CHAPTER 1

INTRODUCTION

One purpose of higher education is to graduate students who will become productive citizens. Some researchers suggest that every member of an institution of higher education is responsible for promoting educationally purposeful activities that lead to producing good citizens. They argue that students, faculty, administrators, and staff should attempt to prepare students for productive lives after college (American College Personnel Association, 1994).

An integral aspect of being a productive citizen is employment. Longitudinal research suggests that students believe post-graduate employment is an important outcome of a college education. Students have valued being well-off financially more than being involved in social action, being politically active, or developing a personal philosophy of life (Dey, Astin, & Korn, 1991). More recent data indicate that students entering college in recent years report that getting a better job and making more money were more important than proving to others they could succeed, improving reading and studying skills, and becoming a more cultured person when making the decision whether to go to college (Sax, Astin, Korn, & Mahoney, 1998). Students seem to be suggesting that a college education should prepare them for a lifetime of gainful employment. If college students hope to find jobs after graduation, they need to be prepared.

Finding a job requires the acquisition of skills that employers report they seek in college graduates. For example, employers consistently list communication skills among the qualities they seek in college graduates. Decision-making skills which enable students to become leaders are also frequently cited as characteristics sought in college graduates. Employers have also suggested that students who have well developed analytical skills will be successful job candidates. Teamwork skills are good measures for employers who seek employees who can work

cooperatively in the work place. Employers also seek college graduates who have well-practiced leadership skills. Finally, students who have good interpersonal skills are more highly sought than those who do not have such skills (National Association of Colleges and Employers, 1997). While not all employers are in agreement about the specific skills they believe colleges should teach students, they have general requirements for potential employees.

There are various ways that students can learn these skills. They can be learned in the classroom, in extracurricular activities, or through full- and part-time employment. The statement of purpose for the core curriculum for one land-grant university is clear about its goals for classroom learning outcomes. Of the seven goals outlined, five are directly related to some of the skills employers seek in college graduates (Virginia Polytechnic Institute and State University, 1997).

For example, one goal is for students to gain competence in the use of analytical skills (Virginia Polytechnic Institute and State University, 1997). This goal means that students should take certain classes which introduce and develop the various aspects of analytical thinking. Analytical skills include critical thinking, decision-making, and problem-solving. Employers want the college graduates they employ to be able to solve problems on their own. They seek people who can take complex issues and make decisions that positively affect the business and its clients.

Two other goals expand on the learning of analytical skills. One goal stresses the ability to make judgments about complex issues which entails synthesizing diverse types of knowledge. The second outlines the goal for core curriculum classes to address issues of culture, values, information, and ideas through the development of the ability to discern, appreciate, and criticize with respect to culture, values, information, and ideas (Virginia Polytechnic Institute and State University, 1997). Each of these abilities (making judgments, discerning, appreciating, and

criticizing) is part of the complex concept enveloped by the term "analytical skills." Employers seek employees who are competent in all of these abilities.

A fourth goal of the core curriculum is to have students acquire communication skills (Virginia Polytechnic Institute and State University, 1997). Employers seek employees who can write official correspondence, read complex reports, give oral presentations to co-workers or clients and understand verbal instructions from supervisors.

Finally, a fifth goal of the core curriculum encourages faculty to introduce and develop in students the capacity for learning and the ability to respond to new ideas throughout their lives (Virginia Polytechnic Institute and State University, 1997). Learning and responding to new ideas are adaptive behaviors. Employers seek employees who can adapt to a fast-changing work environment. Employees who are flexible will be successful in their jobs.

These comprehensive goals for the core curriculum suggest that skills sought by employers can be taught in the classroom, but there are other ways for colleges to teach these skills to students. A second source through which students can learn the kinds of skills employers seek in college graduates is through on-campus involvement.

A 1992 survey conducted at a large public university in the South found a correlation between involvement in extracurricular activities and acquisition of certain skills. Students who were involved in extra-curricular activities earned higher scores with respect to certain skills than those who were not involved in extracurricular activities. For example, measures of leadership skills, attitude toward the work ethic, oral communication skills, and well-developed work habits all were higher for students who were involved in extracurricular activities (University of North Carolina - Charlotte, 1994).

The skills that employers seek in college graduates can also be learned from students' part-time employment. Part-time employment is a significant part of the college experience for many undergraduate students. Eighty percent of all undergraduate students work while pursuing their degree. Two thirds of these students are full-time undergraduates who work an average of 25 hours per week (King, 1998).

Students are employed in a variety of different jobs while in college. These jobs can be grouped into three categories: cooperative education experiences, leadership positions, and wage positions. In the first category, are jobs related to the students' chosen career field, such as internships and cooperative education programs (co-ops). Institutions have been trying to make a closer connection between students and their potential future employers. High visibility programs like The Cornell Tradition, Duke Futures, the Dana Foundation Student Aid for Educational Quality, and Reach for Rochester are examples of such connections (Scannell & Simpson, 1996). These programs are aimed at developing relationships between employees and employers while the employees are still in college. Internships and co-ops are considered a type of experiential learning.

Co-op programs place students in work assignments related to their academic or career goals. In many cases, the experiences alternate with academic terms when the student is registered for classes. At many institutions, co-ops are a part of the academic curriculum. They give students the opportunity to learn about the field they are studying. Co-ops are often co-supervised by a job supervisor and a professor (van der Vorm, 1992). The academic nature of this type of job sets it apart from other types of jobs students hold while in college.

While internships are not always part of the academic curriculum, they are often closely related to a student's chosen career. This type of work experience allows students to explore

certain fields in considerable depth and, as such, provides a unique job experience (Scannell & Simpson, 1996).

A second group of students work in jobs that focus on leadership development. Examples of these types of jobs are Resident Assistant positions and Orientation Leader positions. A common job for students on residential campuses is that of the Resident Assistant (RA). Resident Assistants live in residence halls and serve multiple roles as policy enforcer, peer counselor, and friend to the students living on their floors. Housing professionals at institutions recruit RA applicants with certain skills and seek to develop those same skills through on-the-job training. To do their jobs well, RAs need to develop skills in eight areas: conceptual application, counseling, basic information, administration, teaching, leadership, crisis management, and human relationship (Blimling, 1995). Students who work as RAs receive training in these target skill areas. This specialized training sets them apart from other student employees.

Some students work as Orientation Leaders. Orientation Leaders are hired by Student Orientation offices whose mission is to help new students transition into the institution; prepare them for the educational opportunities at the institution; and initiate their integration in the intellectual, cultural, and social climate of the institution (Miller, 1997). Specifically, Orientation Leaders interact with new students and respond to their questions about the institution; serve as liaisons between institutional officials and new students; and work together as a team with fellow Orientation Leaders. They must have good communication skills, knowledge about the institution, and good team skills (Mullendore & Abraham, 1993). Like their RA counterparts, students who work as Orientation Leaders receive training in these target skill areas which sets them apart from other student employees.

A third group of students work in wage positions on campus. For purposes of this study, wage positions are defined as on-campus jobs which are not related to the student employee's field of study or career goals. Wage positions include jobs such as library aide positions, dining hall positions, and office positions, among others. These types of positions do not target career or skill development. Most students employed in these positions work because they need the income.

Students employed as library aides may be involved in activities such as shelving books in the stacks, assisting patrons with book searches, cataloguing new acquisitions, loaning and receiving books at the circulation desk, and supervising use of audio-visual equipment. Library professionals often seek to fill their student wage positions with students who meet the minimum qualifications of having interest and being available to work during vacant time slots. Students employed in these positions receive basic, task-oriented training.

Students who work in dining halls routinely perform activities such as washing dishes, preparing foods, serving diners, cleaning dining rooms, and collecting payments. Food service professionals hire students for their desire to work and their availability. Students employed by dining halls receive training which targets the skills they perform on the job.

Some students work in administrative offices as office assistants. These students perform tasks such as filing documents, answering telephones, typing letters, greeting visitors, and sorting mail. Campus employers who hire office assistants seek students who have some aptitude in relating to people. These students receive basic training for their jobs.

The three types of wage positions described above (library aide, dining hall employee, and office assistant) share some important characteristics in common. They offer minimum training to employees. The positions are not designed to prepare student employees for careers in the field, nor do they target special skills development. Students employed in these positions are often

interested in the compensation, not the job. They work because they need the money. These characteristics distinguish wage positions from the other types of student employment.

Researchers have explored the impact of these types of jobs on students. Some research on wage positions has focused on the issue of work-study jobs versus non work-study jobs and their effects on students. For example, one study conducted at a midwestern state university focused on first-year students employed on campus in regular employment or work-study employment. The researchers sought to challenge notions that student employment has a negative impact on student grades. They gathered demographic data for all first year students. Then, they used available data from the payroll office to analyze correlations between type of employment and selected demographic data such as high school rank, ACT scores, grade point average, and number of credit hours earned (Curtis & Nimmer, 1991).

Results suggested that student employment had positive and negative consequences for first year students in the study. For example, some positive consequences included improved social skills, gains in job experience, and improved self-image. Some negative consequences included the pressures of job requirements, the time commitments inherent with working, and the occasional adverse working relationship (Curtis & Nimmer, 1991).

While this study examined the impact of jobs on academic skills, it did not investigate the kinds of job skills students in wage positions were learning. Indeed, an extensive search of the literature revealed no studies which investigated the kinds of skills students in wage positions learn. Yet, the number of students employed in wage positions may exceed the number of students employed in the other two types of student jobs (co-ops and leadership positions).

Some studies report that 20% of students worked in jobs related to their major or career choice (Scannell & Simpson, 1996). While no recent data were available on the number of

students employed in leadership positions, the ratio of RAs to undergraduate students at the institution where this study took place can serve as an exemplar. Less than one percent of the total undergraduate population were employed as RAs in the 1998-99 academic year.

The number of undergraduate students employed in wage positions is equally difficult to measure. The payroll report for the first half of October, 1998 at the institution where this study was conducted revealed that 3,175 undergraduate students were employed in wage positions. While this figure only includes students employed in on-campus jobs, it suggests that student wage positions are common. In this case, 15.5% of all undergraduate students were employed in wage positions at the institution. However, research on the skills students in wage positions learn is limited.

In summary, one purpose of higher education is to graduate productive citizens. Being a productive citizen has been associated with having a job. Employers want college graduates they employ to have certain skills. One way for students to gain those skills is by working while in college. Students who work while in college are typically employed in one of three types of jobs. There is data about skills gained in two of these types of jobs (co-ops and leadership positions). However, there is little data about skills learned in the third type of job (wage positions). This study sought to fill the gap in the existing body of literature about students who work while in college by examining the skills that students who work in wage positions gain.

<center>Purpose of the Study</center>

The purpose of this study was to examine the skills learned by undergraduate students who were employed in on-campus wage positions. The study was designed to measure whether the skills that employers seek in college graduates are skills student employees learn. For the purpose of this study the term "learn" in its various forms is used. This term was chosen although

it is difficult to ascertain whether students learned skills as a result of their job experience or the students chose their jobs based on the skills they had already acquired. However, the term is still helpful in that it prompts the reader to think about what students experience on the job.

A list of skills was developed from the literature available on job skills employers seek in college graduates. Data about what students in wage positions learned while working were collected through logs that detailed activities in which student employees engaged while on the job.

Research Questions

Specifically, the study was designed to explore the following research questions.

1. In what activities are undergraduate students engaged while employed in on-campus wage positions?

2. What is the relationship between the skills that employers seek in college graduates and the activities in which undergraduate students engage while employed in on-campus wage positions?

3. Are there differences by gender in the skills that undergraduate students learn while employed in on-campus wage positions?

Significance of the Study

The present study had significance for several constituency groups. Campus employers might benefit from the results of this study which may provide them with information about the skills their student employees are learning on the job. Such information might enable campus employers to better market their jobs to students.

