, and twenty percent perceived difficulties in adding new lines to their businesses.

Hofstrand (1996) after reviewing SCANS and American Society for Training and Development (ASTD) reports concluded that future employees need three sets of skills to enter and succeed in the workforce. These included technical skills, job-getting skills (resume writing, interviewing techniques, etc.) which were labeled “soft skills” and “soft technologies” or generic technical competencies. This last group of skills included: Knowing how to learn on the job: working with systems; working in teams; customer service; productivity; worker initiative; self-motivation; technical communication; work ethics; quality assurance; conflict resolution; and, occupational networking. According to Hofstrand (1996) most of these are thinking tools, which aren’t being taught in educational programs.

Henry (1994) conducted a survey of office secretaries in the New York metropolitan area. The findings concluded that secretaries must possess critical business communication skills as well as the ability to adapt to rapid changes in office technology.

Day and Koorland (1997) completed an ethnographic study of available futures literature concerning job skills and competencies. Based upon the frequency of citations within the reviewed literature, the authors grouped necessary competencies into three categories (e.g., high frequency, moderate frequency, low frequency). The high frequency competencies included higher level thinking skills (problem solving, use of logic, questioning and inquiring skills, and the scientific process), and interpersonal skills (collaborate with team members, appropriate social interaction, accept and give criticism and feedback). The moderate frequency skills were found to include decision-making
skills (specify goals, make judgments, generate alternatives, evaluate and choose best alternatives), communication skills (written and oral within context). Self-managing skills (set goals, interpersonal understanding, self evaluation of work), cope with diversity (accept, adapt, and work effectively in multicultural settings). Information managing skills (access, manipulate and interpret information). Knowledge of systems (understanding and predicting relationships, suggesting improvements to systems), and skills needed to learn effectively (access educational resources and continue education throughout various life stages. Low frequency competencies included mathematics written communication (unless part of job requirements, in which case they were rated highest), and reading (reading to do).

Cassel and Kolstad (1998) reported that Fortune 500 companies listed critical job skill needs as follows (listed from most critical to least critical): 1) Teamwork; 2) Problem-solving; 3) Interpersonal Skills; 4) Oral Communication; 5) Listening; 6) Personal Career Development; 7) Creative Thinking; 8) Leadership; 9) Goal Setting/Motivations; 10) Writing; 11) Organizational Effectiveness; 12) Computation; and 13) Reading. The authors concluded that a new emphasis ought to be placed on school curricula in these work related competencies as an effective way to build a meaningful bridge between the school and the workplace for youth.

On the national level, noteworthy publications such as the America's Choice: High Skills or Low Wages (Commission on the Skills of the American Workforce, 1990) report, and The Essential Skills Employers Want (Camevale, Gainer, and Meltzer, 1990) were initial attempts at providing consistent definitions and agreement with respect to the importance of workplace basic skills by repeatedly asking employers what they want.
Robert Reich (1991) declared that the old 1950’s model of industrial mass production is rapidly becoming obsolete. In his view, the new skills for work and learning now require the skills of symbolic analysis, including: Abstraction, system thinking, experimental inquiry, and collaboration. In accordance, Wirth (1992) observed that today’s worker, rather than functioning with a single focus in the linear, atomistic and hierarchal mode of the old industrial economy will be employed in an interconnected economic system “as participants in meeting problems and devising change and innovation” (p. 186).

Perhaps the most extensive and recognized attempt to identify workplace basic skills and competencies was the work of the Secretary’s Commission on Achieving Necessary Skills (SCANS, 1991) established by then United States Secretary of Labor, Elizabeth Dole. The SCANS Commission, composed of 30 representatives of education, business, labor, and state government was charged with developing “a taxonomy of higher order workplace competencies and foundation skills that promoted a higher performance economy” (O’Neil Jr., 1997).

Specifically, the SCANS (1991) report identified essential foundation skills that fall into three domains. These domains include: 1) basic skills—reading, writing, speaking, listening, and knowing arithmetic and mathematical concepts; 2) thinking skills—reasoning, making decisions, thinking creatively, solving problems, and knowing how to learn; and 3) personal qualities—responsibility, self-esteem, sociability, integrity, and honesty. The report also identified five workforce competencies necessary for effective work. They include knowledge of resources, interpersonal skills, information, systems, and technology.
SCANS-Based Studies

North and Worth (1998) conducted a longitudinal study over a five-year period to identify trends in entry-level technology, interpersonal and basic communication skills (reading, writing, listening, and speaking) requirements. Using business and professional classified advertisements in 10 metropolitan job markets, they concluded that the technology skills required in the advertisements, as advocated in the SCANS (1991) report, remained consistent (79-84%) of the advertisements. However, they found a distinct decline in the number of advertisements listing interpersonal skills and basic communication skills over the time frame studied. This study is significant in that, as suggested by the authors, classified advertisements represent from 25-33% of the visible job market and are used by a high percentage of entry-level job seekers.

Utilizing the information provided in the SCANS (1991) report, Ramakka (1997) attempted to ascertain the effects pre-employment preparation has on the workplace and what skills and competencies employers consider necessary workplace basic skills. The results of the survey found that business and industry, collectively, have clearly encountered detrimental effects of inadequate basic skills preparation of entry-level employees. However “71% of respondents surveyed agreed that their employees’ reading, writing, mathematics, speaking and listening skills were generally adequate for their current job” (p. iv). This study did not focus upon whether Nevada employers agree upon a set of uniformly accepted and necessary workplace basic skills.

Another study conducted by Richens and McClain (2000) sought to specifically validate the importance or verify the applicability of the SCANS general workplace skills among Nevada employers and to determine if they considered the SCANS skills as
necessary skills for entry-level employment. Their findings concluded that employers, in
general, perceived the SCANS skills and competencies to be important for employment in
their businesses. Furthermore, they discovered a perceived gap between what employers in
the study reported as necessary for successful employment and what entry-level employees
possessed.

The above two studies included a broad range of employers from across the eleven
major standard classification codes (SIC), and did not focus specifically on any
particular industry. Although from these studies, it can be understood that employers
are experiencing the end result of a growing gap between what their businesses require
and what potential employees have to offer relative to basic workforce skills.

Finally, Coopers and Lybrand (1996) discovered that as many as forty-seven
percent of the 434 product and service companies surveyed indicated that the reduced
availability of skilled trained workers are a potential barrier to company growth. As can
be seen from these studies, employers are experiencing the end result of a growing gap
between what their businesses require and what potential employees have to offer
relative to basic workforce skills.

The Health Care Industry

For most of this century, the American health care system was organized around
acute illnesses and acute care. In such instances, hospitals were the primary health care
system available to rescue us from these illnesses and take custody of us until we were
well (Goldsmith, 1992). According to (Acello, 2000), before the 1980’s, major
hospitals were organized so that many different departments, with specialized workers.
provided services to patients. Each patient could receive services from up to 40 to 60 different health care workers.

The health care industry in the United States has undergone enormous change in the last twenty years. At the turn of the century most health care workers were physicians. Today, physicians make up only about ten percent of all health care providers (Erickson and McHargey-Brown, 1998). Biotechnology, escalating costs of care, agency efficiency studies, and regulated restrictions on service providers by health insurance providers (Acello, 2000; Van Servellen, 1997) have dramatically impacted the health care industry and reshaped the health care workplace.

Many of today's hospitals have streamlined their staffs. As a result, many of these health care workers are required to provide a broader spectrum of care services to patients. Currently, differentiated staffs, utilizing nursing and technical assistants, are required to have multiple health care skills or be cross-trained (Acello, 2000) and also be able to function effectively in an inter-professional health care team environment (Erickson and McHargey-Brown, 1998).

Decreasing demand for inpatient care (Goldsmith, 1992), coupled with newer health promotion models (e.g., self-care, community-based care, managed-care) and interdisciplinary collaboration among multi-agency providers (Van Servellen, 1997) have also helped to reshape the health care industry. Each of these changes has lead to a new focus on the quality of the patient-provider relationship as the crucial component of the new, emerging health care delivery system (Del Mar, 1994). Such delivery systems will center on managed health care requiring inter-facility communication and cooperation, multi-level intervention, alternative health care approaches, and require
health care providers to have teamwork and problem-solving skills (Acello, 2000; Van Servellen, 1997).

Several authors have proposed a new set of skills required of medical students and other health care providers (Sorensen and Bialek, 1990; Kreps, 1990; Scott, Barrows, Brock and Hunt, 1991). Because of their concern for quality health care in hospital setting which have become high tech and low touch, these authors have recommended a new focus on the basic communications skills of reading, writing, listening, and speaking.

These concerns are further supported by research on the stressors experienced by hospital inpatients. In reporting her study, Van Servellen (1998) identified the following sources of stress among hospital patients: 1) lack of caring, 2) poor exchange of information, 3) absence of communication, 4) fear of retaliation if providers are burdened with unnecessary requests, and 5) observations of unprofessional conduct that raise serious concerns for patients. She concluded that health care providers need good interpersonal communication skills, especially in provider-client and provider-family relationships.

As can be seen, the current literature on health care reflects a greater need for the development of health care provider’s communication and interpersonal skills. However, little could be found concerning the requirements health care providers in respect to most of the other basic skills and competencies identified in SCANS (1991).

Allied Health Industry

Kendall (1997) reported that roughly four million jobs will be added to the health care industry by the year 2005, of which only a small percentage will be doctors.
surgeons or other medical school graduates. Accordingly, the vast majority will be working in allied health occupations.

In Nevada, six institutions of higher education prepare students in allied health occupations. These are two-year or four-year programs offering associate degree programs, post-associate-level advanced skills certificate programs, and bachelor degree programs (Russell, Richardson & Escamilla, 1989). Of these state institutions, only the University of Nevada-Las Vegas (UNLV) and Truckee Meadows Community College (TMCC) in Reno, Nevada, offer programs in radiologic technology.

Allied health includes those occupations that generally require state licensure for graduates of either two-year or four-year preparation programs. Particular fields in allied health include physical and occupational therapy, speech or language pathology and audiology, respiratory therapy, laboratory and radiologic technology, and medical records personnel (O'Toole, 1997). Taken together, allied health professionals comprise more than sixty percent of the health care workforce in over 200 disciplines.

The United States Department of Labor Bureau of Labor Statistics (1990-91) listed nine separate occupational areas under health assessment and treating occupations, such as physical and respiratory therapists. It also listed eleven separate occupations grouped as health technologist and technicians, such as clinical laboratory technicians and radiologic technologists.

Each of these occupations can be subdivided into specialized areas. For instance, radiologic technology includes radiography, mammography, nuclear medicine technology, and radiation therapy technology (Russell, Richardson & Escamilla, 1989). Subspecialties, which require additional training, but not formal advanced certification,
include computed tomography, magnetic resonance imaging, and quality assurance (The American Registry of Radiologic Technologists, 1990). The health care industry also includes medical practitioners such as dentists, physicians and optometrists. However, the scope of this review was limited only to those allied health care occupations that require two-year of four-year degrees or certificates.

"The current emphasis on wellness and health promotion, as well as on meeting the needs of an increasing elderly population, has dramatically expanded the demand for allied health professionals" (Stoecker, 1990, p. 325). According to Richardson (1997), "among the top ten fastest growing jobs in America, seven are in the healthcare field" (p. 192-93). Compiled by the United States Department of Labor Bureau of Labor Statistics (2000), the Occupational Outlook Handbook identifies the allied health care industry as a multi-billion dollar industry employing hundreds of thousands of health care providers nationwide.

This industry has been especially vibrant in Nevada over the past two decades because of the state's large population growth. This trend is not expected to change in any near future (Nevada Employment Security Department, 1992). In particular, jobs in radiology are expected to grow slightly faster than other allied health occupations due to the continued growth of diagnostic and therapeutic applications of radiology (Nevada Employment Security Department, 1989).

The Role of Education

"Just teach 'em the basics. We'll train 'em on the specifics. I wish I had a dollar for every time an employer told me that. You probably do too – we'd be rich. But what are the basics? What are the specifics? We're still trying to
differentiate what we mean by the basics and the specifics, and the line separating the two keeps moving back and forth.” (Hofstrand, 1996, p. 51).

Rethinking the qualities and abilities of the high performance worker and the content of their required educational preparation has become the central focus of numerous studies in recent years. This need for reconsideration of instructional content has been supported by research evidence that suggests a strong relationship between student performance in school and future labor market outcomes (Bishop, Blakemore, and Low, 1985).

Research endeavors concerning workplace basic skills, employability skills, skill deficiencies and the growing skills gap, coupled with numerous school reform movements and reports accentuating the economic consequences of worker literacy, have created considerable discussion and controversy over the last two decades (Cappelli and Rogovsky, 1995; Fingeret, 1991; Gorman, 1988; Prowse, 1992).

The resultant knowledge about how jobs have changed and how the workplace has developed in recent times has created new perspectives and directives for educational policymakers (Cappelli, et al, 1997). Partly as a result of the America 2000 goals developed by President Bush and the nation’s governors in 1989, the traditional goals of education (e.g., parts of speech, the quadratic equation) have been called into question.

These national policymakers agreed to six national goals for education as they focused on students’ abilities to demonstrate the knowledge and skills required to successfully compete in a global economy.

According to Phillipi (1989), an educational emphasis on learning to remember has, until recently, satisfied employer needs and contributed to increased work
opportunities for the average worker. However, according to What Work Requires of Schools: A SCANS report for America 2000 (SCANS, 1991), today's good jobs increasingly depend upon an individual’s ability to put his or her knowledge to work.

"The traditional goals of the educational system no longer match the needs of the consumer (i.e., the business community). Approaching the 21st century, a very different labor market means education must change to keep pace with the new information or service age economy and to meet the employer requirements for a qualified work force" (Day and Koorland, 1997, p.34). Unfortunately, according to Barton (1997), the workplace's accelerated need for more highly educated workers is not being met.

In his cognitive analysis of the workforce, Hunt (1995) emphatically states that "A competitive advantage for our workforce could be obtained only if we either embark on a retraining program for those in the workforce or if we markedly improve our school systems and, through it, the qualifications of the entering workforce" (p. 141). In general, companies report that only fifty percent of recent high school graduate applicants are qualified for entry-level positions (Cappelli et al. 1997, p. 157).

Benjimin (1988), Carnevale, et al. (1989), and Philippi (1989) suggest that what and how we teach should be restructured to include early career exploration, learning job skills in the workplace rather than in the classroom, and providing students increased opportunities to develop interpersonal skills, leadership abilities and communication skills.

Curriculum development in occupational education often takes the form of a needs assessment in which educational program content is adjusted according to identified skill deficiencies among the workforce (Oliva, 1997). "Needs assessment is a tool which
formally harvests the gaps between current results (or outcomes, products) and required or desired results, places these gaps in priority order, and selects those gaps (needs) of the highest priority for action, usually through the implementation of a new or existing curriculum or management process" (Fenwick and Kaufman, 1975, p. 4).

Wayne and Mitchell (1992), through a survey of employment recruiters and human resource personnel, provided a rank order of interpersonal communication skills deemed valuable for success on the job. They found the verbal skills most highly rated as those used in or affecting a task-oriented setting involving small group communication, one-on-one communication, information dissemination with two-way communication, and conflict resolution. Finding that much of the interpersonal communication that occurs in business today and in the future will be in the form of informal, spontaneous, small-group settings, they suggest that educators should emphasize these communication processes in their classes.

Traditionally, educational programs clustered under allied health care have concentrated the bulk of their curricula on the technical skills and abilities required in the workplace. A review of the curriculum guide provided by the American Society of Radiologic Technologists (1991-93) reveals this emphasis. Of the sixteen major curriculum sections provided, only two sections (patient care and ethics and law) outlined information other than the traditional technical and physiological aspects of the job. A notable departure from this tradition has occurred in Michigan. Through their work with allied health care preceptors and mentors, Baty and Muldrow, (1997) identified what they consider to be the most important SCANS skills for health care providers. In order of importance, these are: Listening, responsibility, integrity and honesty, teamwork,
reading, serving clients or customers, speaking, and sociability. Because of their importance, the State of Michigan has incorporated these skills and competencies into its allied health care preceptor/mentor programs.

Research endeavors concerning workplace basic skills, employability skills, skill deficiencies, and the growing skills gap, coupled with numerous school reform movements, and reports accentuating the economic consequences of worker illiteracy, have created considerable discussion and controversy over the last two decades (Cappelli and Rogovsky, 1995; Fingeret, 1991; Gorman 1988; Prowse, 1992). The resultant knowledge about how jobs have changed and how the workplace has developed in recent times has created new perspectives and directives for educational policy (Cappelli et al. 1997).

“Analysis of business and industry needs of the community; specification of outcomes needed by graduates; integration of academic and vocational education; on-the-job experiences concurrent with schooling; and guidance of students in examining a chosen set of vocations” (Oliva, 1997, p. 210) have each been included in recent efforts to strengthen and improve workforce education.

Summary

This review provided literature relevant to the changing workplace, workplace basic skills, employability standards, and identified experts’ opinions concerning workplace basic skills. The review focused specifically on the current status of the American workplace and workplace requirements since the initial issuance of the SCANS (1991) report. As is evident in the review, the contemporary workplace can best be defined as places of dynamic change and increasing competition. Fueled by rapidly developing technology and global competition, our new service-based economy
has spurred the development of new operational and organizational structures. Within these structures the knowledge, skill and ability requirements of today's jobs are often more demanding than ever before. The literature reviewed strongly suggested that workers today and in the future must be equipped with "people skills," "soft skills" and "employability skills." as these were most frequently cited by employers as reasons for success or lack of success on the job.

The review also provided reports identifying a variety of workplace basic skills and the reported problems the business community has experienced in finding workers with these skills. Most notably were the numerous articles and reports suggesting a mismatch between workplace requirements and the skills of entry-level workers. Commonly referred to as the "skills gap," this mismatch has become a topic of ever increasing concern among employers and workforce educators.

Pertinent literature concerning the allied health profession and industry suggested a continuing rapid growth in the need for qualified health care providers over the next decade. With predictions indicating only a small percentage increase in the number of doctors, the vast majority of new jobs will be in the allied health care occupations.

Finally, a synthesis of educational literature relevant to the study revealed considerable discussion and controversy concerning workplace basic skills, employability skills, skill deficiencies and the growing skills gap. A review of the reports generated by several prominent commissions/task forces suggested a strong rationale for integrating identifiable workplace basic skills and competencies into existing job preparation programs.
CHAPTER 3

METHODOLOGY

This chapter includes a discussion of the methodology utilized in the study. The discussion includes a review of the purpose of the study and the research questions. This is followed by a description of the instrument and instrumentation, sample size and selection, research design, and independent and dependent variables. A discussion of the methods used to collect and analyze the data, the significance of the study and its limitations are also presented followed by a summary of the chapter.

Purpose of the Study

Utilizing quantitative research methodology and incorporating a descriptive research design, this study determined the perceptions of Nevada allied health care providers regarding the importance of the workplace basic skills and competencies identified by the United States Department of Labor Secretary's Commission on Achieving Necessary Skills (SCANS, 1991). Specifically, this study was designed to determine the extent to which allied health care providers surveyed consider each of the SCANS (1991) skills and competencies as adequately identifying those necessary for entry-level employment into the allied health care industry.

Additionally, the purpose of the study was to determine to what extent Nevada allied health care employers perceived their entry-level employees as sufficiently possessing SCANS (1991) skills and competencies. Existing differences between perceived allied
health care industry requirements and entry-level skills and competencies was also
determined. Also, the purpose of the study was to determine whether there were any
significant differences in the importance of SCANS (1991) skills and competencies
based upon the size and location of hospitals. Finally, the purpose of the study was to
determine how important each of the SCANS (1991) skills and competencies were to
the productivity and profitability of the employers’ hospital.

**Research Questions**

Utilizing descriptive research design this study sought to answer the following
questions:

1. To what extent, as perceived by Nevada allied health care providers, do the
   workplace basic skills and competencies identified in the SCANS (1991) report
   adequately identify those basic skills and competencies necessary for entry-level
   employment in Nevada’s allied health care industry?

2. To what extent do Nevada allied health care providers consider each of the
   SCANS (1991) skills and competencies necessary for entry-level employment
   into the allied health care industry?

3. To what extent do Nevada allied health care employers perceive their entry-level
   employees as sufficiently possessing the SCANS (1991) skills and
   competencies?

4. To what extent do differences exist between employer perceived allied health
   care industry requirements and the skills and competencies of entry-level
   employees?
5. What is the perceived importance of each SCANS (1991) skills and competencies to the productivity and profitability of respondents' hospitals?

**Instrumentation**

Since a suitable instrument specific to allied health care could not be found, the researcher constructed an instrument. Survey questions were developed utilizing the SCANS (1991) skills and competencies listings, which were directly incorporated into the instrument. Since SCANS (1991, p. ix) issued a challenge to "test their conclusions" without adequately providing a subsequent and appropriate instrument, a questionnaire was developed based upon Wallen and Fraenkel's (1991) suggested guidelines for constructing survey instruments.

In order to obtain data relevant to the research questions, the survey instrument was divided into three parts. Part I and part II were designed to elicit responses concerning a) each respondent's perceptions regarding the skills and competencies identified in SCANS (1991) as necessary for entry-level employment as allied health care providers, and b) the extent to which allied health care providers believe entry-level employees possess these skills and competencies. Part III was designed to ascertain respondents' perceptions of the importance of workplace basic skills and competencies to the productivity and profitability of their hospitals. Space was provided for respondents to add additional skills or competencies and/or make general comments. Each questionnaire was coded for the purpose of analyzing differences, if any, between various allied health care professions and the basic skills and competencies required by employers.

Each question in parts I and II required two responses. Each member of the sample group was asked to indicate how necessary they perceived each of the listed skills and competencies to
competencies were for allied health care employees. A Likert-type scale (0 = unnecessary, 1 = somewhat unnecessary, 2 = necessary, 3 = very necessary) was used to determine the measure of responses. Likert scales are commonly used in survey research and scales "allow fairly accurate assessments of beliefs or opinions" (McMillan and Schumacher, 1997, p. 256). Using a second column, employers were asked to provide a percentage (0% - 100%) estimate concerning their perceptions of the extent to which their entry-level employees possess these skills and competencies.

The survey instrument (Appendix 3) included forty questions designed to obtain the requested information for analysis on three skill domains and five competency domains identified in SCANS (1991). Questions 1 through 5 addressed basic communication and arithmetic and mathematic skills, questions 6 through 11 addressed "thinking skills", while questions 12 through 15 addressed "personal skills". Question 16 provided an opportunity for respondents to provide any additional basic skills that they believed necessary for employment. Questions 21 through 26 addressed "resource competencies", questions 27 through 30 addressed "information competencies". Questions 31 through 33 addressed "systems competencies", and questions 34 through 36 addressed "technology competencies". Question 37 provided an opportunity for respondents to provide any additional competencies that they believed necessary for employment. Questions 38 and 39 asked employers to rate how important the workplace basic skills and competencies were to their hospital's productivity and profitability. Question 40 provided an opportunity for respondents to provide additional comments concerning the workplace basic skills and competencies and/or entry-level employees' abilities.
Validity

The instrument utilized in this study was developed using the same skills and competencies identified in the Secretaries Commission on Achieving Necessary Skills (SCANS, 1991). The SCANS report for America 2000, What Work Requires of Schools, (Secretary's Commission on Achieving Necessary Skills, 1991) identified three sets of basic skills: 1) reading, writing, and mathematics; 2) thinking skills; and 3) personal qualities; plus five sets of workplace competencies: 1) technology, 2) systems, 3) information, 4) interpersonal relations, and 5) resources. According to Borg and Gall (1989), "content validity is the degree to which the sample test items represents the content that the test is designed to measure" (p. 250). Furthermore, "content validity is appraised by an objective comparison of the test items with the curriculum content" (p. 251). Thus, content validity was initially established by incorporating the actual categories and wording used in the SCANS (1991) report into the questionnaire.

In order to further confirm validity of the final survey instrument, draft copies of the instrument were distributed for review by personnel at the Cannon Center for Survey Research at the University of Nevada Las Vegas. Additionally, a panel composed of allied health care professionals and educational professionals, from the University of Nevada Las Vegas, College of Health Sciences Radiology Department, with expertise in research reviewed the document for construct validity purposes. These individuals were asked to complete the survey and provide comments and suggestions for improvement of the survey's readability, organization, construction, and to note any difficulties they had in understanding or completing the questions. Subsequently, minor
revisions were made to help clarify the directions and readability of the survey instrument to reflect the individual suggestions of the reviewers.

Sample

The population under consideration for this study included managers of eight allied health departments in each of Nevada's twenty-eight hospitals for a population total of 224 managers. Mailing addresses of Nevada's twenty-eight hospitals were obtained from the Nevada Business Directory developed by the Center for Business and Economic Research (2001) at the University of Nevada Las Vegas.

Design of the Study

This study utilized quantitative research methodology with a descriptive research design to determine perceptions of Nevada hospitals allied health care employers' perceptions of the workplace basic skills and competencies identified in the SCANS (1991) report. As has been noted earlier, the SCANS report has become a national benchmark for identifying necessary basic skills and competencies required for employment. However the SCANS commission suggested the need for further study, locally and regionally, in specific job classifications to further validate their findings.

The technique utilized to gather data included a mail survey developed by the researcher (Appendix 2). Gay (1996) explained that surveys are a valid research method when attempting to collect data from members of a population in order to determine the current status of that population with respect to one or more variables. The survey method was chosen because surveys “are used frequently in business, politics, government, sociology, public health, psychology, and education because accurate information can be obtained from large numbers of people” and “are adaptable to a wide range of uses”
Furthermore, a "descriptive research design is appropriate when the purpose of your study is to create a detailed description of a phenomenon: for example people's opinions about educational issues" (Gall, Borg and Gall, 1996, p. 371).

Variables

The four dependent variables in this study were:

1. Respondents' perceptions as to whether the workplace basic skills and competencies identified in the SCANS (1991) report adequately identify those workplace basic skills and competencies necessary for allied health care employees in their hospitals.

2. Respondents' perceptions concerning how important the SCANS (1991) workplace skills and competencies are for allied health employees in their hospitals.

3. Respondents' perceptions concerning the extent to which entry-level allied health care employees possess the SCANS (1991) workplace basic skills and competencies.

4. Respondents' perceptions concerning the importance of each SCANS (1991) workplace basic skills and competencies to their hospitals' productivity and profitability.

Five independent variables in this study were:

1. SCANS (1991) workplace basic skills within three categories: 1) basic skills, 2) thinking skills, and 3) personal quality skills.
2. SCANS (1991) workplace basic competencies within five categories:
   1) resources. 2) interpersonal. 3) information. 4) systems. and 5) technology.

3. Type of health care employee with eight categories: 1) dietary personnel.
   2) laboratory technologists. 3) medical records personnel. 4) occupational
   therapists. 5) physical therapists. 6) radiologic technologists. 7) respiratory
   therapists. and 8) speech/language pathologists and audiologists.

4. Size of Hospital (less than 500. 500 to 999. and 1000 or greater).

5. Location of Hospital (Northern or Southern Nevada).

Data Collecting Procedures

A description of the research protocol was submitted to the University of Nevada Las
Vegas Office for the Protection of Research Subjects to conduct the study. On April 2.
2001 the Office for the Protection of Research Subjects granted permission to conduct the
study (Appendix 1).

Data collection was accomplished according to the steps outlined in McMillan and
Schumacher (1997). This method involved defining purposes and objectives, selecting
a target population, developing techniques for gathering data, and creating a proper
letter of transmittal. Accordingly, survey packets which included a letter of transmittal
(Appendix 2). the survey instrument (Appendix 3) and a stamped, self-addressed return
envelope, were mailed to 224 allied health care managers in Nevada’s twenty-eight
hospitals. To increase responses rates, follow up phone calls were made approximately
two weeks after the survey was mailed to those who had not responded to the survey, in
an effort to increase the response rate of the respondents. Data collected from the
returned questionnaires were coded and entered into the Statistical Program for the Social Sciences (SPSS version 10.0. 2000) for a descriptive analysis.

Analysis of the Data

Objective data analysis was accomplished using the Statistical Program for the Social Sciences (SPSS version 10.0. 2000). Frequency, mean, range, standard deviations, and percentage analysis were applied to provide descriptive and comparative results for each of the questions. Respondent comments were also sorted into themes and/or categories for the purpose of analyzing and reporting data.