Other campus staff may benefit from this study because they may learn the extent to which students are learning skills through experiences not traditionally considered when measuring

student development opportunities on campus. That is, if students are learning life or job skills through their on-campus jobs, that is a positive learning outcome for the institution.

Student employees may benefit from the results of this study because they may learn the extent to which campus employment opportunities help them develop skills required by employers. Students with such information may be better prepared when conducting a job search.

Non-campus employers may benefit from the results of this study because many on-campus student wage positions are similar to off-campus wage positions which are filled by students (e.g., restaurant positions, independent office positions, retail positions). The results may be translated to off-campus jobs, so that off-campus employers might better market their positions to potential student employees.

The present study also identified areas for future research. Researchers may wish to compare skills learned through co-op or leadership jobs (categories one and two) with those learned in wage positions. Such a study might record whether different jobs lead to the development of different skills.

Also, researchers may wish to study the effect of socio-economic status of the student employee in choosing his or her employment. The results of such a study may reveal the extent to which monetary need affects the student job selection process and what gains students of different socio-economic levels make with regard to skill development in on-campus jobs.

Other researchers may focus on the effects of race in the acquisition of skills that undergraduate students learn while employed in on-campus wage positions. The results may reveal whether students from different racial groups learn different skills while employed in the same on-campus wage positions.

Limitations

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As with all research, the present study was not without some limitations. First, the study examined student employees on one campus only. The results may be generalized to students in wage positions on that campus, but may only be generalized to other campuses in limited ways.

Second, the present study used all volunteer participants. The data from these participants may have differed from that of non-volunteer participants. If so, the results may have been influenced.

Third, all data collected for this study regarding skills students learn while working in wage positions were self-reported. It is possible that students were not candid in their responses. If they were less than candid, the results might have been skewed. In spite of these limitations, the study was a worthwhile project in that it addressed a gap in the existing literature on the skills students learn while working.

Organization of the Study

This study is comprised of five chapters. The first chapter introduced the topic to be studied, the purpose of the study, and the research questions posed in the study. The second chapter reviews the literature relevant to the study. Chapter Three describes what steps were taken to collect and analyze data. Chapter Four presents the results of the study, while Chapter Five discusses those results and their implications for future practice and research.

CHAPTER 2

REVIEW OF THE LITERATURE

The present study had several objectives. First, the researcher analyzed the skills

employers seek in college graduates. This analysis led to the identification of some skills which

were most often sought by employers of college graduates and activities related to those skills.

Second, the researcher collected data on what activities undergraduate students employed in on-

campus wage positions were performing while working. These activities were analyzed to explore

the degree to which students were engaged in activities which led to skills sought by employers of

college graduates. Differences by gender were also explored.

To this end, the review of the literature was organized around the objectives of the study.

First, the outcomes oriented nature of higher education is described. Then, literature which

explores the skills sought by employers of new employees is presented. Attention is then directed

to different types of jobs where undergraduate college students learn skills sought by employers.

Outcomes Orientation of Higher Education

Pascarella and Terenzini (1991) summarized the major research regarding the outcomes of

higher education between 1967 and 1991. They investigated the effect college has on students

across various categories of outcomes including: cognitive development, psychosocial

development, moral development, educational attainment, and career choice. These categories

were examined by answering six fundamental questions: does change occur during college; what

are the net effects of college; what are the between-college effects; what are the within-college

effects; what are the conditional effects of college; and, what are the long-term effects of college?

Results revealed that students do change by going to college (Pascarella & Terenzini, 1991).

If students change during college, it is important to measure where that change is occurring. In recent years, assessment of academic programs has focused on the outcomes of higher education. Such outcomes often focus on the benefits that students gain from specific academic programs.

For example, in 1996, the Accreditation Board for Engineering and Technology (ABET) adopted new standards for accreditation of undergraduate engineering programs. Among the criteria for engineering is one that specifies program outcomes and assessment. This criterion emphasizes the competencies that graduates from engineering programs should exhibit. Among the 10 engineering-specific competencies is the expectation that graduates be able to analyze and interpret data. Another expected competency is the ability to solve problems in engineering. The report also recommends that graduates of engineering programs be able to communicate effectively. Finally, the new standards recognize the need for graduates to be able to adapt to a changing workplace by having the ability to use the modern tools, techniques, and skills for engineering practice (Muffo & Kurstedt, 1998).

A second example of the focus on outcomes assessment in higher education relates to architectural programs. The National Architectural Accrediting Board, Inc. (NAAB) is the only accrediting body for professional degrees in architecture in the United States. Its mission is to maintain and enhance the educational base of the architectural profession. The NAAB outlines 12 conditions with which all programs must comply to complete accreditation requirements. Condition 12 addresses student performance. It lists 37 areas in which graduating students must be competent. Of the 37 areas, 22 are either technical or related to practice in the profession of architecture. Among the remaining 15 areas is the ability to speak and write effectively. In other words, communication skills are required of graduates of architecture programs. Another

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fundamental competency is the ability to collect and analyze data. This suggests that analytical skills are important for graduates of architecture programs. Condition 12 of the NAAB standards identifies critical thinking as one of the areas in which competency must be demonstrated. Finally, collaborative skills appear on the list of fundamental competencies for graduates of architecture programs. This suggests that the ability to work in teams is an important competency for future architects (National Architectural Accrediting Board, 1998).

A third academic program that has sought to measure success by measuring outcomes is nursing. Nursing programs in the United States incorporate similar, outcome oriented accreditation standards. The National League for Nursing Accrediting Commission (NLNAC) is the only body responsible for accrediting baccalaureate degree programs in nursing. The Commission lists 19 criteria that programs must demonstrate to be accredited nursing programs. Criterion 14 requires that graduates of nursing programs exhibit critical thinking skills. This criterion also specifies that graduates of nursing programs have well developed communication abilities. The NLNAC lists personal development as an optional outcome for students. Personal development can include many different skills such as interpersonal skills, leadership skills, and teamwork skills. These partial requirements of the NLNAC demonstrate the importance of student outcomes in education (National League for Nursing Accrediting Commission, 1997).

In summary, higher education in general seeks certain outcomes, and specific academic programs seek specific additional outcomes. It can be assumed that these outcomes are associated with skills that employers seek in new employees. Therefore, it was important to explore the literature on the skills employers seek in new employees.

Skills Sought by Employers

Articulating the needs of employers is important for many constituencies. Employers

benefit from the dissemination of their needs to potential employees because it enables employers

to secure better prepared applicants. Employees benefit from such information because they are

better able to prepare themselves for the job market. Government agencies and educational

institutions benefit from this type of knowledge because they are often in the position to train

individuals for future employment. For these reasons, the studies investigating the skills employers

seek are diverse and address skills needed by various levels of employees.

For example, some researchers have investigated the skills sought by employers of non-

college graduates. A study conducted in one southern state sought to gather opinions from

employers of entry-level workers who did not have baccalaureate degrees. Its objective was to

identify trends in employment in the state and to identify job skills sought by employers. The

qualitative study consisted of interviews with employers who represented a wide variety of

organizations. The 564 employers who were interviewed included individuals from small and large

businesses from rural and urban areas. The employers also were diverse by gender. They identified

54 occupations that required varying degrees of skills, training, or knowledge. The aim of the

interviews was to have the employers talk at length about the issues most important to them

surrounding the employment of entry-level workers without baccalaureate degrees (Martin,

Carrier, & Hill, 1997).

The researchers reported a number of trends and specific skills sought by employers.

Among these trends were increased worker empowerment which requires employees who can

make decisions and solve problems; a flexible workplace which, in turn, requires flexible

employees; and constant change which requires that employees have the capability to continue learning throughout their lives (Martin, Carrier, & Hill, 1997).

Some of the skills that employers sought in new employees were related to the trends that emerged. Among the skills sought by employers were reading, writing, and speaking skills; math skills; reasoning, problem-solving, and decision-making skills; teamwork skills; flexibility; and, initiative (Martin, Carrier, & Hill, 1997). While this study emphasized non-college graduates, it was important to review because it helped to identify employer needs.

A second study involved a population that did not necessarily include college graduates. It was conducted by a consortium of teachers, counselors, and administrators from a region of a southern state. The study explored the needs of large and small employers who hired workers who had achieved a minimum of a high school diploma (McDaniels, 1992). The researchers in this study interviewed 670 employers. They were attempting to learn the status of the labor market in the region and project its development over the next eight years. During the employer contacts, the researchers administered a questionnaire which gathered data about the companies and asked questions about business practices. Some of the questions included: employment needs over the next 12 months and over the next five to 10 years; opportunities the company offered for women, minorities, or workers with disabilities; the general working conditions in the company; salary ranges of entry workers; and, the kinds of backgrounds and skills they expected new and continuing employees to possess (McDaniels, 1992).

Results revealed 10 ideal characteristics which all employers sought. Among them were dependability, honesty, neatness, punctuality, the ability to communicate effectively, the ability to work in teams, loyalty to the company, having a strong work ethic, and adaptability (McDaniels,

1992). Again, while this study did not focus on college graduates, its results helped to define the literature about the needs of employers.

Another study which emphasized skills employers seek but did not specify the academic status of employees was conducted in Canada. A report of the Conference Board of Canada's Corporate Council on Education sought to identify and communicate the skills they require of their employees. To create a document that would address the skills needed by employees to be successful on the job, the Council developed an Employability Skills Profile. To develop this profile, the Board first reviewed the literature on skills employers seek in new employees. They used a framework that included three categories of skills: Academic, Personal Management, and Teamwork Skills. The Council identified skills in each category. This initial draft was reviewed by other Canadian employers through the use of a questionnaire and meetings with some 100 human resource professionals. After the publication of the Employability Skills Profile, the Board sought to verify that the skills on the profile were the skills young people needed to succeed on the job. The Board conducted meetings with 200 representatives of stakeholder groups to address this question (McLaughlin, 1995).

The Employability Skills Profile (ESP) lists communication skills among those needed by employees in the category of Academic Skills. Communication skills included listening, reading, writing, and speaking in the language in which business is conducted. The ESP also addressed the requirement that new employees be able to think critically, make decisions, and solve problems. The ability to continue learning was also identified in the ESP. In the category of Personal Management Skills, the ESP lists having a positive attitude, being self-confident, being honest, having initiative, being responsible, setting goals, being accountable, and being adaptable to change as skills required to attain and maintain a job. Finally, in the category of Teamwork Skills,

the ESP addressed various skills needed for working well in a team. Some of these included understanding and contributing to the organization's goals, planning and making decisions with others, respecting the opinions of others, and leading when appropriate (McLaughlin, 1995).

The Employability Skills Profile has been used in Canada and around the world to develop programs that provide students the skills they need to gain employment. The Conference Board suggested that the ESP could serve this purpose in two ways. First, educators could implement its use in the existing curriculum. Second, it could be used to supplement current programs in career development and cooperative education (McLaughlin, 1995). The ESP is a useful tool to understand the skills employers seek.

Another study which had a general focus on new employees was conducted by the United States government. The Secretary's Commission on Achieving Necessary Skills (SCANS) of the United States Department of Labor (DOL) approached the acquisition and measurement of skills from a novel perspective. SCANS looked at the acquisition of skills based on three components: functional skills, or those used in the workplace; enabling skills, or those developed through formal education; and scenario, or the intersection of the first two components. To determine a list of skills, SCANS members first met to identify and describe skills in functional terms. After the initial meeting, the Commissioners visited two major organizations whose training centers emphasized real job requirements and whose course content reflected actual needs in the workplace. The Commission then reviewed the research by meeting with researchers on education policy, labor force training, job analysis and assessment, and work and cognition. Then, SCANS members sought comments about the appropriateness of the Commission's mission from a number of experts in skills required by employers. Finally, SCANS members gathered 30 experts

who discussed the set of criteria for functional skills proposed by the Commission (Secretary's Commission on Achieving Necessary Skills, 1992).