Summary

This chapter provided a description of the methodology and sequence of procedures utilized in the study. Specifically, instrumentation, validity, the population under study, design of the study, independent and dependent variables, data collection procedures and analysis of the data were provided.

Chapter 4 reports the findings based upon the research questions developed for the study. Chapter 5 presents discussion related to the findings of the study. Conclusions drawn from the study, implications for application of those findings, and recommendations for further study are also provided in the final chapter.
CHAPTER 4

DATA PRESENTATION AND STUDY RESULTS

Introduction

Using a descriptive research design and quantitative research methodology the purpose of this study was to ascertain and to describe the perceptions of Nevada allied health care providers regarding the importance of the workplace basic skills and competencies identified by the United States Department of Labor Secretary's Commission on Achieving Necessary Skills (SCANS, 1991). Specifically, the purpose of this study was to determine the extent to which allied health care providers surveyed consider each of the SCANS (1991) skills and competencies as adequately identifying those necessary for entry-level employment into the allied health care industry.

Additionally, the purpose of the study was to determine the extent to which Nevada allied health employers perceive their entry-level employees as sufficiently possessing SCANS (1991) skills and competencies. Furthermore, the study was designed to determine existing differences between perceived allied health care industry requirements and the perceived skills and competencies of entry-level employees. Finally, the study was designed to provide employer perceptions of the importance of the SCANS (1991) skills and competencies to their respective hospital's productivity and profitability.
Research and Design Methodology

This study utilized quantitative research methodologies in its analysis of survey responses. The survey was conducted according to the steps outlined in McMillan and Schumacher (1997). This method involved defining the purpose and objectives, selecting a target population, developing techniques for gathering data, and creating a proper letter of transmittal. Objective data analysis was accomplished using the Statistical Program for the Social Sciences (SPSS version 10.0, 2000). Frequency, mean, range, standard deviations, and percentage computations were applied to provide descriptive and comparative results for each of the questions. Additional respondent comments were reported and discussed.

According to Spender (1990) direct measures are generally considered a valid approach to understanding job skill. Furthermore, Gall, Borg, and Gall (1996) advocate that a "questionnaire that measures attitudes generally must be constructed as an attitude scale" (p. 297). Consequently, a questionnaire was developed to measure responses because scales "allow fairly accurate assessments of beliefs or opinions" (McMillan and Schumacher, 1997, p. 256).

Respondents were presented with a limited number of choices with which to rate the SCANS (1991) skills and competencies as necessary skills for entry-level employment in the health care profession. For each skill and competency, the rating categories provided included "not necessary," "mostly unnecessary," "necessary," and "very necessary." Also, respondents were asked the extent to which employers perceived their entry-level employees as sufficiently possessing the SCANS (1991) skills and competencies. A continuous scale ranging from 0% to 100% was available for each related question.
Finally, respondents were asked whether or not the basic skills and workplace competencies provided adequately represented those necessary for health care employment in their hospital. Sufficient space was provided for respondents to provide additional skills and competencies, or general comments, as they may have deemed important and/or necessary for employment.

The population for this study was the 224 allied health care managers in Nevada's twenty-eight hospitals, as provided by the Center for Business and Economic Research (2001) at the University of Nevada Las Vegas. For the purposes of this study, allied health care workers included those employed as: 1) dieticians, 2) medical laboratory technologists, 3) medical records personnel, 4) occupational therapists, 5) physical therapists, 6) radiology technologists, 7) respiratory therapists, and 8) speech-language pathologists and audiologists who help health practitioners diagnose and treat patients (Bureau of Labor Statistics, 2000).

The final version of the survey instrument (Appendix 3) was used to obtain the data for analysis of the three skill domains and five competency domains. Questions 1 to 5 involved the importance employers give to SCANS "basic reading, writing, computation, and communication skills" domain. Questions 6 to 11 involved the "thinking skills" domain. Questions 12 to 15 involved the "personal quality skills" domain. Question 16 dealt with whether respondents believed the workplace basic skills list on the survey adequately represented those necessary for employment in their organization. Questions 17 through 20 addressed SCANS "resource competencies" domain, while questions 21 to 26 dealt with the "interpersonal competencies" domain. 27 through 30 "information competencies" domain, 31 through 33 "systems
competencies” domain. Questions 37 dealt with whether or not respondents perceived SCANS (1991) workplace competencies listed on the survey adequately represented those necessary for employment in their hospital. Questions 38 and 39 asked respondents how important the SCANS workplace basic skills and competencies among their entry-level employees were to their respective hospital’s productivity and profitability. The survey concluded with Question 40, which asked respondents to add general comments.

Data were gathered by use of a mailed survey (Appendix 3) during the fall of 2001. To increase response rates, follow up phone calls were made approximately two weeks after the surveys were mailed. Subsequently, the data were entered and analyzed utilizing SPSS version 10.0 (2000).

Response Rate and Frequencies

Of the 224 surveys mailed to allied health care department managers in Nevada’s twenty-eight identified hospitals, seventy (70) surveys were completed and returned to the researcher. This represents a return rate of 31.3 percent.

For purposes of data collection and analysis, the State of Nevada was divided into two arbitrary regions (north and south) as commonly accepted by the inhabitants in the state. Utilizing data obtained from the Center for Business and Economic Research (2001) at the University of Nevada Las Vegas, even numbers of surveys were mailed to both geographic areas. Table 1 indicates a return rate of 30.4 percent from the northern region of Nevada, while 32.1 percent were returned from the southern region of Nevada.
Table 1: Survey response frequencies based upon hospital location in Nevada.

<table>
<thead>
<tr>
<th>Location in Nevada</th>
<th>Surveys Mailed</th>
<th>Response Frequencies</th>
<th>Percent of Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Northern Nevada</td>
<td>112</td>
<td>34</td>
<td>30.4%</td>
</tr>
<tr>
<td>Southern Nevada</td>
<td>112</td>
<td>36</td>
<td>32.1%</td>
</tr>
<tr>
<td>Total Responses</td>
<td>224</td>
<td>70</td>
<td>31.3%</td>
</tr>
</tbody>
</table>

Also, the size of each hospital facility was categorized, based upon the total number of employees. Table 2 provides the total population, response rates and response percentages for each size category.

Table 2: Survey response frequencies based upon size of hospital.

<table>
<thead>
<tr>
<th>Number of Hospital Employees</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;500</td>
<td>104</td>
</tr>
<tr>
<td>500-999</td>
<td>40</td>
</tr>
<tr>
<td>≥1000</td>
<td>80</td>
</tr>
<tr>
<td>Number of Department Managers Surveyed</td>
<td>224</td>
</tr>
<tr>
<td>Response Frequencies</td>
<td>22</td>
</tr>
<tr>
<td>Percent of Returns</td>
<td>31.4%</td>
</tr>
<tr>
<td></td>
<td>22.9%</td>
</tr>
<tr>
<td></td>
<td>45.7%</td>
</tr>
<tr>
<td></td>
<td>100%</td>
</tr>
</tbody>
</table>

As can be seen, a higher return rate was realized from the allied health care managers in hospitals with greater than or equal to 1000 employees than from hospitals in the other two categories. Since questionnaires were addressed to “Department Managers” and not to a specific person, this return rate may be due to the larger hospitals having better specified or identified department heads than their smaller counterparts. It might also be
that the smaller hospitals do not have certain departments within their administrative
structure or within their health care programs.

The allied health care managers surveyed included the department managers of:
1) dietary. 2) medical laboratory. 3) medical records. 4) occupational therapy. 5) physical
therapy. 6) radiology. 7) respiratory therapy. and 8) speech-language pathology and
audiology. Each survey recipient was asked to identify the health care area or areas for
which they have direct supervision of health care employees at their hospital. Table 3
denotes the response frequency and percentage of respondents for each health care area.

Table 3: Survey response frequencies based upon health care area.

<table>
<thead>
<tr>
<th>Health Care Area</th>
<th>Surveys Mailed</th>
<th>Response Frequencies</th>
<th>Percent of Total Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dieticians</td>
<td>28</td>
<td>6</td>
<td>8.6%</td>
</tr>
<tr>
<td>Medical Laboratory Technologists</td>
<td>28</td>
<td>13</td>
<td>18.6%</td>
</tr>
<tr>
<td>Medical Records Personnel</td>
<td>28</td>
<td>3</td>
<td>4.3%</td>
</tr>
<tr>
<td>Occupational Therapists</td>
<td>28</td>
<td>11</td>
<td>15.7%</td>
</tr>
<tr>
<td>Physical Therapists</td>
<td>28</td>
<td>11</td>
<td>15.7%</td>
</tr>
<tr>
<td>Radiology Technologists</td>
<td>28</td>
<td>8</td>
<td>11.4%</td>
</tr>
<tr>
<td>Respiratory Therapists</td>
<td>28</td>
<td>7</td>
<td>10.0%</td>
</tr>
<tr>
<td>Speech-Language Pathologists and Audiologists</td>
<td>28</td>
<td>11</td>
<td>15.7%</td>
</tr>
<tr>
<td>Total</td>
<td>224</td>
<td>70</td>
<td>100%</td>
</tr>
</tbody>
</table>

Return rates for the eight allied health care categories varied from a low of three
responses concerning medical records personnel to thirteen responses on medical
laboratory technologists. Though responses were received from each of the eight health
care categories surveyed, the reason for the realized disparity in return rates were indeterminable.

Research Questions

The following is a discussion of the survey results as they relate to specific research questions.

Research Question One

To what extent, as perceived by Nevada allied health care providers, do the workplace basic skills and competencies identified in the SCANS (1991) report adequately identify those basic skills and competencies necessary for entry-level employment in Nevada’s allied health care industry? Table 4 focuses specifically on this question.

Table 4: Do the SCANS skills and competencies adequately identify those skills needed for entry-level employment in your hospital?

<table>
<thead>
<tr>
<th></th>
<th>Response Frequency</th>
<th>Yes</th>
<th>Percent</th>
<th>No</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>SCANS Basic Skills (Q. 16)</td>
<td>56</td>
<td>52</td>
<td>92.9%</td>
<td>4</td>
<td>7.1%</td>
</tr>
<tr>
<td>SCANS Competencies (Q. 37)</td>
<td>48</td>
<td>45</td>
<td>93.8%</td>
<td>3</td>
<td>6.2%</td>
</tr>
</tbody>
</table>

As indicated in Table 4, over ninety-two percent of the respondents agreed that the SCANS skills adequately identify the employability skills necessary for employment in the health care industry. Additionally, over ninety-three percent of the respondents agreed that the SCANS competencies adequately identify the workplace competencies necessary for employment in the health care industry. Though the results cannot be generalized, these responses do tend to validate the original 1991 SCANS list of skills and competencies as necessary for entry-level allied health care employment in many of Nevada’s hospitals.
Each of the four individuals responding "no" to question sixteen (Table 4), regarding the adequacy of the SCANS skills listed, provided additional skills for consideration. These suggestions and comments could be categorized as personal quality skills, and included: "excellence," "dignity," "efficiency," "ethical conduct," "professional appearance," and "attends work promptly as scheduled."

Similarly, two of the three individuals responding "no" to question thirty-seven (Table 4), regarding the adequacy of the SCANS competencies listed, provided additional skills for consideration. Specifically, one individual was concerned with employee's ability to comply with laws and regulations, follow safety procedures and policies, adhere to customer service standards, and responsibly maintain and document professional and technical licenses. Another individual, responding specifically to "technology competencies", indicated that her employees do not select, calibrate, and maintain the equipment; they have an information systems department that is responsible for these activities. The third individual did not give his or her reason for their "no" response.

Table 5 presents all of the additional skills and competencies suggested by respondents as well as those skills and competencies that individuals suggested could be removed from the basic skills and competencies list.

Though the vast majority of respondents agreed that the SCANS skills and competencies adequately reflect those necessary for entry-level employment in the allied health care professions, several respondents provided additional information or comments. Clearly one cannot argue with the perceived need by certain respondents to add dignity, dependability, adaptability or flexibility to the list of SCANS skills and competencies.
Suggested Skills and Competencies to be Added

<table>
<thead>
<tr>
<th>Suggested Skills and Competencies to be Added</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technical skills. Use of augmentative devices, tracheostomy speaking devices and laryngectomy devices – learn a lot about these devices on the job.</td>
<td>6</td>
</tr>
<tr>
<td>Adherence to outlined customer service standards. Know how things get done, resourcefulness in meeting goals. Collaboration and networking.</td>
<td>7</td>
</tr>
<tr>
<td>Dependability, reliability, adaptability, flexibility, work ethic.</td>
<td>7</td>
</tr>
<tr>
<td>Comply and observe applicable laws and regulations. Safety policies and procedures; know how to report incidents/problems.</td>
<td>3</td>
</tr>
<tr>
<td>Dignity. Professional appearance.</td>
<td>3</td>
</tr>
<tr>
<td>Knowledge of the industry. Knowledge of chain of command.</td>
<td>2</td>
</tr>
<tr>
<td>External equipment repair and working with external vendors.</td>
<td>1</td>
</tr>
</tbody>
</table>

Suggested Skills and Competencies to be Removed

<table>
<thead>
<tr>
<th>Suggested Skills and Competencies to be Removed</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum needs for computer technology at present.</td>
<td>4</td>
</tr>
<tr>
<td>Resource competencies are necessary to acquire, but not necessarily at entry-level skills for our employees. New grads don’t trouble shoot equipment well. They are generally willing to critique and help improve workflow.</td>
<td>3</td>
</tr>
</tbody>
</table>

provided in the survey. However, it could be argued that several of the skills and/or competencies suggested (customer service standards, use of devices, chain of command, collaboration and networking) were already on the SCANS list. Also of interest was the number of respondents suggesting little need for computer skills, though several of these respondents did indicate that knowledge of specialty devices was important.

Notwithstanding, these few suggestions, many of which dealt with site specific or industry specific knowledge (i.e., technical skills, augmentative devices, laws and regulations, chain of command) the findings do confirm the validity of the SCANS skills and competencies as necessary for entry-level employees within the respondents’ allied health care departments.

Research Question Two
The second research question asked, to what extent do Nevada allied health care providers consider each of the SCANS (1991) skills and competencies necessary for entry-level employment into the allied health care industry?

Table 6 represents the frequency of employer responses regarding the importance of each of the SCANS skills for entry-level employment. These are clustered under the headings of "Basic Skills," "Thinking Skills," and "Personal Qualities."

Table 6: How necessary are the following workplace skills to entry-level employment in your hospital? (n = 70)

<table>
<thead>
<tr>
<th>SCANS Skills</th>
<th>Not Necessary</th>
<th>Mostly Unnecessary</th>
<th>Necessary</th>
<th>Very Necessary</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Basic Skills</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reading</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>68</td>
</tr>
<tr>
<td>Writing</td>
<td>0</td>
<td>1</td>
<td>11</td>
<td>58</td>
</tr>
<tr>
<td>Arithmetic/mathematics</td>
<td>0</td>
<td>5</td>
<td>34</td>
<td>31</td>
</tr>
<tr>
<td>Listening</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>68</td>
</tr>
<tr>
<td>Speaking</td>
<td>0</td>
<td>0</td>
<td>9</td>
<td>60</td>
</tr>
<tr>
<td><strong>Thinking Skills</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Creative thinking</td>
<td>0</td>
<td>1</td>
<td>41</td>
<td>27</td>
</tr>
<tr>
<td>Decision-making</td>
<td>0</td>
<td>0</td>
<td>8</td>
<td>62</td>
</tr>
<tr>
<td>Problem solving</td>
<td>0</td>
<td>0</td>
<td>6</td>
<td>64</td>
</tr>
<tr>
<td>Conceptualizing</td>
<td>0</td>
<td>6</td>
<td>27</td>
<td>37</td>
</tr>
<tr>
<td>Knowing how to learn</td>
<td>0</td>
<td>0</td>
<td>22</td>
<td>48</td>
</tr>
<tr>
<td>Reasoning</td>
<td>0</td>
<td>3</td>
<td>19</td>
<td>48</td>
</tr>
<tr>
<td><strong>Personal Qualities</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self-esteem</td>
<td>0</td>
<td>1</td>
<td>28</td>
<td>38</td>
</tr>
<tr>
<td>Sociability</td>
<td>0</td>
<td>0</td>
<td>25</td>
<td>45</td>
</tr>
<tr>
<td>Self-management</td>
<td>0</td>
<td>0</td>
<td>14</td>
<td>56</td>
</tr>
<tr>
<td>Integrity/honesty</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>67</td>
</tr>
</tbody>
</table>

Of the fifteen SCANS skills provided, nine were rated "necessary" or "very necessary" by all respondents. None of the SCANS skills received a rating of "not necessary."
necessary,” while one or more respondents rated six skills as “mostly unnecessary.”

These results not only support the skills provided in the SCANS report (1991), but also confirms suggestions in the literature (Campbell, 1996; Petty, 1996; Postrell, 1998; Yeatts and Hyten, 1998; et. al.) that the employee of today and in the future will be required to possess strong general employability skills.

Similarly, an analysis of the extent to which Nevada allied health care employers consider each of the SCANS (1991) competencies necessary for entry-level employment in the allied health care industry was performed. Table 7 provides the frequency of employer responses to the importance of each of the SCANS competencies to entry-level employment. These competencies are clustered under the headings of: a) Resource Competencies, b) Interpersonal Competencies, c) Information Competencies, d) Systems Competencies, and e) Technology Competencies.

While at least fifty percent of the respondents believed all of the SCANS competencies to be either “important” or “very important,” a much broader range of scores are evident when compared to the SCANS skills. Seventeen of the 20 competencies received ratings of “mostly unnecessary,” while eight received ratings of “not necessary.” This would indicate a greater degree of disagreement among the respondents regarding their perceptions of the necessity of the SCANS competencies than was evident for the SCANS skills. This could suggest that while the skills listed in the SCANS report might be more universal to all allied health care job settings, the SCANS competencies might not. For instance, though reading, listening, problem-solving, and integrity and honesty

Table 7: How necessary are the following workplace competencies to entry-level employment in your hospital? (n = 70)

<table>
<thead>
<tr>
<th>SCANS Competencies</th>
<th>Not</th>
<th>Mostly</th>
<th>Necessary</th>
<th>Very</th>
</tr>
</thead>
</table>
were deemed necessary for all the allied health care fields identified. Certain competencies (e.g., allocates money, improves or designs systems, select technology) may or may not be as necessary depending on the specific allied health care field (e.g., dietician vs. radiology.

<table>
<thead>
<tr>
<th>Resource Competencies</th>
<th>Necessary</th>
<th>Unnecessary</th>
<th>Necessary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Allocates time</td>
<td>0</td>
<td>2</td>
<td>18</td>
</tr>
<tr>
<td>Allocates money</td>
<td>12</td>
<td>23</td>
<td>23</td>
</tr>
<tr>
<td>Allocates materials and facility resources</td>
<td>3</td>
<td>12</td>
<td>36</td>
</tr>
<tr>
<td>Allocates human resources</td>
<td>5</td>
<td>12</td>
<td>36</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Interpersonal Competencies</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Participate as a member of a team</td>
<td>0</td>
<td>0</td>
<td>6</td>
</tr>
<tr>
<td>Teach others new skills</td>
<td>0</td>
<td>1</td>
<td>19</td>
</tr>
<tr>
<td>Serve clients/customers</td>
<td>0</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>Exercise leadership</td>
<td>1</td>
<td>7</td>
<td>34</td>
</tr>
<tr>
<td>Negotiate</td>
<td>1</td>
<td>12</td>
<td>25</td>
</tr>
<tr>
<td>Work with diversity</td>
<td>0</td>
<td>0</td>
<td>8</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Information Competencies</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Acquire and evaluate information</td>
<td>0</td>
<td>1</td>
<td>15</td>
</tr>
<tr>
<td>Organize and maintain information</td>
<td>0</td>
<td>1</td>
<td>14</td>
</tr>
<tr>
<td>Interpret and communicate information</td>
<td>0</td>
<td>1</td>
<td>10</td>
</tr>
<tr>
<td>Use computers to process information</td>
<td>0</td>
<td>6</td>
<td>17</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Systems Competencies</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Understand systems</td>
<td>0</td>
<td>9</td>
<td>29</td>
</tr>
<tr>
<td>Monitor and correct performance</td>
<td>1</td>
<td>10</td>
<td>26</td>
</tr>
<tr>
<td>Improve or design systems</td>
<td>2</td>
<td>11</td>
<td>27</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Technology Competencies</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Select technology</td>
<td>2</td>
<td>14</td>
<td>31</td>
</tr>
<tr>
<td>Apply technology to task</td>
<td>0</td>
<td>7</td>
<td>30</td>
</tr>
<tr>
<td>Maintain/troubleshoot equipment</td>
<td>0</td>
<td>15</td>
<td>24</td>
</tr>
</tbody>
</table>
technologist). Furthermore, job responsibilities within the same allied health care field may vary based upon the size or administrative structure of each individual hospital.

It is instructive to reflect upon the overall general high ratings of the SCANS competencies in light of the recent literature on workplace requirements. According to the literature reviewed, employees who possess the ability to manage resources (Day and Koorland, 1997), manage themselves and others (Campbell, 1996; Heinemann, 1996; and Levy, 1995), maintain, interpret, and use information (Hines, 1994; Yeatts, Folts, and Knapp, 2000), understand the systems they work with and within (Howell and Wolff, 1991; Acello, 2000), and use a vast array of technologies (Gray and Herr, 1998; Carnevale, 1991) are necessary for maintaining a competitive and highly productive workplace. According to the findings of this study, these same skills are necessary for entry and success in the allied health care industry in Nevada.

Table 8 provides a computed percent of responses in the “necessary” and “very necessary” categories along with a mean score for each SCAN skill and competency. Each of the skills and competencies are presented in rank order from highest to lowest percentage ratings.

As can be seen in Table 8, twelve of the thirty-five skills and competencies received ratings of “necessary” or “very necessary” by all of the respondents. When ranked by mean score, the highest ranked SCANS skills and competencies include the abilities to

<table>
<thead>
<tr>
<th>Table 8: Respondents perceived importance of SCANS skills and competencies for entry-level allied health care employment in Nevada.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Skills and Competencies</strong></td>
</tr>
<tr>
<td>----------------------------</td>
</tr>
</tbody>
</table>

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<table>
<thead>
<tr>
<th>Skill</th>
<th>Percentage</th>
<th>Rating</th>
<th>Standard Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reading</td>
<td>100%</td>
<td>2.97</td>
<td>.17</td>
</tr>
<tr>
<td>Listening</td>
<td>100%</td>
<td>2.97</td>
<td>.17</td>
</tr>
<tr>
<td>Integrity/honesty</td>
<td>100%</td>
<td>2.96</td>
<td>.20</td>
</tr>
<tr>
<td>Serve clients/customers</td>
<td>100%</td>
<td>2.94</td>
<td>.23</td>
</tr>
<tr>
<td>Problem solving</td>
<td>100%</td>
<td>2.91</td>
<td>.28</td>
</tr>
<tr>
<td>Participate as a member of a team</td>
<td>100%</td>
<td>2.91</td>
<td>.28</td>
</tr>
<tr>
<td>Decision-making</td>
<td>100%</td>
<td>2.89</td>
<td>.32</td>
</tr>
<tr>
<td>Works with diversity</td>
<td>100%</td>
<td>2.89</td>
<td>.32</td>
</tr>
<tr>
<td>Speaking</td>
<td>100%</td>
<td>2.87</td>
<td>.34</td>
</tr>
<tr>
<td>Interpret and communicate information</td>
<td>98.6%</td>
<td>2.83</td>
<td>.42</td>
</tr>
<tr>
<td>Writing</td>
<td>98.6%</td>
<td>2.81</td>
<td>.43</td>
</tr>
<tr>
<td>Self-management</td>
<td>100%</td>
<td>2.80</td>
<td>.40</td>
</tr>
<tr>
<td>Organize and maintain information</td>
<td>98.6%</td>
<td>2.77</td>
<td>.46</td>
</tr>
<tr>
<td>Acquire and evaluate information</td>
<td>98.6%</td>
<td>2.76</td>
<td>.47</td>
</tr>
<tr>
<td>Teach others new skills</td>
<td>98.6%</td>
<td>2.70</td>
<td>.49</td>
</tr>
<tr>
<td>Allocates time</td>
<td>97.0%</td>
<td>2.69</td>
<td>.53</td>
</tr>
<tr>
<td>Knowing how to learn</td>
<td>100%</td>
<td>2.69</td>
<td>.47</td>
</tr>
<tr>
<td>Sociability</td>
<td>100%</td>
<td>2.64</td>
<td>.48</td>
</tr>
<tr>
<td>Reasoning</td>
<td>95.7%</td>
<td>2.64</td>
<td>.57</td>
</tr>
<tr>
<td>Use computers to process information</td>
<td>91.4%</td>
<td>2.59</td>
<td>.65</td>
</tr>
<tr>
<td>Self-esteem</td>
<td>98.6%</td>
<td>2.57</td>
<td>.53</td>
</tr>
<tr>
<td>Conceptualizing</td>
<td>91.4%</td>
<td>2.44</td>
<td>.65</td>
</tr>
<tr>
<td>Creative thinking</td>
<td>98.6%</td>
<td>2.38</td>
<td>.52</td>
</tr>
<tr>
<td>Apply technology to task</td>
<td>90.0%</td>
<td>2.37</td>
<td>.66</td>
</tr>
<tr>
<td>Arithmetic/mathematics</td>
<td>92.9%</td>
<td>2.37</td>
<td>.62</td>
</tr>
<tr>
<td>Understand systems</td>
<td>87.1%</td>
<td>2.33</td>
<td>.70</td>
</tr>
<tr>
<td>Monitor and correct performance</td>
<td>84.2%</td>
<td>2.30</td>
<td>.77</td>
</tr>
<tr>
<td>Maintain and troubleshoot equipment</td>
<td>78.6%</td>
<td>2.23</td>
<td>.78</td>
</tr>
<tr>
<td>Exercise leadership</td>
<td>88.6%</td>
<td>2.27</td>
<td>.70</td>
</tr>
<tr>
<td>Negotiate</td>
<td>81.4%</td>
<td>2.26</td>
<td>.79</td>
</tr>
<tr>
<td>Improve or design systems</td>
<td>81.4%</td>
<td>2.21</td>
<td>.81</td>
</tr>
<tr>
<td>Select technology</td>
<td>77.1%</td>
<td>2.07</td>
<td>.80</td>
</tr>
<tr>
<td>Allocates materials and facility resources</td>
<td>78.5%</td>
<td>2.01</td>
<td>.79</td>
</tr>
<tr>
<td>Allocates human resources</td>
<td>75.7%</td>
<td>1.93</td>
<td>.84</td>
</tr>
<tr>
<td>Allocates money</td>
<td>50.0%</td>
<td>1.50</td>
<td>.97</td>
</tr>
</tbody>
</table>

read, listen, have personal integrity and honesty, serve clients and customers, solve problems, and participate as a member of a team. These were followed in order by
abilities to make decisions, work with diversity, speak, interpret and communicate information, and write.

The ten lowest ranking skills and competencies included the abilities to understand systems, maintain and troubleshoot equipment, monitor and correct performance, exercise leadership, negotiate, improve or design systems, select technology, allocate materials and facility resources, allocate human resources, and allocate money.

It is interesting to note that all of the SCANS skills and competencies were rated as either "necessary" or "very necessary" by at least fifty percent of respondents. It might also be noted that as the mean scores go down the standard deviation goes up, indicating greater agreement on those skills ranked higher and lesser agreement on the lower ranked skills. Speculatively, these disagreements among respondents on certain skills and competencies might be a reflection of their specific institutional or departmental job requirements. Thus, though the skills and competencies of reading, listening, integrity or honesty, serving clients or customers, might be considered universal requirements for any allied health care worker, the lower and more diversely rated skills and competencies may or may not be considered as necessary depending upon the job requirements of a specific workplace.

Even though several of the SCANS skills and competencies received ratings in each of the four categories, the data clearly support the fact that at least half of respondents to the survey perceived all of the SCANS skills and competencies reported in 1991 as necessary for entry level employment in their hospitals.

Research Question Three

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Question three concerned the extent to which Nevada allied health care employers perceive their entry-level employees as sufficiently possessing the SCANS (1991) skills and competencies. Using a percentage estimate, from a low of 0% to a high of 100%, the allied health care managers in the study were asked the extent to which they perceive their entry-level employees as sufficiently possessing the SCANS (1991) skills and competencies. Tables 9, 10, 11, and 12 provide a summary of the respondents’ perceptions. A complete listing of the computed responses is provided in appendix four.