The Commission identified five areas within the component of functional skills. The first area, resource management, was comprised of skills related to organizational behavior. Skills in the second area, information management, included communication skills. The third area, social interaction, consisted of interpersonal skills, teamwork skills, and decision making skills. The fourth area, systems behavior and performance, emphasized analytical skills. Finally, the fifth area, human and technology interaction, included competencies in the application and implementation of appropriate technologies on the job (Secretary's Commission on Achieving Necessary Skills, 1992). The SCANS study had a broad focus which did not include a minimum level of academic achievement for new employees. However, its results helped to define the needs of employers that need new employees who have certain skills.

Other research is more aligned with the purposes of the present study. For example, some researchers have investigated the skills sought by employers of college graduates. A study that surveyed employers of entry-level marketing and sales employees sought to identify the skills which are most desired by such employers in the people they hire. Questionnaires were mailed to 347 representative of companies that hire the greatest number of college graduates. The questionnaire asked respondents to assess 35 hiring criteria on a seven-point scale. The 35 criteria fit into one of three categories: personal traits, skills, and group activities. In addition to the 35 criteria, respondents were also asked to respond to open-ended questions. The study yielded a 33% response rate (Gaedeke & Tootelian, 1989).

Results revealed that communication skills and enthusiasm were the most sought after qualities in employees. Motivation, interpersonal skills, initiative, maturity, ambition, and

entrepreneurship were also identified as skills that ideal job candidates for entry-level marketing and sales positions possess. When respondents were asked what three criteria they would use when hiring entry-level marketing and sales candidates, they reported the following with the most frequency: oral communication skills, interpersonal skills, enthusiasm/motivation, written communication skills, and related work experience (Gaedeke & Tootelian, 1989). While this study's focus was on college graduates, the target audience was the graduates of a single academic discipline. Its results helped to narrow the scope of the skills sought by employers by providing the view of one discipline.

Another study whose focus was college graduates was conducted by the National Association of Colleges and Employers. This study was the most recent in a yearly series of surveys conducted to forecast hiring patterns. The National Association of Colleges and Employers (NACE) is an organization which represents the career services professionals at 1,600 colleges and universities, more than 1,600 employers, and over 1,000,000 students. This yearly survey sought to identify trends in the hiring intentions of employers of college graduates (National Association of Colleges and Employers, 1997).

Four hundred twenty one employers responded to the 1997 survey. Many of the items in the survey asked respondents to rate responses on a five point scale. Among the survey items was one that asked employers to rate personal characteristics they sought in job candidates and another that asked employers to rate skills they sought in job candidates (National Association of Colleges and Employers, 1997).

These two questions yielded similar responses. Among the most frequent responses were interpersonal skills, honesty, motivation, communication skills, analytical skills, enthusiasm, teamwork skills, computer skills, leadership skills, flexibility, self confidence, work experience,

and a strong work ethic (National Association of Colleges and Employers, 1997). The results of the NACE study identified skills which employers sought in all college graduates.

Another national study also targeted all college graduates rather than graduates of one particular discipline. This study, conducted by the Collegiate Employment Research Institute, explored the issues, concerns, and perspectives of employers who sought to hire new college graduates. The researchers surveyed employers from large and small companies; from every geographic region of the United States; and, from various sectors of business, industry, and government, including accounting, banking, electronics, engineering, and research, among others. The initial survey was sent to 4,981 employers. A shorter, follow-up, survey was sent to employers who did not respond to the initial survey. The researchers' efforts yielded 477 usable survey responses (Scheetz, 1997).

Results of the survey showed that employers sought certain skills and competencies when recruiting and hiring new college graduates. Communication skills were high on employers lists of the skills they sought. These types of skills included oral, writing, and listening skills; the ability to positively influence others; and, customer contact skills. Employers also sought employees who exhibited leadership, perseverance, and follow-through. Adaptability, initiative, maturity, and self-confidence were also mentioned by the responding employers. Interpersonal skills were also sought by employers responding to this survey. Another area in which employers wished college graduates would excel was analytical thinking. Analytical thinking included problem solving and critical thinking. Finally, employers sought new college graduates who had good computer skills (Scheetz, 1997).

A third study applicable to college students from all disciplines was conducted by the career liaison to the College of Business at a large western university and an associate professor

of management in the College of Business at the same university. The researchers conducted

focus groups to obtain their data. They assigned 21 employer representatives who recruited in a

local or regional area to one of four focus groups. The representatives were assigned to focus

groups based on employer type. One group included representatives from large manufacturing

companies. Another group was comprised of representatives from service sector employers. The

third group focused on representatives from small businesses, while the fourth group was

comprised of representatives from large metropolitan employers (Kretovics & McCambridge,

1998).

The researchers created themes for each discussion; recorded focus group discussions; and

analyzed the comments based on the participants' initial categorization of each comment. Results

yielded lists of skills that employers seek in college graduates. The researchers grouped the skills

into three categories: technical skills, communication skills, and personality

characteristics/attributes. The first category included computer skills and skills specific to one's

major. The second category included social effectiveness skills which, in turn included team skills,

leadership skills, sales skills, problem solving skills, and organizational skills; and, presentation

skills. The third category included responsibility, initiative, flexibility/adaptability,

imagination/creativity, trainability, and self-confidence, among others (Kretovics &

McCambridge, 1998).

Skills Undergraduates Learn While Employed

Since employers are seeking college graduates who possess certain skills, it was relevant

to this study to review the available literature on the relationship between college employment and

skills development. Studies have investigated various aspects of skills development in select types

of jobs. Two of those types of jobs are cooperative education experiences or internships, and leadership jobs (e.g., Orientation Leaders, Resident Assistants).

<u>Cooperative Education and Internships</u>

Cooperative education as a pedagogical option has been offered for about 100 years (Ricks, Cutt, Branton, Loken, & Van Gyn, 1993; Wilson, 1988). While some scholars have argued that research in the field is lacking (Ricks et al., 1993), there are some studies that have explored the acquisition of skills by undergraduate students engaged in cooperative educational experiences.

One landmark study (Wilson & Lyons, 1961) sought input from faculty, students, and graduates from institutions which had cooperative education programs (22 institutions); from faculty, students and graduates at institutions which had no cooperative education program (16 institutions); and, from employers (30) involved in cooperative education programs (co-ops). Researchers used a variety of methods to collect data. They administered closed-ended questionnaires and open-ended questionnaires. They also conducted interviews with various constituencies (Wilson & Lyons, 1961).

Results of the study identified the values of co-ops. Among the values which the study identified were five that were relevant to the acquisition of skills by students. One value of co-ops was that students involved in them made gains in their personal motivation toward school work. A second value of co-ops was that this type of work experience contributes to a student's sense of responsibility. The study also found that students gain more confidence in their own judgments. A fourth finding of the study was that students in co-ops develop a greater sense of maturity. The fifth value relevant to student skills acquisition was that students involved in co-ops develop skills in human relations (Wilson & Lyons, 1961).

Another study which suggested that the development of skills is an important outcome of co-ops focused on student and faculty perceptions of cooperative education. The study employed the use of a 10-item questionnaire administered to a sample of faculty and a sample of students at a small, private college in an Eastern state. The data collected by the questionnaire was supplemented with the answers to open-ended questions (Wilson, 1989).

The questionnaires required that respondents rate the degree to which they agreed with 10 selected statements. Three of the 10 items in the questionnaire related to the acquisition of skills by students. The first asked respondents whether they agreed that involvement in co-ops increased motivation. The second asked respondents if their involvement in co-ops developed work habits. Finally, the third relevant question asked respondents if they agreed with the assertion that involvement in co-ops developed job skills (Wilson, 1989).

Results of this study showed that students and faculty were close in attitude about some of the items, but not close about others. Among the items in which there was disagreement were the two that asked for attitudes about the development of job skills and work habits. Faculty tended to disagree more with these items than did the students. There was more accord between the two groups with regard to the item about increased motivation. Both students and faculty were not sure if motivation was increased as a result of involvement in co-ops (Wilson, 1989). While the Wilson study did not identify specific job skills, it did find that students and faculty perceive that co-ops lead to gains in job skills.

Leadership Jobs

Students who work while in college can pursue options other than co-ops. Another common type of employment on college campuses is the leadership job. This type of job includes positions such as Orientation Leader and Resident Assistant. A study which surveyed a random

sample of four-year institutions in the United States reported that 91% and 90% of the institutions employed students as Orientation Leaders and Resident Assistants, respectively (Carns, Carns, & Wright, 1993). Logic suggests that if colleges and universities are hiring students in paraprofessional positions such as these, then research is being conducted to measure their effectiveness.

One qualitative study conducted at a large state university in the South sought to assess the experience of Orientation Leaders. Orientation Leaders from one cohort were asked to respond to one question: "How did your experience as an orientation leader contribute to your development as a person, student, and leader?" One half (12) of the cohort responded. Their written responses were categorized into nine themes (Goree, 1997).

Respondents felt that the Orientation Leader experience: was a life-changing experience; contributed to their general growth and maturity; allowed them to affect other people's lives; was a lab experiment in diversity; taught them teamwork and leadership; taught them things that will affect their careers; taught them things that made them better students; taught them things that made them better student leaders; and, improved their communication skills (Goree, 1997). While this study measured perceived outcomes of being an Orientation Leader, others have examined the effects of being a Resident Assistant on personal development.

A study conducted by academicians at an institute of technology and a large Southern university sought to identify the factors that motivate male and female Resident Assistants (RAs) with varying lengths of experience as RAs. Additional demographic considerations included size and type of institution (public or private), academic classification, and style of residence hall (all male, all female, or coeducational). The researchers adapted a questionnaire used to examine the work motivation of administrators and teachers in public schools by changing words such as

"children" and "classroom" to "residents" and "residence hall." The revised instrument asked respondents to indicate the degree to which certain factors describing sources of motivation were desirable. The six factors were: personal challenge and development; competitiveness, desirability, and reward of success; tolerance for work pressure; conservative security; willingness to seek reward in spite of uncertainty; and, environment concerns. Additionally, two open-ended questions asked RAs to report the three most satisfying and three most dissatisfying aspects of their jobs (Bierman & Carpenter, 1994).

Results revealed that factors applicable to self-confidence were rated differently by men and women. Men wanted a challenging experience, while women wanted to be better prepared through training. In either case, both men and women indicated that confidence on the job was important. Also, respondents mentioned teamwork and future career skill development among the items which promote satisfaction in the RA position (Bierman & Carpenter, 1994).

Another study which explored motivation among RAs looked at the issue from the perspective of prospective RAs. Researchers collected data in two steps. First, they conducted a pilot study from which they developed a 24-item questionnaire that explored six factors which had an effect on student decisions to become RAs. The six factors identified were: helping behaviors, or interpersonal skills; career development; desire for power; personal growth, or a measure of self-confidence; financial obligations; and, RA cohesiveness, or teamwork. This questionnaire was administered to 200 RAs attending a skill development conference. One hundred forty four RAs participated (Deluga & Winters, 1991).

Results showed that the factors related to interpersonal skills and teamwork were more often associated with higher job satisfaction and reduced stress. RAs associated the other four

factors with lower job satisfaction and more stress (Deluga & Winters, 1991). This study furthered research about the perceived outcomes of being an RA.

A third study designed to measure the outcomes associated with being an RA questioned the perceived long-term benefits of being an RA. The researchers selected a sample of former RAs who had graduated from one, large midwestern university. Respondents had graduated between five to 20 years previous to the study. Fifty-nine former RAs responded to a questionnaire which had two parts. The first part listed major life activities in which the participants may have engaged. They included career choice, marriage, civic organizations, political activities, and religious activities, among others. The second part provided a list of skills which the training program for RAs claimed to develop in RAs. These skills included communication skills, teamwork skills, decision-making skills, leadership skills, confrontation skills, budgeting skills, counseling and advising skills, and supervisory skills, among others. Respondents were asked to respond on a five-point Likert-type scale. Responses ranged from "no impact" to "tremendous impact" (Lillis & Schuh, 1982).