An analysis of the responses revealed several interesting findings. Only two skills, reading and integrity or honesty, were perceived to be sufficiently possessed by greater than ninety percent of entry-level employees (Table 9).

Table 9: Skills perceived to be sufficiently possessed by greater than 90 percent of employees entering the allied health care industry. (Range = 0% -100%)

<table>
<thead>
<tr>
<th>Basic Skills</th>
<th>Response Frequency</th>
<th>Range</th>
<th>Mean</th>
<th>S. D.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reading</td>
<td>65</td>
<td>20%-100%</td>
<td>94.8</td>
<td>13.7</td>
</tr>
<tr>
<td>Personal Qualities</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Integrity or honesty</td>
<td>64</td>
<td>20%-100%</td>
<td>91.2</td>
<td>12.9</td>
</tr>
</tbody>
</table>

However, twenty SCANS skills and competencies were deemed sufficiently possessed by 80 to 90 percent of entry-level employees (Table 10). These included the SCANS skills and competencies deemed sufficiently possessed by 80 percent of entry-level employees include: reading, integrity and honesty, writing, arithmetic and mathematics, listening, speaking, decision-making, problem solving, knowing how to

Table 10: Skills and competencies perceived to be sufficiently possessed by 80 - 90 percent of employees entering the allied health care industry. (Range= 0% -100%)

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<table>
<thead>
<tr>
<th>Basic Skills</th>
<th>Response Frequency</th>
<th>Range</th>
<th>Mean</th>
<th>S. D.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Writing</td>
<td>63</td>
<td>10%-100%</td>
<td>88.3</td>
<td>17.0</td>
</tr>
<tr>
<td>Arithmetic/mathematics</td>
<td>63</td>
<td>10%-100%</td>
<td>86.7</td>
<td>22.5</td>
</tr>
<tr>
<td>Listening</td>
<td>64</td>
<td>20%-100%</td>
<td>89.2</td>
<td>14.0</td>
</tr>
<tr>
<td>Speaking</td>
<td>63</td>
<td>10%-100%</td>
<td>88.2</td>
<td>14.6</td>
</tr>
<tr>
<td>Thinking Skills</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Decision-making</td>
<td>63</td>
<td>5%-100%</td>
<td>81.6</td>
<td>21.1</td>
</tr>
<tr>
<td>Problem solving</td>
<td>64</td>
<td>10%-100%</td>
<td>80.9</td>
<td>18.8</td>
</tr>
<tr>
<td>Knowing how to learn</td>
<td>63</td>
<td>20%-100%</td>
<td>84.5</td>
<td>17.8</td>
</tr>
<tr>
<td>Reasoning</td>
<td>60</td>
<td>10%-100%</td>
<td>81.3</td>
<td>21.3</td>
</tr>
<tr>
<td>Personal Qualities</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self-esteem</td>
<td>62</td>
<td>0%-100%</td>
<td>82.0</td>
<td>18.3</td>
</tr>
<tr>
<td>Sociability</td>
<td>63</td>
<td>20%-100%</td>
<td>86.0</td>
<td>13.8</td>
</tr>
<tr>
<td>Self-management</td>
<td>64</td>
<td>10%-100%</td>
<td>80.6</td>
<td>17.5</td>
</tr>
<tr>
<td>Interpersonal Competencies</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Participate as a member of a team</td>
<td>63</td>
<td>0%-100%</td>
<td>84.0</td>
<td>18.9</td>
</tr>
<tr>
<td>Serve clients/customers</td>
<td>63</td>
<td>5%-100%</td>
<td>89.4</td>
<td>16.0</td>
</tr>
<tr>
<td>Work with diversity</td>
<td>63</td>
<td>30%-100%</td>
<td>89.3</td>
<td>15.8</td>
</tr>
<tr>
<td>Information Competencies</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acquire and evaluate information</td>
<td>63</td>
<td>10%-100%</td>
<td>81.5</td>
<td>20.4</td>
</tr>
<tr>
<td>Organize and maintain information</td>
<td>62</td>
<td>10%-100%</td>
<td>82.7</td>
<td>18.4</td>
</tr>
<tr>
<td>Interpret and communicate</td>
<td>63</td>
<td>10%-100%</td>
<td>81.9</td>
<td>19.8</td>
</tr>
<tr>
<td>Use computers to process</td>
<td>64</td>
<td>5%-100%</td>
<td>81.6</td>
<td>20.3</td>
</tr>
</tbody>
</table>

learn, reasoning, self-esteem, sociability, self-management, participate as a member of a team, serve clients and customers, work with diversity, acquire and evaluate information, organize and maintain information, interpret and communicate information, and use computers to process information.
Conversely, twenty to thirty percent of those employees entering the allied health care industry (Table 11) were perceived to be lacking in eight of the necessary SCANS skills and competencies. These included: creative thinking, conceptualizing, allocates time, teach others new skills, exercise leadership, understand systems, monitor and correct performance, and apply technology to task.

Table 11: Skills and competencies perceived to be lacking in 20 to 30 percent of employees entering the allied health care industry. (Range = 0% - 100%)

<table>
<thead>
<tr>
<th>Thinking Skills</th>
<th>Response Frequency</th>
<th>Range</th>
<th>Mean</th>
<th>S. D.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Creative thinking</td>
<td>63</td>
<td>0%-100%</td>
<td>75.5</td>
<td>21.6</td>
</tr>
<tr>
<td>Conceptualizing</td>
<td>61</td>
<td>10%-100%</td>
<td>78.2</td>
<td>21.8</td>
</tr>
<tr>
<td>Resource Competencies</td>
<td>Response Frequency</td>
<td>Range</td>
<td>Mean</td>
<td>S. D.</td>
</tr>
<tr>
<td>Allocates time</td>
<td>64</td>
<td>0%-100%</td>
<td>77.7</td>
<td>19.2</td>
</tr>
<tr>
<td>Interpersonal Competencies</td>
<td>Response Frequency</td>
<td>Range</td>
<td>Mean</td>
<td>S. D.</td>
</tr>
<tr>
<td>Teach others new skills</td>
<td>63</td>
<td>10%-100%</td>
<td>78.1</td>
<td>23.7</td>
</tr>
<tr>
<td>Exercise leadership</td>
<td>61</td>
<td>2%-100%</td>
<td>70.3</td>
<td>26.4</td>
</tr>
<tr>
<td>Systems Competencies</td>
<td>Response Frequency</td>
<td>Range</td>
<td>Mean</td>
<td>S. D.</td>
</tr>
<tr>
<td>Understand systems</td>
<td>61</td>
<td>10%-100%</td>
<td>72.8</td>
<td>22.1</td>
</tr>
<tr>
<td>Monitor and correct performance</td>
<td>61</td>
<td>20%-100%</td>
<td>71.6</td>
<td>23.3</td>
</tr>
<tr>
<td>Technology Competencies</td>
<td>Response Frequency</td>
<td>Range</td>
<td>Mean</td>
<td>S. D.</td>
</tr>
<tr>
<td>Apply technology to task</td>
<td>63</td>
<td>10%-100%</td>
<td>71.1</td>
<td>24.9</td>
</tr>
</tbody>
</table>

Table 12 denotes the seven necessary SCANS competencies deemed to be insufficiently possessed by thirty percent or more of employees entering the allied health care industry. These included: allocates money, allocates materials or facility resources, allocates human
resources, negotiate, improve or design systems, select technology, and maintain and troubleshoot equipment.

Table 12: Skills and competencies deemed insufficiently possessed by 30 percent or more of employees entering the allied health care industry. (Range = 0% - 100%)

<table>
<thead>
<tr>
<th>Resource Competencies</th>
<th>Response Frequency</th>
<th>Range</th>
<th>Mean</th>
<th>S. D.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Allocates money</td>
<td>55</td>
<td>0%-100%</td>
<td>53.9</td>
<td>33.8</td>
</tr>
<tr>
<td>Allocates materials/facility</td>
<td>60</td>
<td>0%-100%</td>
<td>67.1</td>
<td>26.9</td>
</tr>
<tr>
<td>Allocates human resources</td>
<td>59</td>
<td>2%-100%</td>
<td>65.9</td>
<td>26.3</td>
</tr>
<tr>
<td>Interpersonal Competencies</td>
<td>Response Frequency</td>
<td>Range</td>
<td>Mean</td>
<td>S. D.</td>
</tr>
<tr>
<td>Negotiate</td>
<td>59</td>
<td>0%-100%</td>
<td>67.0</td>
<td>24.1</td>
</tr>
<tr>
<td>Systems Competencies</td>
<td>Response Frequency</td>
<td>Range</td>
<td>Mean</td>
<td>S. D.</td>
</tr>
<tr>
<td>Improve or design systems</td>
<td>61</td>
<td>10%-100%</td>
<td>64.5</td>
<td>24.5</td>
</tr>
<tr>
<td>Technology Competencies</td>
<td>Response Frequency</td>
<td>Range</td>
<td>Mean</td>
<td>S. D.</td>
</tr>
<tr>
<td>Select technology</td>
<td>58</td>
<td>1%-100%</td>
<td>64.1</td>
<td>26.3</td>
</tr>
<tr>
<td>Maintain and troubleshoot</td>
<td>63</td>
<td>0%-100%</td>
<td>60.6</td>
<td>27.6</td>
</tr>
</tbody>
</table>

Although an item analysis was not conducted on each of the thirty-five skills and competencies, the range of scores presented in Tables 9, 10, 11, and 12 indicate a broad range of perceptions by the employers. Several of the skills and competencies received percentage scores ranging from a low of 0% and a high of 100%. These scores would tend to suggest a perceived diversity of ability levels among entry-level employees. This could be a product of the specific allied health care field in which they work (i.e. dieticians may not need as high a skill level in maintaining and troubleshooting equipment as a radiology

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technologist); each requiring different skill sets. A further explanation might be that the
ability levels of entry-level employees are diverse and that either the employers have or
have not been satisfied with the skill and competency levels of their entry-level employees.

**Research Question Four**

Research question four focused on the extent of differences that exist between
employer perceived allied health care industry requirements and the perceived skills and
competencies of entry-level employees.

A comparison of the responses to these two questions was conducted for each
SCANS skill and competency on the survey instrument. A difference was computed
between the percentage of respondents reporting each skill or competency as necessary or
very necessary and what they perceived their entry-level employees possessing. Using the
two data sets, existing differences between perceived allied health care industry
requirements and the perceived skills and competencies of entry-level employees were
determined. Those skills and competencies found to have the largest differences are
presented in Table 13, while the entire comparison of the results to this question is located
in appendix five.

Upon comparison of the two data sets, differences between what employers perceived
as necessary for entry-level employment and the abilities possessed by their entry-level
employees were found to exist in thirty-four of the thirty-five SCANS skills and
competencies (Appendix 5). These differences ranged from a high of -23.1 percent
(creative thinking skill) to a low of +3.9 percent (allocates money competency). Overall, a
difference of at least 15 percentage points was determined for sixteen of the thirty-five
SCANS skills and competencies deemed necessary by the respondents (Table 13).
Table 13: Differences between employers’ perceived allied health care industry requirements and the perceived skills and competencies of entry-level employees.

<table>
<thead>
<tr>
<th>Basic Skills and Competencies</th>
<th>Valid N</th>
<th>Percentage of Employers Perceptions as either Necessary or Very Necessary</th>
<th>Percentage of Employees Perceived as Sufficiently Possessing</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Creative thinking</td>
<td>65</td>
<td>98.6%</td>
<td>75.5%</td>
<td>-23.1%</td>
</tr>
<tr>
<td>Teach others new skills</td>
<td>63</td>
<td>98.6%</td>
<td>78.1%</td>
<td>-20.5%</td>
</tr>
<tr>
<td>Self-management</td>
<td>64</td>
<td>100%</td>
<td>80.6%</td>
<td>-19.4%</td>
</tr>
<tr>
<td>Allocates time</td>
<td>64</td>
<td>97%</td>
<td>77.7%</td>
<td>-19.3%</td>
</tr>
<tr>
<td>Problem solving</td>
<td>64</td>
<td>100%</td>
<td>80.9%</td>
<td>-19.1%</td>
</tr>
<tr>
<td>Maintain and troubleshoot equipment</td>
<td>63</td>
<td>78.6%</td>
<td>60.6%</td>
<td>-18.0%</td>
</tr>
<tr>
<td>Apply technology to task</td>
<td>63</td>
<td>90.0%</td>
<td>71.1%</td>
<td>-18.9%</td>
</tr>
<tr>
<td>Decision-making</td>
<td>63</td>
<td>100%</td>
<td>81.6%</td>
<td>-18.4%</td>
</tr>
<tr>
<td>Exercise leadership</td>
<td>61</td>
<td>88.6%</td>
<td>70.3%</td>
<td>-18.3%</td>
</tr>
<tr>
<td>Acquire and evaluate information</td>
<td>63</td>
<td>98.6%</td>
<td>81.5%</td>
<td>-17.1%</td>
</tr>
<tr>
<td>Improve or design systems</td>
<td>61</td>
<td>81.4%</td>
<td>64.5%</td>
<td>-16.9%</td>
</tr>
<tr>
<td>Interpret and communicate information</td>
<td>63</td>
<td>98.6%</td>
<td>81.9%</td>
<td>-16.7%</td>
</tr>
<tr>
<td>Self-esteem</td>
<td>62</td>
<td>98.6%</td>
<td>82.2%</td>
<td>-16.4%</td>
</tr>
<tr>
<td>Participate as a member of a team</td>
<td>63</td>
<td>100%</td>
<td>84.0%</td>
<td>-16.0%</td>
</tr>
<tr>
<td>Organize and maintain information</td>
<td>62</td>
<td>98.6%</td>
<td>82.7%</td>
<td>-15.9%</td>
</tr>
<tr>
<td>Knowing how to learn</td>
<td>63</td>
<td>100%</td>
<td>84.5%</td>
<td>-15.5%</td>
</tr>
</tbody>
</table>

These findings tend to support the literature (Barryman and Bailey, 1992; O’Neil, 1992; O’Connor, 1993; Baloun, 1995; Cappelli et al. 1997; et al.), which has recently and consistently voiced concerns regarding the existence of a “skills gap” between the skills and competencies regarded as necessary in today’s workplace and those possessed by new employees. Clearly, according to the perceptions of respondents, differences also exist.
between allied health care industry requirements and the skills and competencies of their entry-level employees.

**Research Question Five**

Research question five asked what the perceived importance of the SCANS (1991) skills and competencies are to the productivity and profitability of respondents' hospitals.

Specifically, respondents were asked how necessary it is to their firm’s productivity that employees possess the workplace basic skills and competencies identified in the SCANS (1991) report. The results of this question are summarized in Table 14. Over ninety-eight percent responded that the SCANS skills and competencies were necessary or very necessary for their hospital’s productivity.

**Table 14: Importance of SCANS skills and competencies to productivity, (n = 70)**

<table>
<thead>
<tr>
<th>Rating</th>
<th>Frequency</th>
<th>Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very Necessary</td>
<td>59</td>
<td>85.5%</td>
<td>100%</td>
</tr>
<tr>
<td>Necessary</td>
<td>9</td>
<td>13.0%</td>
<td>14.4%</td>
</tr>
<tr>
<td>Mostly Unnecessary</td>
<td>1</td>
<td>1.4%</td>
<td>1.4%</td>
</tr>
<tr>
<td>Not Necessary</td>
<td>0</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Total Responses</td>
<td>66</td>
<td>100%</td>
<td></td>
</tr>
</tbody>
</table>

Furthermore, respondents were asked how important are the SCANS (1991) workplace basic skills and competencies among entry-level employees to their hospital’s profitability? The response frequencies to this question are presented in Table 15.
Table 15: Importance of SCANS skills and competencies to profitability.

<table>
<thead>
<tr>
<th>Rating</th>
<th>Frequency</th>
<th>Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very Necessary</td>
<td>52</td>
<td>76.5%</td>
<td>100%</td>
</tr>
<tr>
<td>Necessary</td>
<td>16</td>
<td>23.5%</td>
<td>23.5%</td>
</tr>
<tr>
<td>Mostly Unnecessary</td>
<td>0</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Not Necessary</td>
<td>0</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Total Responses</td>
<td>68</td>
<td>100%</td>
<td></td>
</tr>
</tbody>
</table>

Two of the allied health care managers answered that they worked in non-profit hospitals and therefore did not respond to this question. However, all the allied health care managers that did respond indicated that the SCANS skills and competencies were necessary or very necessary for their hospital's profitability. The results of these two questions clearly support the notion that SCANS skills and competencies are important and necessary for the respondents' hospitals to function productively and realize a profit.

**Summary**

The major purpose of this study was to ascertain and to describe the perceptions of Nevada allied health care providers regarding the importance of the workplace basic skills and competencies identified by the United States Department of Labor Secretary's Commission on Achieving Necessary Skills (SCANS, 1991). Due to the relatively small number of hospitals in Nevada (n=224), the entire population was surveyed. The frequency of returned surveys included seventy (70) responses representing small, medium, and large hospitals (Table 2) located in Northern and Southern Nevada (Table 1), and from each the eight allied health care classifications (Table 3). Returned surveys
represented over thirty percent of the entire population of allied health care department managers in Nevada's twenty-eight hospitals.

Data collected from the returned questionnaires were coded and entered into the Statistical Program for the Social Sciences (SPSS, 2000) for a descriptive analysis. Collected data indicated the mean, standard deviations, and range of scores for the dependent variables. For ease of interpretation, the results and answers to each research question, based upon the descriptive study design, were offered using relevant tables. Also provided was relevant discussion and analysis for each of the research questions.

The data collected in this study indicate that the majority of Nevada hospital allied health care employers perceive the workplace basic skills and competencies, identified by the SCANS (1991) report, necessary for entry-level employment (Tables 6 and 7). The data also suggest that differences exist between respondents' perceived allied health care entry-level requirements and the skills and competencies of their entry-level employees (Appendix 4). Finally, as perceived by respondents, the data indicate a strong relationship between the SCANS skills and competencies of its entry-level allied health care employees and their hospital's productivity (Table 14) and profitability (Table 15).
CHAPTER 5

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Introduction

Over the past ten years, the SCANS (Secretary's Commission on Achieving Necessary Skills, 1991) report has probably been the most often cited document for defining the nature of work and the skills needed to compete in the contemporary workplace. "Sponsored by the United States Secretary of Labor, the report of 31 eminent representatives of business, labor, education and government addressed specifically what readiness for work required." (Joyce and Voytek, 1996, p. 31). The SCANS report for America 2000, What Work Requires of Schools, (Secretary's Commission on Achieving Necessary Skills, 1991) identified three foundation skills: 1) basic reading, writing, and mathematics; 2) thinking skills; and 3) personal qualities. Five workplace competencies related to technology were also identified: 1) systems, 2) information, 3) interpersonal relations, 4) use of resources, and 5) technology. The SCANS report further defined effective job performance as being able to: a) identify, organize, plan and allocate resources; b) work with others; c) acquire and use information; d) understand complex interrelated systems; and e) work with a variety of technologies.

Having given researchers and practitioners a foundation from which to work, the authors of the SCANS report further challenged stakeholders to "test their conclusions" regarding the common core of skills and competencies that constitute job readiness in
specific work environments (1991, p. ix). Since a review of the literature failed to review any employability studies specifically on the allied health care industry, generalization of the SCANS report to that industry could be considered invalid and inappropriate. For the purpose of providing valid and reliable employability data to allied health care educators and care providers in Nevada, specific data needed to be gathered.

A summary of procedures utilized in this study is provided in this chapter. This is followed by a summary and discussion of the findings. Conclusions relative to each of the research questions are followed by a brief discussion of the significance of the study. The chapter concludes with recommendations for practical application of the findings and for further research.

**Summary of Purpose and Procedures**

**Purpose**

The purpose of this study was to ascertain and describe the perceptions of Nevada allied health care providers regarding the importance of the workplace basic skills and competencies identified by the United States Department of Labor Secretary's Commission on Achieving Necessary Skills (SCANS, 1991). Specifically, the purposes of this study included a determination of the extent to which the Nevada allied health care employers surveyed considered each of the SCANS (1991) skills and competencies as adequately identifying those necessary for entry-level employment into the allied health care industry.

Additionally, the study determined the extent to which the Nevada allied health care employers in the study perceived their entry-level employees as sufficiently possessing
SCANS (1991) skills and competencies. Existing differences between respondent perceptions of allied health care industry requirements and the entry-level skills and competencies of their employees were also determined. Finally, the study determined how important the SCANS (1991) skills and competencies are to the productivity and profitability of the respondents' hospitals.

Instrumentation

Since a suitable instrument specific to allied health care could not be found, the researcher constructed the instrument used in the study. Survey questions utilized in this study were developed using the same skills and competencies identified in the Secretaries Commission on Achieving Necessary Skills (SCANS, 1991) report.

The SCANS report for America 2000, What Work Requires of Schools, (Secretary's Commission on Achieving Necessary Skills, 1991) identified three sets of basic skills: 1) reading, writing, and mathematics; 2) thinking skills; and 3) personal qualities. Five sets of workplace competencies were also identified: 1) technology, 2) systems, 3) information, 4) interpersonal relations, and 5) resources). Content validity was initially established by incorporating the SCANS (1991) terminology and descriptions into the questionnaire. Personnel at the Cannon Center for Survey Research at the University of Nevada, Las Vegas reviewed the document for construct validity. A panel composed of allied health care professionals and educators with expertise in research further confirmed validity.

Population Studied

The population under consideration for this study included the managers of eight allied health departments in each of Nevada's twenty-eight hospitals, as provided by the
Center for Business and Economic Research (2001) at the University of Nevada Las Vegas. The managers of the eight allied health departments included those employed as 1) dieticians, 2) medical laboratory technologists, 3) medical records personnel, 4) occupational therapists, 5) physical therapists, 6) radiology technologists, 7) respiratory therapists, and 8) speech-language pathologists and audiologists who help health practitioners diagnose and treat patients (Bureau of Labor Statistics, 2000).

Data Collection

A description of the research protocol was submitted to the University of Nevada Las Vegas Office for the Protection of Research Subjects, which subsequently granted permission to conduct the study (Appendix 1). Collection of data was accomplished through the use of a mailed questionnaire, which included a letter of transmittal (Appendix 2) and the survey instrument (Appendix 3), and a stamped, self-addressed return envelope. To increase response rates, follow up phone calls were made approximately two weeks after the surveys were mailed.

Of the 224 surveys mailed out, seventy questionnaires were returned. This represented a return rate of 31.3 percent.

Data Analysis

Data collected from the returned questionnaires were coded and entered into the Statistical Program for the Social Sciences (SPSS version 10.0, 2000) for a descriptive analysis. Descriptive statistics (frequency, mean, range, standard deviations, and percentage) were applied to provide descriptive and comparative results for each of the questions. Additional respondent comments were sorted and summarized.
Discussion of Findings

According to Cappelli, et. al., "one of the best ways to learn about the demand for workers' skills is to ask employers directly about the skills they need" (1997, p. 157). Following the aforementioned recommendation, this study was designed to directly ask Nevada allied health care hospital employers, through the use of a survey, their perceptions of the workplace basic skills and competencies identified in the SCANS (1991) report. To direct the investigation, five research questions were developed. The following summary of the research findings respond to these five questions.

As a group, the seventy respondents, representing eight allied health care fields: 1) dietetics, 2) clinical laboratory, 3) medical records, 4) physical therapy, 5) occupational therapy, 6) radiology, 7) respiratory therapy, and 8) speech-language pathology and audiology in Nevada, agreed that the SCANS skills and competencies adequately identify those necessary for entry-level employment in their facilities. Over ninety-two percent of the respondents agreed that the basic workplace skills represented those necessary for entry-level employment, while over ninety-three percent indicated the competencies were necessary for initial employment.

The answer to this question is an important finding of this study. Though these results cannot be generalized, it appears clearly that the list of SCANS skills and competencies developed in 1991, using a cross-section of America's business and industry leaders, are valid for the allied health care industry, at least in the hospital settings included in this study. Furthermore, the agreement found among respondents provides a general response to the often-cited (Joyce and Voytek, 1996; Hull, 1995; Durrah, 1991; et. al.) complaint of educators concerning the lack of any specific list of workplace basic skills and

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competencies for industry trainers and pre-employment educators to follow. This validation of the information provided in the SCANS report provides support for the inclusions of these skills and competencies into allied health care pre-employment preparation or inservice programs in Nevada.

Since the SCANS skills and competencies provided on the survey instrument were overwhelmingly supported by respondents as being necessary for entry-level employment, a more specific analysis relevant to the necessity of each skill and competency for entry-level employment was warranted. Of the thirty-five skills and competencies provided on the survey, all were deemed either necessary or very necessary by at least fifty percent of respondents. Further analysis revealed that while twelve of the skills and competencies were perceived as either necessary or very necessary by all of the respondents, their existed a broader range of perceptions concerning several of the skills and competencies.

The twelve skills and competencies unanimously perceived as "necessary" or "very necessary" for entry-level employment in the allied health care industry were:

1. READING - Locate, understand, and interpret written information in prose and in documents such as manuals, graphs, and schedules.

2. LISTENING - Receive, attend to, interpret, and respond to verbal messages and other cues.

3. INTEGRITY/HONESTY - Choose ethical courses of action.

4. SERVE CLIENTS/CUSTOMERS - Work to satisfy customer's expectations.

5. PROBLEM SOLVING - Recognize problems; devise and implement plan of action.

6. PARTICIPATE AS A MEMBER OF A TEAM - Contribute to group effort.
7. DECISION-MAKING - Specify goals and constraints generate alternatives, consider risks, and evaluate and choose the best alternative.

8. WORK WITH DIVERSITY - Work well with men and women and with a variety of ethnic, cultural, social, or educational backgrounds.

9. SPEAKING - Organize ideas and communicate orally.

10. SELF-MANAGEMENT - Assess self accurately, set personal goals, monitor progress and exhibit self-control.

11. KNOWING HOW TO LEARN - Use efficient learning techniques to acquire and apply new knowledge and skills.

12. SOCIABILITY - Demonstrate understanding, friendliness, adaptability, empathy, and politeness in group settings.

These findings concur with much of the recent workforce education literature reviewed in chapter two, which identifies basic skills, thinking skills, or personal qualities skills as being necessary for employment in the contemporary workplace. Given the nature of work within the allied health care industry, requiring heavy reliance upon communication, interpersonal, and problem-solving skills (Dictionary of Occupational Titles, 1991), these findings appear reasonable and valid.

Listed below are twelve additional skills and competencies perceived to be either necessary or very necessary by at least ninety percent of the respondents. These were:

1. INTERPRET AND COMMUNICATE INFORMATION - Select, analyze, and communicate information to others.
2. WRITING - Communicate thoughts, ideas, information, and messages in writing; and create documents such as letters, directions, manuals, reports, graphs, and flow charts.

3. ORGANIZE AND MAINTAIN INFORMATION - Organize, process, maintain records and information systematically.

4. ACQUIRE AND EVALUATE INFORMATION - Identify, obtain, create, and evaluate data.

5. TEACH OTHERS NEW SKILLS - Teach, coach, and help others learn and apply new skills.

6. ALLOCATES TIME - Select goal-relevant activities, rank them, allocate time to activities, and prepare and follow schedules.

7. REASONING - Discover a rule or principle underlying the relationship between two or more objects and apply it when solving a problem.

8. SELF-ESTEEM - Believe in own self-worth and maintain a positive view of self.

9. USE COMPUTERS TO PROCESS INFORMATION - Uses computer to acquire, organize, analyze, and communicate information.

10. CONCEPTUALIZING - Organize and process symbols, pictures, graphs, objects, and other information.

11. CREATIVE THINKING - Generate new ideas.

12. ARITHMETIC/MATHEMATICS - Perform basic computation and approaches practical problems by choosing appropriately from a variety of mathematical techniques.
Once again, given the literature and the nature of work within the allied health care industry, the perceived necessity ratings of these skills and competencies are not unexpected.

Skills and competencies receiving either necessary or very necessary ratings from over eighty percent of respondents were:

1. **APPLY TECHNOLOGY TO TASK** - Understand overall intent and proper procedures for setup and operation of equipment.

2. **UNDERSTAND SYSTEMS** - Know how social, organizational, and technological systems work and operate effectively with them.

3. **MAINTAIN AND TROUBLESHOOT EQUIPMENT** - Prevent, identify, or solve problems with equipment, including computers and other technologies.