The researchers found that, in general terms, people's experiences as RAs had impacted their life activities less than they had impacted their skills. The highest mean scores were reported for confrontation and counseling and advising skills (sometimes recognized as interpersonal skills). Leadership skills was reported to have the third-highest mean score (Lillis & Schuh, 1982).

In conclusion, the literature is fairly clear on the outcomes associated with higher education in general. There is also definitive literature on the types of skills employers seek in college graduates they hire. The literature on the outcomes associated with certain types of student jobs (co-ops and leadership positions) is also fairly extensive. However, there are no studies that address the acquisition of skills by undergraduate students employed in wage

positions. The present study sought to fill the gap in the existing body of literature on the kinds of

skills students in college learn while they work.

CHAPTER 3

METHODOLOGY

The purpose of this study was to examine whether the skills student employees in wage positions learn are skills that employers seek in college graduates. To identify skills that employers seek in students they hire, a list of skills was developed from the literature available on job skills employers seek in college graduates. Data about what students learn while employed in on-campus wage positions were collected through logs that detailed activities in which student employees engaged while on the job.

Specifically, the study was designed to explore the following research questions.

1. In what activities are undergraduate students engaged while employed in on-campus wage positions?

2. What is the relationship between the skills that employers seek in college graduates and the activities in which undergraduate students engage while employed in on-campus wage positions?

3. Are there differences by gender in the skills that undergraduate students learn while employed in on-campus wage positions?

Sample Selection

Two samples were selected for this study. The first sample consisted of studies conducted on skills identified by employers as desirable in employees who are college graduates. The second sample consisted of the undergraduate student participants who collected data on their activities while on the job.

<u>Studies and Skills</u>

The list of skills sought in college graduates by employers was created from reports and studies by state agencies, national bodies, and independent authors who are experts in the field of recruitment and hiring. To select a sample of documents from which to compile this list, the researcher first consulted a panel of three experts. The panel included an Associate Director and an Advisor at the Career Services Office at the institution where the study was conducted and the Interim Associate Director for Career Services at a regional university in the South. These experts directed the researcher to reports and studies that identified skills employers seek in their employees.

An extensive search identified numerous documents that investigated the skills employers seek in their employees. Documents which were not based on research were discounted and not used in the present study. Eight documents met the criteria for inclusion in that they were research-based. Of these eight, five more were discounted for one of two reasons. Four studies explored skills sought by employers who hired employees for jobs that did not require a college degree as a condition for employment. Therefore, the data gathered from those studies may not have been pertinent to the current study aimed at learning what skills employers of college graduates seek. One study was discipline specific. The information it gathered about skills employers seek was aimed at graduates with degrees in a specific major. This focus on a specific discipline yielded a skills list which tended to be technically oriented.

The three remaining studies listed skills relevant to the present study. The first study, <u>Job Outlook '98</u> (National Association of Colleges and Employers, 1997) was based on national data, as was the second study which was conducted by Michigan State University's Collegiate Employment Research Institute (Scheetz, 1997). The final study, <u>Determining What Employers</u>

Really Want (Kretovics & McCambridge, 1998), collected information from regional employers in the West.

These three studies, which were discussed in detail in Chapter 2, identified more than 30 skills or characteristics which were sought by employers of college graduates. Eight of these skills were selected for use in the present study. The eight skills selected were skills that were reported as essential in all three studies.

The first skill, adaptability/flexibility, was found to stand alone in each of the three studies. The desire to have flexible employees who can adapt to the changing conditions of the workplace was uniformly sought by all.

The second characteristic, analytical skills, was derived from similar categories in the three studies. While Job Outlook '98 (National Association of Colleges and Employers, 1997) listed the term, "analytical skills," the other two studies did not. Kretovics and McCambridge (1998) listed "problem-solving skills" and defined the term as being able to critically analyze a given situation. The Michigan State University study (Scheetz, 1997) identified "analytical thinking" as one of the skills sought by employers. This study listed problem-solving, initiative, and critical thinking as components of analytical thinking. The researcher of the present study chose to group these skills into one syntactic element. For the purposes of this study, the skill labeled "analytical skills" was comprised of: critical thinking, decision making, and problem solving.

The third type of skills, communication skills, was described differently by each of the studies. Job Outlook '98 (National Association of Colleges and Employers, 1997) used the terms, "oral communication skills" and "written communication skills." However, the other two researchers used broader interpretations of the term. Scheetz (1997) regarded communication skills to include writing, speaking, listening, and copy editing, as well as, people skills,

interpersonal savvy, maturity, and customer contact skills. Kretovics and McCambridge (1998) considered communication skills to be an even more global concept. For these researchers, communication skills was a category that encompassed other skills such as, social effectiveness skills, presentation skills, language skills, and understanding of different cultures. The researcher of the present study chose to use the terms used in Job Outlook '98 (National Association of Colleges and Employers, 1997) and combine them into one skill group entitled "communication skills."

Initiative was the fourth skill to emerge from the analysis of the three studies under review. Again, the terms used by each study were not identical. Job Outlook '98 (National Association of Colleges and Employers, 1997) used the term "motivation/initiative." Kretovics and McCambridge (1998) used the term "self-starter." While Scheetz (1997) listed initiative as part of a bigger set of analytical thinking skills. For this study, the term "initiative" was used to represent each of those concepts.

The fifth type of skills identified for the present study was interpersonal skills. Scheetz (1997) described interpersonal skills as part of a larger category called "communication skills", while Kretovics and McCambridge (1998) used the term "social effectiveness skills." Their study described social effectiveness skills as the set of skills necessary for effective interactions with others at work. Job Outlook '98 (National Association of Colleges and Employers, 1997) and the present study chose to use the term "interpersonal skills" as a separate category.

The sixth skill identified by the present study, leadership skills, was used by each of the three studies. However, Kretovics and McCambridge (1998) considered leadership skills to be a component of social interaction skills.

Self-confidence was the seventh skill identified by the present study as one that employers sought in college graduates. The researcher of the present study found the same term in all three studies. However, one study (Scheetz, 1997) listed self-confidence, poise, and self-esteem as one of the components of attitude. The researcher of the present study considered these terms to be synonymous, but chose to use the more common term, self-confidence.

The final skill that was identified for the present study was teamwork skills. Again, this type of skill was identified by each study which met the requirements for inclusion in the present study. Scheetz (1997) included teamwork as a component of leadership skills. Kretovics and McCambridge (1998) listed team skills in the social effectiveness category.

While each of the studies cited above reported many other skills, competencies and characteristics which were sought by employers of college graduates, these eight were uniformly reported by all.

There was a ninth skill that was also identified by all three studies: computer skills. While the acquisition of computer skills may be desired by employers, it is not an area to which many students employed in on-campus wage positions are exposed. For example, students who shelve books in a library or prepare food in a dining hall are typically not required to use computers. Given the variety of wage positions held by participants in the current study, the researcher elected not to measure the degree to which students in wage positions acquired computer skills.

Therefore, the eight skills described above were deemed by the researcher to represent a sufficient range of competencies sought by employers of college graduates. The eight skills serve as an credible base to measure the relationship between the skills that employers seek in college graduates and the skills undergraduate students learn while employed in on-campus wage positions.

<u>Selection of Participants</u>

The population from which the second sample was selected included all student employees in wage positions at a large, land-grant institution during the Spring 1999 academic semester. Approximately 15.5% of the undergraduate students at the selected institution were employed in such jobs at the time of the study.

Forty (40) undergraduate student volunteers were selected to participate in this study. There were six criteria used to select participants. First, all respondents were required to work at least 12 hours, but no more than 20 hours per week in their on-campus jobs. Second, their on-campus jobs had to be unrelated to their academic major or career goals. Third, their on-campus jobs could not be positions of leadership (e.g., Resident Assistants, Orientation Leaders). Fourth, respondents must have been paid an hourly wage rather than an honorarium or stipend. Fifth, they must have had access to and used e-mail. Finally, respondents must have worked only one job. In other words, they must have been able to gather data during the data collection period from a single job rather than from two or more on-campus wage positions.

The first criterion (12-20 hours of work per week) was identified to eliminate respondents who worked fewer than 12 hours per week. Such students were eliminated for two reasons. First, the researcher wanted data on skills learned by student employees at their jobs. Students who work between 12 and 20 hours per week were more likely to be assigned specific responsibilities in their jobs which would have provided them with an opportunity to learn certain skills. Students who worked less than 12 hours per week were more likely to have tasks assigned to them daily. Such shifting responsibilities may have limited the kinds of skills they gathered while working. Second, the researcher intended to collect data on 20 hours of job activity from each participant. The data collection period was limited (two weeks). Therefore, participants who did not work at

least 12 hours per week would be unable to log notes about 20 hours of work during the two-week data collection period.

The second criterion (non career-related job) was identified to eliminate respondents whose on-campus jobs were similar to their proposed career choice. Such students were eliminated for two reasons. First, the researcher wished to gather data from student employees who were not using their job for training in a career. Those students would have been looking for opportunities to learn skills on the job. The desire to acquire skills intentionally was not the purpose of the present study. Rather, the study sought to identify skills learned by students in wage positions where developing skills sought by employers might not be expected. Second, employers of students in positions related to their career goals were more likely to guide the employment experience of students so they would learn specific skills required for a future career in that industry. Such intentional and specific training would have skewed the results of this study.

The third criterion (non-leadership job) was identified to eliminate respondents whose jobs were designed as a leadership development experience or whose job activities could not easily be measured in hours and minutes. Those students were eliminated because it would be difficult to identify 20 hours of work in any given period. Students employed in leadership positions often receive specialized training and often work non-specific schedules. Specialized training and non-specific work schedules might have influenced the results of this study.

The fourth criterion (hourly wage) was identified to eliminate students who were not compensated for a specific number of hours worked. Students who receive stipends or honoraria are not always tied to a specific work schedule. Their requirements typically include completing a task within a specific time frame, such as a semester or an academic year. The data collection

period was limited to two weeks. Therefore, such students may have had difficulty recording 20 hours of work during the data collection period.

The fifth criterion (use of e-mail) was identified to eliminate students who did not have access to or did not use e-mail. The data collection procedures required that the researcher be able to contact the participants through e-mail. Therefore, students who did not have access to or did not use e-mail would not have been able to comply with all requirement of the study.

The sixth criterion (only one job) was identified to eliminate respondents who worked more than one job. Such students were eliminated because the logs were designed to collect data from one job only. Students with more than one job were less likely to be able to complete the number of hours at one job during the data collection period.

Participants were recruited through flyers (see Appendix A) posted in residence halls, classroom buildings, the student center, the student fitness and recreation center, and on community bulletin boards at grocery stores in the local area. The flyers briefly explained that the study would entail collecting data from participants while they were at their jobs; indicated that a $25.00 incentive would be paid; and asked students to contact the researcher by phone or e-mail if they were interested in participating in the study.

Respondents who contacted the researcher were screened to see if they met the criteria for inclusion in the study. When potential participants contacted the researcher, they were asked a series of questions (see Appendix B) which determined their qualifications for inclusion in the study. For example, respondents were asked for their academic major, where they were employed, how many hours they worked per week, whether they were paid an hourly wage, whether they used e-mail, and if they were able to attend one of two orientation sessions. During this conversation, a short demographic questionnaire was administered. The researcher collected

demographic information from potential participants including: age, gender, nature of position, e-mail address, and hourly wage.

Respondents who met the screening criteria were asked which one of two orientation sessions they planned to attend. They were informed that the study would require that they keep a log of their activities at work and that they should get permission from their supervisors if they planned to write in the log while at work. The first 20 men and 20 women who met the criteria for selection were invited to participate in the study. An additional two men and two women were also invited to participate as alternates in case attrition affected the initial group of 40 participants.

Instrumentation

The researcher developed a log to collect data from participants. The creation of the log required several steps. First, the researcher generated a list of skills employers seek in college graduates they hire. This list was comprised of skills which appeared in each of the three studies selected for inclusion in the study. These skills included: adaptability; analytical skills; oral and written communication skills; initiative; interpersonal skills; leadership skills; self-confidence; and teamwork skills.

Next, the researcher sought to operationalize the list of skills by identifying specific activities associated with each skill. Previous work (Lloyd & Kennedy, 1997) provided the researcher with guidance on how to accomplish this task. The first skill sought by employers was adaptability/flexibility. Five activities were identified as reflecting adaptability/flexibility, including performing a task not previously assigned, interrupting one task to start another, and dealing with ambiguity.

The second skill sought by employers was analytical skills. Analytical skills were operationalized through six activities. Those activities included revising a procedure, solving a problem alone, and completing a task given only vague instructions.

The third skill sought by employers was communication skills. Seven activities were associated with communication skills, including speaking with someone about a job-related issue, writing official correspondence, documenting a procedure or incident in writing, and reaching an agreement with another person.

The fourth skill sought by employers was initiative. Initiative was associated with five activities. These included initiating a new procedure, asking for more responsibility, and arriving to work early.

The fifth skill sought by employers was interpersonal skills. Five activities were associated with interpersonal skills, including creating harmony among co-workers or customers, negotiating a compromise, and exhibiting a sense of humor at work.

The sixth skill sought by employers was leadership skills. Among the five activities associated with leadership skills were setting an example for a co-worker by performing an unpleasant task, taking charge of group project, and encouraging a co-worker to do a good (or better) job.

The seventh skill sought by employers was self confidence. Five activities were associated with self confidence, including risking making a mistake rather than consulting with a supervisor, presenting an idea to a supervisor, and accepting criticism.

The eighth skill sought by employers was teamwork skills. Teamwork skills were operationalized by five activities, including solving a problem with a co-worker, coping with undesirable behavior of a supervisor or co-worker, and sharing responsibility with a co-worker on

a task or project. The complete list of the eight skills sought by employers and the 43 activities associated with each skill appears in Appendix C.

Next, the researcher used the list described above to create a form from which participants could choose the activities in which they were engaged on the job. Because the researcher did not wish to influence participant responses, it was necessary to remove the skill categories from the corresponding activities. Once this was done, the activities were kept in the same order, then numbered from 1 to 43.

Activities one through five corresponded to adaptability/ flexibility. Activities six through 11 corresponded to analytical skills. Activities 12 through 18 corresponded to communication skills. Activities 19 through 23 corresponded to initiative. Activities 24 through 28 corresponded to interpersonal skills. Activities 29 through 33 corresponded to leadership skills. Activities 34 through 38 corresponded to self confidence. Finally, activities 39 through 43 corresponded to teamwork skills. This list of activities, as well as instructions for completing the log were printed on the back of the Work Site Log (See Appendix D).

The Work Site Log consisted of four columns which the participants completed. In the first column respondents reported the day and date of the shift during which they recorded data. The second column contained a space for the block of time during which respondents were recording activities. In the third column respondents recorded the number of the activity in which they engaged during the specified time period. For example, if the participants began a task which was not assigned to them, then they recorded a "19" in the third column, as 19 was the activity on the list of activities that related to beginning a task not previously assigned. Finally, in the fourth column participants wrote details of the tasks they completed during the corresponding time

frame. For example, in this example the respondent wrote "cleaned up the work area - not usually my responsibility." For a sample of a completed Work Site Log, see Appendix E.

<center>Data Collection Procedures</center>

Before collecting data, the researcher sought approval from the Institutional Review Board for Research Involving Human Subjects at the institution where the study was conducted. Once approval was granted, data collection began.

Prior to the data collection period, all participants were required to attend one of two informational meetings. The same material was addressed at each meeting. See Appendix F for an outline of the agenda used at the information sessions. At these meetings, the researcher reviewed the requirements for participation in the study. The requirements included working at least 12 hours, but not more than 20 hours per week; being employed in a job unrelated to their academic major or career goals; not being employed in a leadership position; earning an hourly wage; having access to and using e-mail; and having only one job.

Second, the researcher informed the participants that they would be collecting data during the period January 27 - February 10, 1999 or January 28 - February 11, 1999 if they attended the second informational meeting. Third, participants were informed that they would receive a total of $25.00 for successful participation in the study. They received $5.00 at the information session and the remaining $20.00 when all log sheets were properly completed and returned to the researcher.

Then, a sample, blank Work Site Log was distributed and described. The logs asked participants to record their job activities in 30-minute intervals. Participants were told that if they could not write in the log every half hour, they should record all activities during their shift immediately after the shift ended, but to record these activities in 30-minute increments.

<center>40</center>

Participants were reminded to get permission from their employers if they planned to use work time to complete their logs.

The researcher provided participants with a sample of a completed Work Site Log and instructed respondents about how to complete log entries appropriately. For example, they were instructed to write the details of the specific task in which they engaged. After recording the task, they were told to select one of the numbered activities from the list of job-related activities on the back of the log sheets and to write down the number in the appropriate column.

If they engaged in a task that was not accounted for in the numbered activities list, participants were asked to specifically describe that task in the fourth column. They were then instructed to write "other" in the column normally reserved to record a numbered activity. The researcher went on to explain that less detailed log entries would not be useful for the study, would have to be discounted, and that participants would not receive the balance of the incentive if details on the logs were not sufficient. Participants were asked to complete logs for 20 hours of work and furnished with enough log sheets to complete this task. They were told to contact the researcher to obtain more log sheets if necessary.

After providing them with a full explanation of the parameters of the study, participants were then asked to sign informed consent forms. If they elected not to sign a form, they were thanked for their time and excluded from the study.

Participants completed the log for 20 hours of work during the data collection period (January 27 - February 10, 1999 or January 28 - February 11, 1999 if they attended the second informational meeting).

Twice throughout the data collection period participants were contacted by e-mail to review sample log entries. They were asked to e-mail to the researcher the five most recent entries in their log. The researcher responded with suggestions for better log entries if necessary.

At the end of the data collection period, participants returned log sheets to the researcher. The researcher reviewed the log sheets for legibility and for completeness with regard to detail. Log sheets which were unreadable or provided little detail were refused and returned to participants for clarification. Upon satisfactory review of the log sheets, the researcher paid participants the balance of the incentive ($20.00).

Authenticity/Trustworthiness

The researcher took some measures to ensure the authenticity and trustworthiness of the present study. Authenticity refers to how well the data collected address the research questions posed the study (Miles & Huberman, 1994). Once the list of skills and corresponding activities was compiled, a panel of experts was consulted in order to enhance authenticity. The panel included an Associate Director of Career Services, the Director of an Academic Assessment Program, and an Associate Director for University Unions. They reviewed the list of skills and corresponding activities to ensure that the activities selected by the researcher matched the skills to which they were linked. Consulting experts was one way to verify that the researcher was addressing the questions of the study.

Trustworthiness refers to how well the data collected reflects the participants' actual behavior (Miles & Huberman, 1994). Two steps were taken to enhance trustworthiness in this study. First, participants were contacted twice throughout the data collection period to make sure that they were completing the logs in a timely manner. This action diminished the possibility that the logs were completed at the end of the data collection period when memory of specific

activities might be limited. If participants were to fill in the log sheets long after the shift they were documenting, they may have had a tendency to create information in an effort to give the researcher complete log sheets which would not jeopardize their receipt of the balance of the compensation, thus creating untrustworthy data.

Second, when participants returned logs, they were asked to explain some of their entries. This is how the researcher sought to verify whether the tasks performed were actual job requirements, not tasks unrelated to their job. For example, they may have spent a few minutes doing their homework. Data on tasks not related to their job responsibilities were not sought in this study. Verifying the data in this manner enhanced trustworthiness of the data because it helped to ascertain whether the tasks engaged in by the participants were actual job responsibilities.

<div align="center">Data Analysis Procedures</div>

The unit of analysis for this study was the activity performed by the participant. Each entry in the log contained one task performed by the participant and its related activity (one of the 43 activities listed on the Work Site Log). The researcher analyzed the data to find relevance to the research questions posed in the study. The analysis of the data began with a review of each log entry. Log entries were reviewed to ensure that each entry was job related. Entries which were not deemed to be job related were eliminated from the data analysis process. For example, a respondent may have recorded that they engaged in activity number 24, "conversed with co-worker", but when describing the conversation in the fourth column, the respondent may have recorded that the conversation occurred between the respondent and a friend who was not employed at the same job. Since conversations between friends were not likely to be job related, this activity would have been excluded from the data analysis process.

Next, the researcher reviewed the remaining entries to ensure that the number of the activity which participants recorded in the third column of the log accurately reflected the task that they had actually performed (as described in the fourth column of the Work Site Log). Since the participants were only writing the number of the corresponding activity, it was thought that verifying entries would help to ensure that simple transcription errors were not committed. For example, if a participant wrote, "worked at the cash register because cashier did not come in - I usually don't work the cash register", but associated the number "43" with that activity, the researcher would note that "43" corresponds to sharing responsibility with a co-worker. However, "1" corresponds to performing tasks not previously assigned. In this case, "1" would be a better match for the activity reported by the participant.

When necessary, and in consultation with the participant, the researcher assigned tasks to an activity. For example, when respondents indicated "other" in the activity number column, the researcher searched the list of numbered activities to find a possible matching activity. This activity was suggested to the participant as a possible match. If the participant agreed with the researcher's assessment, the task was assigned the number corresponding to that activity.

After verifying the entries for such accuracies, the researcher counted the total number of activities reported by participants. Then, the researcher counted the frequency of the responses related to each skill. For example, all the responses which corresponded to activities one through five were summed and recorded as the number of responses related to Adaptability/ Flexibility. All responses corresponding to numbered activities six through 11 were totaled and recorded as the number of responses related to Analytical Skills. All the remaining responses were grouped and recorded in this manner so that a total number of activities for each skill could be reported.

Next, the researcher counted the total number of responses which corresponded to each numbered activity within each skill category. For example, all the responses which corresponded to activity number one were summed and reported as the total responses for that activity. The same procedure was followed for each of the 43 activities, so that the total number of responses for each activity could be reported.

This process allowed the researcher to report the results as the total number of overall responses, the total number of activities within each skill category, and the total number of responses for each activity. Then, the researcher sorted the participant responses by gender and repeated these steps.

The methodology described in this chapter was designed to answer the research questions posed in the study. This methodology was deemed sufficient to gather data related to these questions.

CHAPTER 4

RESULTS

To examine whether the skills student employees in wage positions learn are skills that employers seek in college graduates participants in this study completed logs of their activities for 20 hours of work during the data collection period.

Results from the data collection are provided in this chapter. First, changes to the procedures used to gather data are described. Second, a description of the participants is presented. Finally, the results of the Work Site Logs are described in detail.

Changes to the Procedure

The researcher implemented some changes to the procedures outlined in the preceding chapter. Adjustments were made to the criteria for participation, the recruitment of participants, and the procedures for data collection.

There were six criteria used to select participants. Of the six, two were adjusted to facilitate participation by students. The first criterion required that all respondents work at least 12 hours, but no more than 20 hours per week in their on-campus jobs. During the recruitment process the researcher chose to accept six participants who worked less than 12, but more than 10 hours per week. This decision was made to ensure students working in clerical/office positions were represented. Five of the six participants who worked 10 to 12 hours per week worked as office aides or in some other type of clerical support position. Allowing for flexibility with regard to the first criterion ensured a more diverse participant pool. In each case; however, participants were reminded that since the data collection period was limited (two weeks) they would have to attend every shift so that they could record the requisite 20 hours in that time.