4. **MONITOR AND CORRECT PERFORMANCE** - Distinguish trends, predict impacts on system operations, and diagnose deviations in system's performance and correct malfunctions.

5. **EXERCISE LEADERSHIP** - Communicate ideas to justify position, persuade and convince others, responsibly challenge existing procedures and policies.

6. **NEGOTIATE** - Work toward agreements involving exchange of resources, resolve divergent interests.

7. **IMPROVE OR DESIGN SYSTEMS** - Suggest modifications to existing systems and develop new or alternative systems to improve performance.

Though still considered necessary or very necessary by at least fifty percent of the respondents, four skills and competencies were perceived by at least twenty percent of respondents as being not necessary or mostly unnecessary. These were:
1. SELECT TECHNOLOGY - Choose procedures, tools or equipment including computers and related technologies.

2. ALLOCATES MATERIALS AND FACILITY RESOURCES - Acquire, store, allocate, and use material or space efficiently.

3. ALLOCATES HUMAN RESOURCES - Assess skills and distribute work accordingly, evaluate performance and provide feedback.

4. ALLOCATES MONEY - Use or prepare budgets, make forecasts, keep records, and make adjustments to meet objectives.

These last two groupings of somewhat lower rated skills and competencies were unexpected by the researcher. Since the majority of these skills and competencies were clustered in SCANS as either technology competencies, systems competencies, or resource management competencies, one would expect them to be rated higher for the allied health care industry, an industry which relies heavily on technical and human resources. Perhaps, as the findings suggest here, though these skills and competencies were deemed necessary for entry-level employment in the allied health care industry, the expectation of entry-level workers to perform these skills and competencies may not be as high. That is, the requirements to allocate resources, select technology, and monitor and maintain technology may not be considered the type of activities entry-level personnel are generally expected to do.

When respondents were asked to report the degree to which Nevada allied health care employers perceive their entry-level employees as sufficiently possessing the SCANS (1991) skills and competencies, it is of interest to note that only two skills, reading and integrity and honesty, were perceived to be sufficiently possessed by greater than ninety
percent of their entry-level employees. However, twenty SCANS skills and competencies were deemed sufficiently possessed by eighty percent of entry-level employees. Conversely, twenty to forty-five percent of those employees entering the allied health care industry were perceived to insufficiently possess fifteen of the necessary SCANS skills and competencies listed on the survey.

Using the two sets of data obtained through the survey, existing differences between perceived allied health care industry requirements and the perceived skills and competencies of entry-level employees were determined. An analysis of the data revealed differences between what employers perceived as necessary for entry-level employment and the abilities possessed by their entry-level employees on thirty-four of the thirty-five SCANS skills. Specifically, a difference of at least 15 percentage points was determined for sixteen of the thirty-five SCANS skills and competencies deemed necessary by the respondents. Consequently, it was concluded that there exists a skills gap between the skills and competencies regarded as necessary in today's hospitals and those possessed by new employees. Though it might be argued that a small difference in these two grouped responses may be of little concern, the question of how great a difference need there be to cause concern remains. Certainly, in an industry so essential to the human endeavor as health care, one might become concerned with even minimal differences.

Over ninety-eight percent of the managers responding to the importance of each SCANS (1991) skills and competencies to their hospital's productivity rated the SCANS skills and competencies as necessary or very necessary to their hospital's productivity, while 100 percent of those responding rated these skills and competencies as necessary or very necessary for profitability. If this is indeed true, then the perceived
"skills gaps" discussed previously should provide good reason for hospital administrators and allied health care managers to have concern. Clearly, when the responses to the perceived importance of each of the SCANS skills and competencies are to a hospital's productivity and profitability are considered, adequate pre-employment preparation and/or inservice training that integrally includes the skills and competencies identified in the SCANS report is justified.

Conclusions

"Of the three traditional capital components of national wealth (natural resources, capital/technology, and labor), labor or human capital is considered the most important" (Gray and Herr, 1998, p. 63). The pivotal point is that the quality of the workforce will determine the degree to which natural resources and capital/technology can be used to their fullest potential. During the last two decades, governments have encouraged significant reforms in the linkages between education, training, and employment in order to maintain or enhance our country's economic competitiveness. "A significant component of these reforms has been a focus on defining competencies seen as necessary to enable individual workers to perform their daily tasks more efficiently and thereby achieving greater productivity" (O'Neil, Jr., 1997, p. 122).

In the allied health care industry the rapid movement into advanced biotechnology, coupled with the national movement toward managed health care and greater patient-provider interactions have contributed to the need for identified and defined basic workplace skills and competencies. This descriptive research was designed to contribute to that need.

Though limited in scope, this study, provides a degree of validation to the
applicability of the identified SCANS skills and competencies within the allied health care industry. In addition to the fact that over 93 percent of the Nevada allied health care employers responding to the survey consider SCANS as adequately identifying competencies and skills needed for entry-level employment, it is also meaningful to point out that over 98 percent of those respondents consider SCANS skills and competencies necessary or very necessary for their hospital’s productivity. In addition, with the exception of two of the respondents who stated they were non profit hospitals, all the other respondents reported that their entry-level employees abilities, in regard to the identified SCANS basic skills and competencies, are either necessary or very necessary to their hospital’s profitability.

Furthermore, this study identified existing “gaps” between the allied health care industry requirements for employment and the skills and competencies possessed by entry-level employees in Nevada. Whether or not the magnitude of the gaps identified in the study are enough to cause concern was not within the limits of the study or the scope of the researcher to determine.

Significance of Study

Although the results of this research show that the SCANS (1991) basic skills and competencies were deemed necessary for entry-level employment in respondents’ allied health care facilities, it is indeed true that essential skills for competitive participation in the workforce may go beyond those skills and competencies universally identified in the SCANS report. As suggested by Pucel (1995) and Sticht and Mikulecky (1984), there probably exists a much narrower and different subset of skills and competencies necessary for success in each specific occupation. Furthermore, Gray and Herr (1998)
suggest, workforce education curriculum should concentrate on these subsets of skills related to specific occupations. In any event, identification of the critical workplace basic skills and competencies for the 21st century “must be the foundation of training and educational programs for workers in the next decade” (Saveri, 1991, p. 150).

Thus, the significance of this study lends itself to the importance of creating SCANS related curriculum and training techniques for those preparing for allied health care professions in Nevada. A valid identification of workplace basic skills and competencies required within Nevada’s allied health care industry provides educators, employers, policymakers, etc. with a better understanding of employees’ needs. Furthermore, those involved in the pre-employment or in-service development of allied health care providers in Nevada can use these findings in developing a clearer picture of the workplace basic skills and competencies required of their students and/or employees. Consequently, through this study, allied health care educators in Nevada may add relevant employability skills and competencies to their allied health care curricula.

Furthermore, since researchers have found a positive correlation between the basic skills of a firm’s workforce and its ability to improve productivity (Joyce and Voytek, 1996), businesses are more than likely to benefit from curricula adjusted according to the results of the study. The development of a workplace basic skills curriculum, validated by employer input, could also better assist students in their transition from school-to-work, and ultimately, help them succeed in their chosen careers.
Limitations

The results of the study may have been affected by the following limitations:

1. The study was restricted to the geographic boundaries of Nevada and findings can only be generalized to employer respondents. Thus, generalizing the findings to regional and national employers is limited.

2. The study included only hospital-employed allied health care providers identified as dieticians, laboratory therapists, medical records personnel, occupational therapists, radiology technologists, respiratory therapists, and speech/language and audiology therapists. Thus, the ability to generalize the findings to other allied health care providers is limited.

3. In order to avoid sending surveys to firms that do not employ identified allied health care providers, this study included only major medical facilities (e.g., hospitals) that have multiple departments or units and employ multiple kinds of allied health care providers. Doctors’ offices and single purpose clinics were not included. Thus, the ability to generalize the findings to allied health care providers of smaller or different facilities is limited.

4. The study was also limited in that the response rate was fairly low based upon the willingness of employers to respond to the survey.

5. Though every effort was made to contact individuals directly responsible for supervision of allied health care employees, the study was limited by the knowledge and perception of the individuals actually responding to the survey.
6. A final limitation involved respondents being forced to choose from among the alternatives provided in the survey instrument. This limited the information respondents were able to provide.

**Recommendations**

Based upon the research findings, the following five recommendations are provided.

1. The findings of the study provides a strong rationale for the development of SCANS-related curriculum and training techniques for allied health care education and training programs in Nevada. A contextualized curriculum that develops the skills and competencies identified as necessary to very necessary could enable entry-level employees to be better prepared for their future work roles and responsibilities. By incorporating SCANS skills and competencies as a benchmark, revised allied health care curricula could be improved in such a way as to be relevant and applicable to the diverse needs of Nevada’s contemporary workplace.

2. It is further recommended that public educational agencies involved in the preparation of allied health care professionals develop workplace readiness curricula and instructional models based upon the skills and competencies identified in the SCANS report. These models could be designed so that both educational institutions and business and industry alike could adapt them to their individual needs. Through the combination and integration of essential skills like work ethic, basic academics, occupational specific skills, and advanced workplace literacy skills, enhanced by employer input, such
curriculum would help ensure what is taught is what is needed in respective work settings. Its availability might also better assist students in their transition from school-to-work.

3. Since respondents in the study placed such a high value on the SCANS skills and competencies in relation to their hospital's productivity and profitability, it is further recommended that employers develop in-services or other employer supported educational programs whereby employees could develop work-related SCANS skills and competencies.

4. It is further recommended that a similar study be performed involving allied health care educators in Nevada. The study should investigate the perceptions of Nevada allied health care educators concerning their beliefs as to the importance of SCANS skills and competencies for successful entry-level employment. An additional objective of the study might be to determine whether Nevada allied health care educators perceive their graduates as sufficiently possessing SCANS skills and competencies.

5. Finally, it is recommended that further SCANS-related research be conducted on specific health care occupations. Since this study broadly included eight allied health care professions, similar but more focused studies could very well reveal interesting and differing subsets of workplace readiness skills and competencies, which could prove important to the preparation of future health care providers.
APPENDIX I

HUMAN SUBJECTS TRANSMITTAL APPROVAL
DATE: April 2, 2001

TO: Mildred McClain  
Curriculum & Instruction  
M/S 3005

FROM: Dr. Fred Preston, Chair  
UNLV Social/Behavioral Sciences Institutional Review Board

RE: Status of Human Subject Protocol Entitled:  
"Survey of Workplace Basic Skills and Competencies for Allied Health Entry Level Employment"  
(Reviewed by Dr. Kay Carl, UNLV Social/Behavioral Sciences IRB)

OPRS# 311s0301-282

This memorandum is official notification that the protocol for the project referenced above has been reviewed by the Office for the Protection of Research Subjects and has been determined as having met the criteria for exemption from full review by the UNLV Social/Behavioral Sciences Institutional Review Board. In compliance with this determination of exemption from full review, this protocol is approved for a period of one year from the date of this notification and work on the project may proceed.

Should the use of human subjects described in this protocol continue beyond a year from the date of this notification, it will be necessary to request an extension.

If you have any questions or require assistance, please contact the Office for the Protection of Research Subjects at 895-2794.

cc: OPRS File
APPENDIX 2

INFORMED CONSENT LETTER
November 5, 2001

Dear Allied Health Care Manager:

My name is Mildred Arroyo McClain. I am a graduate student in the Doctoral Program in the College of Education at the University of Nevada Las Vegas. I would like you to participate in a research project concerning workplace basis skills and competencies of Allied Health Care employees in Nevada.

The purpose of this survey is to determine whether Allied Health Care employers consider each of the nationally identified Secretary's Commission on Necessary Skills (SCANS, 1991) employability skills and competencies as necessary for entry-level employment in the Allied Health Care industry. And, if so, to what degrees do current entry-level employees possess those skills and competencies.

By completing the enclosed survey, you will be adding body of knowledge on this subject and agree to participate in the same. It will take approximately twenty minutes of your valuable time to complete the survey. Although you will not be compensated in any way for your participation, a copy of the summarized results will be available to you at your request. This survey is anonymous and your responses will be kept confidential.

If you have any questions regarding this research, please contact me at (702) 891-9729 or Dr. Martha Young at the UNLV College of Education at (702) 895-0836. For questions involving the rights of research subjects, please contact the UNLV Office for the Protection of Research Subjects at (702) 895-2794. Thank you for your cooperation in this worthwhile endeavor.

IMPORTANT: If you do not directly manage or evaluate your employees' performance, please forward this survey to the appropriate person.

Sincerely,

Mildred Arroyo McClain, Doctoral Candidate
UNLV College of Education

enclosure: survey
Nevada Allied Health Survey

A STUDY OF ALLIED HEALTH CARE ENTRY-LEVEL EMPLOYEE
WORKPLACE BASIC SKILLS AND COMPETENCIES

I am responsible for direct supervision of the following employees:

(please check all that apply)

____ 1. Dieticians
____ 2. Medical Laboratory Technologists
____ 3. Medical Records Personnel
____ 4. Occupational Therapists
____ 5. Physical Therapists
____ 6. Radiology Technologists
____ 7. Respiratory Therapists
____ 8. Speech-Language Pathologists and Audiologists

Note: If you are not the person responsible for direct supervision of the above personnel, please forward this questionnaire to the person with these responsibilities.

Thank you.
Part 1. WORKPLACE BASIC SKILLS

Using the following scale, circle the number indicating how necessary the listed skills are for allied health care employees in your hospital.

0 = Not Necessary  1 = Mostly Unnecessary  2 = Necessary  3 = Very Necessary

Also, indicate the percentage (0% to 100%) of entry-level (new) allied health care employees who sufficiently possess these skills.