The sixth criterion required that respondents must have worked only one job. Again, some flexibility was warranted. Seven of the original 45 participants worked more than one job. However, the researcher reminded each participant that they could only record work activities from one job. The researcher discussed with each of these participants which job would be used to record data for the study. Only activities in that job were reported. Allowing students with more than one job to participate was necessary to avoid limiting the participant pool.

Recruitment strategy was also revised from the procedure outlined in Chapter Three. After the initial posting of flyers throughout the community yielded a limited response rate, the researcher sought to recruit more participants using a different strategy. To invigorate the response rate the researcher sent e-mail messages to colleagues who worked with or advised students, and to the initial group of respondents. The e-mail messages indicated that participants were still sought and that interested students should contact the researcher. Both e-mail messages were fruitful and prompted additional interest among potential participants.

A second way which the recruitment strategy was revised was a result of a committee recommendation. The committee suggested that another question be added to the list of screening questions ("Do you consider your position to be in anyway related to your career aspirations?") This question was added to allow respondents to characterize their own jobs, rather than having the researcher do it for them. See Appendix G for a revised version of the screening questions.

Data collection procedures were also adjusted. First, four participants were trained individually after the initial orientation sessions. These four participants completed the sample which included 20 male and 20 female participants plus two male and three female alternates. Second, attrition claimed 13 of the initial 45 participants. The researcher decided to proceed with the analysis of data from 32 participants. Third, the data collection period was extended for some

participants. This was done for some participants who, for various reasons, were unable to complete their anticipated shifts during the two-week data collection period.

Overall, the changes described in the preceding paragraphs were implemented to facilitate data gathering. The changes maximized the participation rate and minimized additional attrition without affecting the efficacy of the study.

Description of Sample of Participants

Forty five respondents were selected to participate in the study, attended an orientation session, and were paid $5.00. Of those 45 participants 16 men and 16 women completed the study. Seven of the 13 participants who did not complete the study informed the researcher that they would not be able to complete the Work Site Logs as they had promised. Six others never contacted the researcher after the initial orientation meeting.

The 32 participants who completed the study represented a wide variety of student wage positions, had varying tenures at their positions, worked different types of schedules, and earned hourly wages which were disparate from one another.

The two employers who were represented by the most participants were the Department of Residential and Dining Programs (RDP) and the University Union and Student Activities office (UUSA). Participants from these functional areas were involved in diverse job activities. Some of the jobs represented within these two areas were: art gallery attendant, office aide, information desk attendant, technical support staff, and student building manager in UUSA; and cook/server/cashier, office aide, night monitor, fitness room monitor, and shop supervisor (dining) in RDP. Table 1 describes details about the distribution of participants by job site by gender.

Participants in this study had worked at their current position for time periods varying from two weeks to three and one half years. Four participants began working at their current

positions during the semester when this study was conducted, so had been in their positions less than one month. The largest number of participants (15) began working at their current positions during the previous semester and, therefore, had less than six months experience in the position about which data were collected. Twelve participants began working in their current positions more than six months previous to the start of the study. One other participant did not indicate how long he had been employed in his position.

The work schedules of the participants also varied. They worked between 10 and 22 hours per week. The majority of participants (19) worked at least 12, but less than 15 hours per week. Eight participants worked 15 hours or more per week. The remaining five participants worked less than 12 hours per week.

The 32 participants in this study earned between $5.15 per hour (minimum wage) and $8.00 per hour. Eleven participants earned minimum wage. Nine earned between $5.25 per hour and $5.99 per hour. Nine others earned between $6.00 per hour and $6.99 per hour. The final three participants earned $7.00 to $8.00 per hour.

<div align="center">Results</div>

Description of Participant Responses

Participants of this study were instructed to do two things when writing entries in the log sheets. First, they were told to write detailed descriptions of their tasks on the job. Second, they selected from a list of 43 activities the one activity that best described each task they performed

Table 1

Job Sites of the Sample by Gender (N=32)

Job Site/Employer	F	M	Total
Residential and Dining Programs	3	6	9
University Activities	5	3	8
Academic Departments	2	2	4
Library	2	1	3
University Administration	1	2	3
Recreational Center	1	1	2
Other	2	1	3
Total	16	16	32

while on the job. These detailed descriptions helped the researcher verify the connections participants made between their actual tasks and the activity they selected from the menu of 43 activities provided on the back of the log sheet. Most descriptions were clear enough to stand on their own, but some needed additional explanation from the participant.

The researcher sought clarification for the less clear descriptions at the time of the exit interview with each participant. For example, respondents who wrote a "4" in the "Activity #" column did not always indicate how the person with whom they were working was different than themselves. Activity number four was the activity that related to working cooperatively with someone who is different. Another respondent wrote, "a resident came in intoxicated, but I let him get in without reporting it as he was quiet and didn't do any harm." This respondent related this activity to activity number 34, "risked making a mistake rather than asking for help from supervisor." When cases like these were reported, the researcher asked the respective participant to explain how their description related to the given activity number.

Some respondent descriptions were clear. For example, one respondent related the description, "I interrupted my shredding to mail a letter for a professor" to activity number two, "interrupted one task to start another." Another respondent reported, "co-worker being annoying, but I was still nice & cooperative" and related it to activity number 42, "coped with undesirable behavior of supervisor or co-workers."

The menu of activities included 43 items. On Table 2, the researcher has provided a list of those activities and examples of the descriptions of tasks participants provided with respect to each activity. These examples provide a context for the data analysis reported in the remainder of this chapter.

Table 2

Participant Descriptions of Activities

#	Activity	Descriptions of Tasks from Participants
1	performed task not previously assigned	"charged all the cardiovascular machines" "took temperatures of food"
2	interrupted one task to start another	"I interrupted my shredding to mail a letter for a professor." "interrupted removing flyers to check if door were [sic.] securely shut"
3	used creativity on the job	"took stairs back to 4th floor for exercise" "made posters for fitness expo"
4	worked cooperatively with someone who is different than you	"helped grad student from Korea understand check out procedures" "I [took] out the trash since it was cold outside and my other 2 co-workers are old ladies and they were at work already all day(the two ladies are in their 60s, with kids and husbands; they work 40 hrs/week)"
5	dealt with ambiguity	"looked for solution to disk error on target in Virex Admin. guide, but found none" "take down signs for other group, make sure it's okay with the original group's coordinator"
6	completed a task given only vague instructions	"The RA called and said that a door was unlocked. I wasn't sure which one, so I had to check them all." "rearrange filing room with only the instructions 'make it organized so it makes sense'"
7	revised a procedure	"decided to check doors of the building" "filled eppendorf tube dispensers, couldn't find tops to some, so covered them with foil."
8	solved a problem on your own	"noticed patron with misspelled address, corrected in database" "didn't have binders to put copies in, so put in folders and planned to tell boss we needed more binders"

9	extracted important ideas from words, charts, graphs, or tables	"looked in Virex Admin. handbook to find meaning of disk error on target error" "read over a few books & compiled a list of top universities to recruit grad students from based on ratings & test scores & department reputability"
10	applied aspects of training to solve problem or answer question	"filled up the paper tray in the copy machine because it was almost out" "showed student the proper technique for bench-pressing"
11	synthesized previously given instructions to extrapolate solution to new problem	"began shelf reading (taking a particular section in stacks and putting every book in order, keeping track of mistakes found and f ixing them.)" "A resident came in intoxicated. He didn't have his ID. I asked to see his keys as they have the dorm number on them."
12	spoke with someone about job related issue	"talked with some off-campus students who were stopping through about the benefits of gym & on-campus housing" "spoke to student who was interested in employment"
13	wrote official correspondence or inter office memos	"email supervisor - thanks for all your help while immediate boss is out" "typed a brief memo for boss"
14	wrote instructions for co-workers or users	"I left a note on the pile for my co-worker to pick up where I left off." "left note for managers regarding how the night went"
15	verbally communicated a concern or idea to boss or co-worker	"I suggested one guard be released due to her absense [sic] [from] three meetings and a shift." "Spoke to head chef about needing more help in kitchen, and our lack of supplies."
16	documented a procedure or incident in writing	"write in logbook about building's traffic tonight" "wrote an incident report about the fire alarm"
17	reached an agreement with co-worker	"I let my co-worker have the entrance he wanted." "agreed with RA that she would be responsible for locking up"

18	persuaded another person	"requested break due to boredom, received it" "asked co-worker to watch front counter while I checked in books"
19	began a task that was not assigned to you	"helped set up room for the Thursday evening seminar meeting" "started to clean up office some while boss was busy"
20	initiated a new procedure	"talked to my boss about starting a new system instead of saving this task for one day" "initiated a project involving the relocation of office supplies"
21	asked for more responsibility	"finished folding mail, sorted, and offered to take to mail room" "was bored at work, asked supervisor what I could do"
22	arrived to work early or remained late	"stayed 10 extra minutes to insure [sic] the cleanliness of the gym" "arrived to work 5 min. early, talked with boss about day"
23	took advantage of free time to do some job-oriented task	"During free time (not busy), I reviewed the training manual to check on available software for programming." "made a list of things to do for the week"
24	conversed with co-worker(s)	"had a brief conversation with Jean, morning greetings and small talk" "conversed w/ my boss & co-worker (Amy) about our week & the day's priorities"
25	created harmony between/among co-workers or customers	"offered [patron] an apology & a way to rectify problem" "helped [Graduate Assistant] move into her new office"
26	negotiated a compromise	"placed books on 24 hour hold for patron who had no ID" "The other night monitor wanted to change nights for a week as he was busy on his next working night. I agreed."

27	exhibited a sense of humor on the job	"[Graduate student] was stressed about the deadline, so I told him a funny story about his advisor." "helped co-worker remain cool with humor"
28	influenced others in organization	"I cleaned/made neat the food area when it was not busy" "continued working on mailing labels"
29	trained co-worker on task I usually perform	"taught a new employee how to load a truck" "trained substitute worker on gym operations"
30	set example for coworkers by performing an unpleasant task	"clean up work area" "kicked 3 people out of practise [sic] room (nicely)"
31	took charge of group project	"delegated cleaning responsibilities among co-workers" "have conference w/ student crew about this evening's events"
32	made decisions regarding behavior in group	"told employees to go eat" "get [Community Service] workers on new tasks"
33	encouraged co-worker to do a good/better job	"I asked [co-worker] if he'd followed procedure and contacted others on the substitute list" "found another night monitor asleep. Woke him up and asked him if he was really tired and if I could help him out."
34	risked making a mistake rather than asking for help from supervisor	"a resident came intoxicated, but I let him get in without reporting it as he was quiet and didn't do any harm." "I told a student about our spring-break hours when in fact I was not sure myself. I didn't want to ask my boss because she had already told me."
35	stuck to convictions rather than compromise own values on the job	"A student came in with a question, but I could only refer him since I am not permitted to pull up student schedules on the computer." "did not allow patron to clean off machine after use, even though she wanted to"
36	recommended that a procedure be used or not be used	"I inquired about the possibility of having an ethernet hookup [at] the front desk." "recommended to my boss that it was not necessary for employees to use checklist for duties completed"

37	presented idea to supervisor	"asked if I could set [registration table] up differently the next day" "Arrived early to speak to Residence Director about how people were propping doors open. Offered a solution by offering to check and lock doors myself."
38	accepted criticism	"My boss thought I wasn't working hard enough, so he told me to step it up." "I was criticized by boss for allowing students w/out towels to lift. I apologized"
39	collaborated with co-worker(s)	"tried to help co-worker put new numbers on the faceplate of the phone" "After the break, we joined the rest of the crew in hanging lights."
40	solved a problem with co-worker(s)	"set up account for foreign transfer student, needed help of staff member" "help fellow co[-]worker with project of finding cheapest chairs to place in remodeled office"
41	discussed with coworkers solutions to workplace problems	"the group as a whole discussed problems with missing tools" "had conversation with co-employee about how crowded the gym was, and how to insure [sic] order"
42	coped with undesirable behavior of supervisor or co-workers	"co-worker being annoying, but I was still nice & cooperative" "RA was late signing me out. He didn't bother with explanations. I decided to let it pass. Perhaps he overslept. People do that all the time."
43	shared responsibility with co-worker on a task or project	"We all worked together to finish clean-up: swept and mopped floor, restocked supplies, wiped off counters." "Helped a co-worker enter data - I dictated & she typed"

Frequency of Work Activities for All Participants

The unit of analysis for this study was activity. The 32 participants reported a total of 3,113 tasks. Of those tasks, 2,662 were related to one of the 43 activities. Four hundred fifty one (451) were assigned to the category "other." A review of the tasks assigned to the "other" category revealed that those tasks were menial or commonplace (e.g., "shelved books," "cooked hamburgers"). It went beyond the scope of this study to analyze those tasks, so they were excluded from further data analysis.