<table>
<thead>
<tr>
<th>BASIC SKILLS</th>
<th>How necessary is each skill for your allied health care employees?</th>
<th>% of new employees who sufficiently possess each skill?</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. READING</td>
<td>Locate, understand, and interpret written information in prose and in documents such as manuals, graphs, and schedules.</td>
<td>0 1 2 3</td>
</tr>
<tr>
<td>2. WRITING</td>
<td>Communicate thoughts, ideas, information, and messages in writing; and create documents such as letters, directions, manuals, reports, graphs, and flow charts.</td>
<td>0 1 2 3</td>
</tr>
<tr>
<td>3. ARITHMETIC/MATHEMATICS</td>
<td>Perform basic computation and approaches practical problems by choosing appropriately from a variety of mathematical techniques.</td>
<td>0 1 2 3</td>
</tr>
<tr>
<td>4. LISTENING</td>
<td>Receive, attend to, interpret, and respond to verbal messages and other cues.</td>
<td>0 1 2 3</td>
</tr>
<tr>
<td>5. SPEAKING</td>
<td>Organize ideas and communicate orally.</td>
<td>0 1 2 3</td>
</tr>
<tr>
<td>THINKING SKILLS</td>
<td>How necessary is each skill for your allied health care employees?</td>
<td>% of new employees who sufficiently possess each skill?</td>
</tr>
<tr>
<td>6. CREATIVE THINKING</td>
<td>Generate new ideas.</td>
<td>0 1 2 3</td>
</tr>
<tr>
<td>7. DECISION-MAKING</td>
<td>Specify goals and constraints, generate alternatives, consider risks, and evaluate and choose the best alternative.</td>
<td>0 1 2 3</td>
</tr>
<tr>
<td>8. PROBLEM SOLVING</td>
<td>Recognize problems; devise and implement plan of action.</td>
<td>0 1 2 3</td>
</tr>
<tr>
<td>9. CONCEPTUALIZING</td>
<td>Organize and process symbols, pictures, graphs, objects, and other information.</td>
<td>0 1 2 3</td>
</tr>
<tr>
<td>10. KNOWING HOW TO LEARN</td>
<td>Use efficient learning techniques to acquire and apply new knowledge and skills.</td>
<td>0 1 2 3</td>
</tr>
<tr>
<td>11. REASONING</td>
<td>Discover a rule or principle underlying the relationship between two or more objects and apply it when solving a problem.</td>
<td>0 1 2 3</td>
</tr>
</tbody>
</table>
Using the following scale, circle the number indicating how necessary the listed skills are for allied health care employees in your hospital.

0 = Not Necessary  1 = Mostly Unnecessary  2 = Necessary  3 = Very Necessary

Also, indicate the percentage (0% to 100%) of entry-level (new) allied health care employees who sufficiently possess these skills.

<table>
<thead>
<tr>
<th>PERSONAL QUALITIES</th>
<th>How necessary is each skill for your allied health care employees?</th>
<th>% of new employees who sufficiently possess each skill?</th>
</tr>
</thead>
<tbody>
<tr>
<td>12. SELF-ESTEEM</td>
<td>Believe in own self-worth and maintain a positive view of self.</td>
<td>0 1 2 3</td>
</tr>
<tr>
<td>13. SOCIABILITY</td>
<td>Demonstrate understanding, friendliness, adaptability, empathy, and politeness in group settings.</td>
<td>0 1 2 3</td>
</tr>
<tr>
<td>14. SELF-MANAGEMENT</td>
<td>Assess self accurately, set personal goals, monitor progress and exhibit self-control.</td>
<td>0 1 2 3</td>
</tr>
<tr>
<td>15. INTEGRITY/HONESTY</td>
<td>Choose ethical courses of action.</td>
<td>0 1 2 3</td>
</tr>
</tbody>
</table>

16. Do the above basic skills adequately represent those necessary for employment in your hospital? (yes) (no)

Identify additional basic skills you believe are necessary for employment in your firm in the space below:

____________________________________________________________________________________

____________________________________________________________________________________

II. WORKPLACE COMPETENCIES
Using the following scale, circle the number indicating how necessary the listed competencies are for allied health care employees in your hospital.

0 = Not Necessary  1 = Mostly Unnecessary  2 = Necessary  3 = Very Necessary

Also, indicate the percentage (0% to 100%) of entry-level (new) allied health care employees who sufficiently possess these competencies.

<table>
<thead>
<tr>
<th>RESOURCE COMPETENCIES</th>
<th>How necessary is each skill for your allied health care employees?</th>
<th>% of new employees who sufficiently possess each skill?</th>
</tr>
</thead>
<tbody>
<tr>
<td>17. ALLOCATES TIME</td>
<td>0 1 2 3</td>
<td>%</td>
</tr>
<tr>
<td>Select goal-relevant activities, rank them, allocate time to activities, and prepare and follow schedules.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18. ALLOCATES MONEY</td>
<td>0 1 2 3</td>
<td>%</td>
</tr>
<tr>
<td>Use or prepare budgets, make forecasts, keep records, and make adjustments to meet objectives.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>19. ALLOCATES MATERIALS AND FACILITY RESOURCES</td>
<td>0 1 2 3</td>
<td>%</td>
</tr>
<tr>
<td>Acquire, store, allocate, and use material or space efficiently.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20. ALLOCATES HUMAN RESOURCES</td>
<td>0 1 2 3</td>
<td>%</td>
</tr>
<tr>
<td>Assess skills and distribute work accordingly, evaluate performance and provide feedback.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>INTERPERSONAL COMPETENCIES</th>
<th>How necessary is each skill for your allied health care employees?</th>
<th>% of new employees who sufficiently possess each skill?</th>
</tr>
</thead>
<tbody>
<tr>
<td>21. PARTICIPATE AS A MEMBER OF A TEAM</td>
<td>0 1 2 3</td>
<td>%</td>
</tr>
<tr>
<td>Contribute to group effort.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>22. TEACH OTHERS NEW SKILLS</td>
<td>0 1 2 3</td>
<td>%</td>
</tr>
<tr>
<td>Teach, coach, and help others learn and apply new skills.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>23. SERVE CLIENTS/CUSTOMERS</td>
<td>0 1 2 3</td>
<td>%</td>
</tr>
<tr>
<td>Work to satisfy customer's expectations.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>24. EXERCISE LEADERSHIP</td>
<td>0 1 2 3</td>
<td>%</td>
</tr>
<tr>
<td>Communicate ideas to justify position, persuade and convince others, responsibly challenge existing procedures and policies.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>25. NEGOTIATE</td>
<td>0 1 2 3</td>
<td>%</td>
</tr>
<tr>
<td>Work toward agreements involving exchange of resources, resolve divergent interests.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>26. WORK WITH DIVERSITY</td>
<td>0 1 2 3</td>
<td>%</td>
</tr>
<tr>
<td>Work well with men and women and with a variety of ethnic, cultural, social, or educational backgrounds.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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Using the following scale, circle the number indicating how necessary the listed competencies are for allied health care employees in your hospital.

0 = Not Necessary 1 = Mostly Unnecessary 2 = Necessary 3 = Very Necessary

Also, indicate the percentage (0% to 100%) of entry-level (new) allied health care employees who sufficiently possess these competencies.

<table>
<thead>
<tr>
<th>INFORMATION COMPETENCIES</th>
<th>How necessary is each skill for your allied health care employees?</th>
<th>% of new employees who sufficiently possess each skill?</th>
</tr>
</thead>
<tbody>
<tr>
<td>27. ACQUIRE AND EVALUATE INFORMATION</td>
<td>0 1 2 3</td>
<td></td>
</tr>
<tr>
<td>Identify, obtain, create, and evaluate data.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>28. ORGANIZE AND MAINTAIN INFORMATION</td>
<td>0 1 2 3</td>
<td></td>
</tr>
<tr>
<td>Organize, process, and maintain records and information systematically.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>29. INTERPRET AND COMMUNICATE INFORMATION</td>
<td>0 1 2 3</td>
<td></td>
</tr>
<tr>
<td>Select, analyze, and communicate information to others.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>30. USE COMPUTERS TO PROCESS INFORMATION</td>
<td>0 1 2 3</td>
<td></td>
</tr>
<tr>
<td>Uses computer to acquire, organize, analyze, and communicate information.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SYSTEMS COMPETENCIES</th>
<th>How necessary is each skill for your allied health care employees?</th>
<th>% of new employees who sufficiently possess each skill?</th>
</tr>
</thead>
<tbody>
<tr>
<td>31. UNDERSTAND SYSTEMS</td>
<td>0 1 2 3</td>
<td></td>
</tr>
<tr>
<td>Know how social, organizational, and technological systems work and operate effectively with them.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>32. MONITOR AND CORRECT PERFORMANCE</td>
<td>0 1 2 3</td>
<td></td>
</tr>
<tr>
<td>Distinguish trends, predict impacts on system operations, diagnose deviations in system's performance, and correct malfunctions.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>33. IMPROVE OR DESIGN SYSTEMS</td>
<td>0 1 2 3</td>
<td></td>
</tr>
<tr>
<td>Suggest modifications to existing systems and develop new or alternative systems to improve performance.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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Using the following scale, circle the number indicating how necessary the listed competencies are for allied health care employees in your hospital:

0 = Not Necessary  1 = Mostly Unnecessary  2 = Necessary  3 = Very Necessary

Also, indicate the percentage (0% to 100%) of entry-level (new) allied health care employees who sufficiently possess these competencies.

<table>
<thead>
<tr>
<th>TECHNOLOGY COMPETENCIES</th>
<th>How necessary is each skill for your allied health care employees?</th>
<th>% of new employees who sufficiently possess each skill?</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>34. SELECT TECHNOLOGY</strong></td>
<td>Choose procedures, tools or equipment including computers and related technologies.</td>
<td>0 1 2 3</td>
</tr>
<tr>
<td><strong>35. APPLY TECHNOLOGY TO TASK</strong></td>
<td>Understand overall intent and proper procedures for setup and operation of equipment.</td>
<td>0 1 2 3</td>
</tr>
<tr>
<td><strong>36. MAINTAIN AND TROUBLESHOOT EQUIPMENT</strong></td>
<td>Prevent, identify, or solve problems with equipment, including computers and other technologies.</td>
<td>0 1 2 3</td>
</tr>
</tbody>
</table>

37. Do the above competencies adequately represent those necessary for employment in your hospital? (yes) (no)

Identify additional competencies you believe are necessary for employment in your firm in the space below:

III. PRODUCTIVITY AND PROFITABILITY

Please circle your response using the following scale:

0 = Not Necessary  1 = Mostly Unnecessary  2 = Necessary  3 = Very Necessary

<table>
<thead>
<tr>
<th>38. In general, how necessary is it to your firm's productivity employees to possess the workplace basic skills and competencies?</th>
<th>0 1 2 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>39. In general, how necessary is it to your firm's profitability for employees to possess the workplace basic skills and competencies?</td>
<td>0 1 2 3</td>
</tr>
</tbody>
</table>

40. General Comments, if any, you would like to make:
If you would like to receive a summary of this survey when completed, please return the information requested below to:

Name: ____________________________________________

Address: __________________________________________

If you would like your responses to remain anonymous, you may remove this sheet and return it separately to:

Mildred A. McClain, M.Ed., RT(R)(M)
c/o Dr. Martha Young
College of Education
Department of Curriculum and Instruction
University of Nevada Las Vegas
4505 S. Maryland Parkway Box 3005
Las Vegas, NV 89154-3005

Thank you for your time and cooperation.
APPENDIX 4

QUESTION THREE RESEARCH RESULTS
To what extent do Nevada allied health care employers perceive their entry-level employees as sufficiently possessing the SCANS skills and competencies?
(Possible Response Range = 0 -100%)

<table>
<thead>
<tr>
<th>Basic Skills</th>
<th>Response Frequency</th>
<th>Range</th>
<th>Mean</th>
<th>S. D.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Reading</strong></td>
<td>65</td>
<td>20%-100%</td>
<td>94.8</td>
<td>13.7</td>
</tr>
<tr>
<td><strong>Writing</strong></td>
<td>63</td>
<td>10%-100%</td>
<td>88.3</td>
<td>17.0</td>
</tr>
<tr>
<td><strong>Arithmetic/mathematics</strong></td>
<td>63</td>
<td>10%-100%</td>
<td>86.7</td>
<td>22.5</td>
</tr>
<tr>
<td><strong>Listening</strong></td>
<td>64</td>
<td>20%-100%</td>
<td>89.2</td>
<td>14.0</td>
</tr>
<tr>
<td><strong>Speaking</strong></td>
<td>63</td>
<td>10%-100%</td>
<td>88.2</td>
<td>14.6</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Thinking Skills</th>
<th>Response Frequency</th>
<th>Range</th>
<th>Mean</th>
<th>S. D.</th>
</tr>
</thead>
<tbody>
<tr>
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<td>63</td>
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<td>75.5</td>
<td>21.6</td>
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<td>81.59</td>
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<td><strong>Knowing how to learn</strong></td>
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<tr>
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<td><strong>Sociability</strong></td>
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<td><strong>Self-management</strong></td>
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<tr>
<td><strong>Allocates human resources</strong></td>
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<td>0%-100%</td>
<td>84.0</td>
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<tr>
<td><strong>Teach others new skills</strong></td>
<td>63</td>
<td>10%-100%</td>
<td>78.1</td>
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</tr>
<tr>
<td><strong>Serve clients/customers</strong></td>
<td>63</td>
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<td>89.4</td>
<td>16.0</td>
</tr>
<tr>
<td><strong>Exercise leadership</strong></td>
<td>61</td>
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<td>26.4</td>
</tr>
<tr>
<td><strong>Negotiate</strong></td>
<td>59</td>
<td>0%-100%</td>
<td>67.0</td>
<td>24.1</td>
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<tr>
<td><strong>Work with diversity</strong></td>
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<tr>
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<tr>
<td>Organize and maintain information</td>
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<td>18.4</td>
</tr>
<tr>
<td>Interpret and communicate information</td>
<td>63</td>
<td>10%-100%</td>
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<td>19.8</td>
</tr>
<tr>
<td>Use computers to process information</td>
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<td>Apply technology to task</td>
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<tr>
<td>Maintain and troubleshoot equipment</td>
<td>63</td>
<td>0%-100%</td>
<td>60.6</td>
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Differences between employers' perceived allied health care industry requirements and the perceived skills and competencies of entry-level employees.

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<thead>
<tr>
<th>Basic Skills and Competencies</th>
<th>Valid N</th>
<th>Percentage of Employers' Perceptions as either Necessary or Very Necessary</th>
<th>Percentage of Employees Perceived as Sufficiently Possessing</th>
<th>Difference</th>
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REFERENCES


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University of Nevada, Las Vegas

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Mallinkrodt Award for Academic Excellence, 1988
University Science and Arts Scholarship, 1987

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Dissertation Examination Committee:
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Committee Member. Dr. Jane McCarthy, Ed. D.
Committee member. Dr. Paul Meacham, Ph. D.
Graduate Faculty Representative. Dr. Paul Jones, Ph. D.

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