The most frequently reported activity was number 10, "applied aspects of training to solve problem or answer a question." The 328 responses assigned to this item represented 12.32% of the total number of activities. The second most frequently reported activity was number 24, "conversed with co-worker(s)." Eight and a half percent (226) of the responses were related to activity number 24. The next two most reported activities by respondents were number 2, "interrupted one task to start another" and number 12, "spoke to someone about a job related issue." These two activities represented 8.26% (220) and 7.70% (205) of the total number of activities reported, respectively.

Among the least reported activities were number 35, "stuck to convictions rather than compromise own values on the job;" number 20, "initiated a new procedure;" and number 28, "influenced others in organization." The respective frequency of these responses was 0.15% (4), 0.26% (7), and 0.38% (10). A complete reporting of the frequency of responses for each of the 43 activities about which participants reported can be found on Table 3.

Table 3

Frequency of Work Activities for All Participants (N=2662)

#	Activity	n	%N	Rank
10	applied aspects of training to solve problem or answer question	328	12.32	1
24	conversed with co-worker(s)	226	8.49	2
2	interrupted one task to start another	220	8.26	3
12	spoke with someone about job related issue	205	7.70	4
1	performed task not previously assigned	151	5.67	5
8	solved a problem on your own	122	4.58	6
39	collaborated with co-worker(s)	95	3.57	7
15	verbally communicated a concern or idea to boss or co-worker	82	3.08	8
19	began a task that was not assigned to you	80	3.01	9
22	arrived to work early or remained late	78	2.93	10
25	created harmony between/among co-workers or customers	78	2.93	10
13	wrote official correspondence or inter office memos	76	2.85	12
27	exhibited a sense of humor on the job	76	2.85	12
43	shared responsibility with co-worker on a task or project	67	2.52	14
16	documented a procedure or incident in writing	62	2.33	15
9	extracted important ideas from words, charts, graphs, or tables	57	2.14	16
23	took advantage of free time to do some job-oriented task	53	1.99	17
40	solved a problem with co-worker(s)	47	1.77	18
4	worked cooperatively with someone who is different than you	43	1.62	19

3	used creativity on the job	42	1.58	20
34	risked making a mistake rather than asking for help from supervisor	40	1.50	21
5	dealt with ambiguity	35	1.31	22
6	completed a task given only vague instructions	34	1.28	23
41	discussed with co-workers solutions to workplace problems	34	1.28	23
37	presented idea to supervisor	29	1.09	25
29	trained co-worker on task I usually perform	26	0.98	26
42	coped with undesirable behavior of supervisor or co- workers	26	0.98	26
17	reached an agreement with co-worker	25	0.94	28
18	persuaded another person	23	0.86	29
38	accepted criticism	23	0.86	29
31	took charge of group project	20	0.75	31
32	made decisions regarding behavior in group	19	0.71	32
36	recommended that a procedure be used or not be used	19	0.71	32
30	set example for co- workers by performing an unpleasant task	17	0.64	34
26	negotiated a compromise	16	0.60	35
33	encouraged co-worker to do a good/better job	16	0.60	35
7	revised a procedure	15	0.56	37
14	wrote instructions for co-workers or users	13	0.49	38
11	synthesized previously given instructions to extrapolate solution to new problem	12	0.45	39
21	asked for more responsibility	11	0.41	40
28	influenced others in organization	10	0.38	41

20	initiated a new procedure	7	0.26	42
35	stuck to convictions rather than compromise own values on the job	4	0.15	43
Total N		2662	99.98*	

* may not total 100% due to rounding.

Relationship Between Work Activities and Job Skills for All Participants

Each of the work activities (numbered 1-43) recorded by participants related to one of eight job skills. The sum of all activities reported within one skill area represented the total number of responses for that skill area. For example, activities 1-5 related to the first skill, Adaptability/Flexibility. The total number of responses to activity one (151) was added to the total number of responses to activity two (220), activity three (42), activity four (43), and activity five (35). This total (491) was the frequency of responses related to Adaptability/ Flexibility.

The most frequently reported job skill was Analytical Skills. Respondents reported 568 activities (21.34% of 2,662 total activities) related to Analytical Skills. The activity within this skill group which was reported most often was number 10, "applied aspects of training to solve problem or answer question." Three hundred twenty eight (328) responses for this activity comprised 57.75% of all activities reported in this skill area.

The second highest ranked job skill was Adaptability/ Flexibility. The sum of all activities within this skill group represented 18.44% of the total responses. "Interrupted one task to start another" was most often reported and comprised 44.81% of activities associated with this skill.

Communication Skills was the next most often reported skill group. A total of 486 responses (18.26%) were reported. Within Communication Skills "spoke to someone about a job related issue" was most often reported (n=205, 18.26%).

The fourth most reported skill group was Interpersonal Skills. Respondents reported 406 activities (15.25%) that related to Interpersonal Skills. "Conversed with co-worker(s)" was most frequently reported within this group (n=226, 55.67%). Table 4 summarizes the relationship between work activities and job skills for all participants.

Frequency of Work Activities and Job Skills by Gender

Participant responses were also analyzed by gender. First, the responses for each activity were grouped by gender. Then, the frequency of each of the 43 activities reported was calculated by gender. Next, the total number of responses for all activities within each skill group were summed by gender and percentages were calculated.

Overall, women reported 55.48% (1,477) of all activities and men reported the other 44.52% (1,185). Women registered higher frequency counts in 32 of the 43 activities, including more than 80% (n=61) of all activities related to writing official correspondence (item 13), 73.17% (n=60) of all activities related to verbally communicating a concern or idea to a boss or co-worker (item 15), and 76.12% (n=51) of all activities related to sharing responsibility with a co-worker on a task or project (item 43). The 11 activities for which men responded at a higher rate included activity number 10, "applied aspects of training to solve problem or answer question," (71.95%, n=236) and activity number 25, "created harmony between/among co-workers or customers" (61.54%, n=48). Table 5 reports the results by gender for each activity.

By skill group, the results showed some differences by gender. Men recorded activities within Analytical Skills (57.75%) and Self Confidence (55.65%) at higher rates than women (42.25% and 44.35%, respectively). However, women reported activities in all other skills groups more often than men, including Leadership Skills (75.51%), Communication Skills (63.17%), and Adaptability/ Flexibility (62.53%). Table 6 describes the relationship between work activities and job skills by gender.

Table 4

Relationship Between Work Activities and Job Skills for All Participants (N=2662)

Skill/ Activity	n	%n	%N
Adaptability/Flexibility	491		18.44
1. performed task not previously assigned	151	30.75	
2. interrupted one task to start another	220	44.81	
3. used creativity on the job	42	8.55	
4. worked cooperatively with someone who is different than you	43	8.76	
5. dealt with ambiguity	35	7.13	
Analytical Skills	568		21.34
6. completed a task given only vague instructions	34	5.99	
7. revised a procedure	15	2.64	
8. solved a problem on your own	122	21.48	
9. extracted important ideas from words, charts, graphs, or tables	57	10.04	
10. applied aspects of training to solve problem or answer question	328	57.75	
11. synthesized previously given instructions to extrapolate solution to new problem	12	2.11	
Communication Skills	486		18.26
12. spoke with someone about job related issue	205	42.18	
13. wrote official correspondence or inter office memos	76	15.64	
14. wrote instructions for co-workers or users	13	2.67	
15. verbally communicated a concern or idea to boss or co-worker	82	16.87	
16. documented a procedure or incident in writing	62	12.76	
17. reached an agreement with co-worker	25	5.14	
18. persuaded another person	23	4.73	
Initiative	229		8.60
19. began a task that was not assigned to you	80	34.93	
20. initiated a new procedure	7	3.06	
21. asked for more responsibility	11	4.80	
22. arrived to work early or remained late	78	34.06	
23. took advantage of free time to do some job-oriented task	53	23.14	

Interpersonal Skills	406	15.25
24. conversed with co-worker(s)	226	55.67
25. created harmony between/among coworkers or customers	78	19.21
26. negotiated a compromise	16	3.94
27. exhibited a sense of humor on the job	76	18.72
28. influenced others in organization	10	2.46
Leadership Skills	98	3.68
29. trained co-worker on task I usually perform	26	26.53
30. set example for co- workers by performing an unpleasant task	17	17.35
31. took charge of group project	20	20.41
32. made decisions regarding behavior in group	19	19.39
33. encouraged co-worker to do a good/better job	16	16.33
Self Confidence	115	4.32
34. risked making a mistake rather than asking for help from supervisor	40	34.78
35. stuck to convictions rather than compromise own values on the job	4	3.48
36. recommended that a procedure be used or not be used	19	16.52
37. presented idea to supervisor	29	25.22
38. accepted criticism	23	20.00
Teamwork Skills	269	10.11
39. collaborated with co-worker(s)	95	35.32
40. solved a problem with co-worker(s)	47	17.47
41. discussed with co-workers solutions to workplace problems	34	12.64
42. coped with undesirable behavior of supervisor or co- workers	26	9.67
43. shared responsibility with co-worker on a task or project	67	24.91
Total N	2662	100.00

Table 5

Frequency of Work Activities by Gender (N=2662)

#	Activity	N	nF	nM	%F	%M
1	performed task not previously assigned	151	99	52	65.56	34.44
2	interrupted one task to start another	220	132	88	60.00	40.00
3	used creativity on the job	42	29	13	69.05	30.95
4	worked cooperatively with someone who is different than you	43	27	16	62.79	37.21
5	dealt with ambiguity	35	20	15	57.14	42.86
6	completed a task given only vague instructions	34	21	13	61.76	38.24
7	revised a procedure	15	11	4	73.33	26.67
8	solved a problem on your own	122	63	59	51.64	48.36
9	extracted important ideas from words, charts, graphs, or tables	57	44	13	77.19	22.81
10	applied aspects of training to solve problem or answer question	328	92	236	28.05	71.95
11	synthesized previously given instructions to extrapolate solution to new problem	12	9	3	75.00	25.00
12	spoke with someone about job related issue	205	116	89	56.59	43.41
13	wrote official correspondence or inter office memos	76	61	15	80.26	19.74
14	wrote instructions for co-workers or users	13	6	7	46.15	53.85
15	verbally communicated a concern or idea to boss or co-worker	82	60	22	73.17	26.83
16	documented a procedure or incident in writing	62	44	18	70.97	29.03

17	reached an agreement with co-worker	25	12	13	48.00	52.00
18	persuaded another person	23	8	15	34.78	65.22
19	began a task that was not assigned to you	80	47	33	58.75	41.25
20	initiated a new procedure	7	6	1	85.71	14.29
21	asked for more responsibility	11	2	9	18.18	81.82
22	arrived to work early or remained late	78	44	34	56.41	43.59
23	took advantage of free time to do some job-oriented task	53	27	26	50.94	49.06
24	conversed with co-worker(s)	226	122	104	53.98	46.02
25	created harmony between/among coworkers or customers	78	30	48	38.46	61.54
26	negotiated a compromise	16	6	10	37.50	62.50
27	exhibited a sense of humor on the job	76	40	36	52.63	47.37
28	influenced others in organization	10	9	1	90.00	10.00
29	trained co-worker on task I usually perform	26	16	10	61.54	38.46
30	set example for co-workers by performing an unpleasant task	17	16	1	94.12	5.88
31	took charge of group project	20	17	3	85.00	15.00
32	made decisions regarding behavior in group	19	16	3	84.21	15.79
33	encouraged co-worker to do a good/better job	16	9	7	56.25	43.75
34	risked making a mistake rather than asking for help from supervisor	40	15	25	37.50	62.50
35	stuck to convictions rather than compromise own values on the job	4	3	1	75.00	25.00

36	recommended that a procedure be used or not be used	19	12	7	63.16	36.84
37	presented idea to supervisor	29	15	14	51.72	48.28
38	accepted criticism	23	6	17	26.09	73.91
39	collaborated with co-worker(s)	95	47	48	49.47	50.53
40	solved a problem with co-worker(s)	47	19	28	40.43	59.57
41	discussed with co-workers solutions to workplace problems	34	25	9	73.53	26.47
42	coped with undesirable behavior of supervisor or co-workers	26	23	3	88.46	11.54
43	shared responsibility with co-worker on a task or project	67	51	16	76.12	23.88
Total		2662	1477	1185	55.48	44.52

Table 6

Relationship Between Work Activities and Job Skills by Gender (N=2662)

Skill	nF	nM	%F	%M
Adaptability/Flexibility activities 1-5	307	184	62.53	37.47
Analytical Skills activities 6-11	240	328	42.25	57.75
Communication Skills activities 12-18	307	179	63.17	36.83
Initiative activities 19-23	126	103	55.02	44.98
Interpersonal Skills activities 24-28	207	199	50.99	49.01
Leadership Skills activities 29-33	74	24	75.51	24.49
Self Confidence activities 34-38	51	64	44.35	55.65
Teamwork Skills activities 39-43	165	104	61.34	38.66
Total	1477	1185	55.48	44.52

Chi Square Analysis of the Relationship Between Work Activities and Job Skills by Gender

Finally, the researcher wished to explore whether there were significant relationships between activities and job skills by gender. A chi square analysis of the data revealed statistical differences in the responses on six of the eight skill groups. In five of the six cases, women reported significantly higher amounts of activities than men. Initiative, interpersonal Skills, and Leadership Skills were found to be significant at the .05 level. Communication Skills and Teamwork Skills were found to be significant at the .01 level. In the sixth case (Analytical Skills) men reported significantly higher amounts of activities than women. Table 7 lists the chi square values for all skill groups.

The results summarized in this chapter correspond to the research questions posed in this study. A discussion of their results and their implications for future practice and research follow in the next chapter.

Table 7

Chi Square Analysis of Relationship Between Work Activities and Job Skills by Gender (N=2662)

Skill Activity	%F	Chi %M	Square	df	P
Adaptability/Flexibility	62.53	37.47	2.39	4	.66
activity 1	65.56	34.44			
activity 2	60.00	40.00			
activity 3	69.05	30.95			
activity 4	62.79	37.21			
activity 5	57.14	42.86			
Analytical Skills	42.25	57.75	a	5	.00*
activity 6	61.76	38.24			
activity 7	73.33	26.67			
activity 8	51.64	48.36			
activity 9	77.19	22.81			
activity 10	28.05	71.95			
activity 11	75.00	25.00			
Communication Skills	63.17	36.83	24.24	6	.00**
activity 12	56.59	43.41			
activity 13	80.26	19.74			
activity 14	46.15	53.85			
activity 15	73.17	26.83			
activity 16	70.97	29.03			
activity 17	48.00	52.00			
activity 18	34.78	65.22			
Initiative	55.02	44.98	9.56	4	.05*
activity 19	58.75	41.25			
activity 20	85.71	14.29			
activity 21	18.18	81.82			
activity 22	56.41	43.59			
activity 23	50.94	49.06			

Interpersonal Skills	50.99	49.01	13.05	4	.01*
activity 24	53.98	46.02			
activity 25	38.46	61.54			
activity 26	37.50	62.50			
activity 27	52.63	47.37			
activity 28	90.00	10.00			
Leadership Skills	75.51	24.49	10.89	4	.03*
activity 29	61.54	38.46			
activity 30	94.12	5.88			
activity 31	85.00	15.00			
activity 32	84.21	15.79			
activity 33	56.25	43.75			
Self Confidence	44.35	55.65	8.75	4	.07
activity 34	37.50	62.50			
activity 35	75.00	25.00			
activity 36	63.16	36.84			
activity 37	51.72	48.28			
activity 38	26.09	73.91			
Teamwork Skills	61.34	38.66	30.66	4	.00**
activity 39	49.47	50.53			
activity 40	40.43	59.57			
activity 41	73.53	26.47			
activity 42	88.46	11.54			
activity 43	76.12	23.88			
Total Skills	55.48	44.52			

a Caution should be used when interpreting these results due to an anomaly found in the data.

One respondent reported activity 10 190 times (58% of all reported activity 10).

* = significant at the .05 level

** = significant at the .01 level

CHAPTER 5

DISCUSSION AND IMPLICATIONS

The purpose of this study was to investigate the skills learned by undergraduate students who were employed in on-campus wage positions. Moreover, the researcher wished to examine whether the skills learned by students in wage positions coincided with the skills sought by employers of college graduates. An analysis of differences by gender was also conducted. Data were collected through the use of log sheets completed by participants. The log sheets detailed participant activities for 20 hours of work. The results of this study revealed some interesting tendencies.

A discussion of the results ensues in this chapter. First, the research questions posed in the study are considered with regard to the results. Second, the implications of the study are discussed, including implications for future practice and for future research. Finally, the limitations of the present study are discussed.

Responding to the Research Questions

It was important to view the data in relation to the three research questions posed in this study. The first question asked what activities were being performed by college students employed in on-campus wage positions. To answer this question the researcher identified some common activities in which student employees engage on the job.

The four activities most frequently reported by participants each represented a different skill group. Activities in which participants applied aspects of their training to solve problem or answer questions was the activity most often reported (n=328) (see Table 3). This activity (#10) was one of the six activities which were identified as demonstrating use of Analytical Skills. The type of tasks associated with this activity by participants varied widely. For example, one

respondent considered having to solve a confusion in room assignments by consulting with a person from another office to be representative of this activity, while another respondent wrote that showing a "student the proper technique for bench-pressing" was most indicative of the same activity. The first example required that the participant assess the situation and choose a course of action. In the latter example, the participant probably followed procedures outlined in training without much modification. While both required some level of analysis, the second example required less thought.

The second most reported activity involved conversing with co-worker(s) (n=226) (see Table 3). This activity was one of five associated with Interpersonal Skills. Tasks related to this activity covered work-related topics as well as non-work-related topics. Conversations between or among co-workers were reported regardless of topic being discussed. Evidently, the mere opportunity to relate with people in a work setting allowed participants to practice interpersonal skills.

The third most reported activity focused on interrupting one task to start another. This was one of five activities chosen to represent acumen with regard to Adaptability. Respondents reported this activity 220 times (see Table 3). A variety of activities were interrupted. Some participants reported that paperwork was interrupted to attend to customers. Others reported that answering the telephone interrupted their previously assigned tasks. One respondent reported that straightening books on shelves proved to be an interruption to her task at the time (shelving books). It would appear that students in wage positions are involved in activities that may promote adaptability skills.

The fourth most reported activity was indicative of learning Communication Skills. Two hundred five (205) responses were linked to the activity that focused on speaking to someone

about job related issues. This activity was distinct from the second most reported activity (conversing with co-worker) in that only topics related to the job were considered. Responses within this activity also covered varying topics and took place among employees, between employee and employer, and between employee and supervisor. For example, one respondent reported that her regularly scheduled meeting, which included her work place peers (other pool managers), met the criteria to be linked to this activity. Another respondent reported that being assigned a task by a supervisor was indicative of this activity.

While these four activities were most frequently reported, examining the least frequently reported activities is also informative. The activity which was least often reported was related to sticking to convictions rather than compromising one's own values on the job. Of the 2,662 activities reported by participants, only four (4) related to this activity. This activity was one of five which served as an indicator of learning Self Confidence on the job. Evidently, upholding personal convictions has little to do with the jobs performed by student wage earners.

Two of the least frequently reported activities, initiating a new procedure and asking for more responsibility, were reported seven and 11 times respectively. These two activities represented skills associated with building Self Confidence. Respondents claimed that they exercised self confidence in tasks such as: suggesting to a boss that a new system be implemented; offering to take the mail running duties for a day; and asking to be assigned a project by a supervisor. Overall, the low frequency of responses to these items suggests that Self Confidence was not a skill that participants practiced with any frequency while on their jobs.

Overall, the results on Table 3 show a wide range of frequencies reported for each activity. The activity reported most often was mentioned 328 times (12.32%). The activity in

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which participants engaged least often was only reported four times (0.15%). The activities seem to be in six groups characterized by the frequency at which they are reported.

The top seven activities comprise the group of activities which were reported with very high frequency. These activities have been reported earlier in this chapter. The second group (high frequency) includes six activities which were reported from 76 (2.85% of all activities reported) to 82 (3.08%) times each. Activities in this group included those which referred to starting a task which was not previously assigned, creating harmony in the workplace, and showing a sense of humor on the job. The next group of activities (medium high frequency) were reported by participants between 53 (1.99%) and 67 (2.52%) times. Examples of activities in this group described sharing responsibility on a project with a co-worker, or documenting procedures in writing. One respondent related that dictating to a co-worker who typed the information was indicative of the former activity. A second participant reported that writing an incident report was indicative of the latter activity.

A fourth group included activities which were reported with medium low frequency. The seven activities in this group were reported between 34 (1.28%) and 47 (1.77%) times each. An example of a task in this group was obtaining assistance from a co-worker to set up a library account for a graduate student. The participant linked this task to the activity which dealt with solving a problem with a co-worker.

The fifth group consisted of 13 activities which were reported with low frequency. The responses to these activities ranged from 15 (0.56) to 29 (1.09). Some of the activities in this group included presenting an idea to a supervisor, training a co-worker on a task, coping with undesirable behavior at work, and reaching an agreement with a co-worker. Tasks which represented these activities were asking to set a registration table differently than previously

arranged, teaching a new employee to load a truck, being cooperative with an annoying co-worker, and arriving at an agreement as to who would lock the exterior doors to a building.

The last group included activities which were reported at a very low frequency. Samples of these activities have been discussed earlier in this chapter. Given these results it is interesting to note what some researchers have found about skills students acquire through cooperative education opportunities and Resident Assistant positions.

Wilson & Lyons (1961) found that certain skills were practiced through cooperative education. Among them were self confidence and human relations. The results of this study suggest that students in wage positions learn some of the same skills (e.g., communication skills and interpersonal skills), but not others (e.g., self confidence).

The present results also seem to align with a study designed to measure the outcomes associated with being an Resident Assistant (Lillis & Schuh, 1982). That study found that being a Resident Assistant supported the growth of interpersonal skills in students. The findings of the present study suggest that students in wage positions also learn skills that improve interpersonal relations.

The second research question in this study sought to discover whether the skills learned by students working in wage positions were related to the skills which employers seek in college graduates. The researcher identified eight skills most often sought by employers: Adaptability/Flexibility, Analytical Skills, Communication Skills, Initiative, Interpersonal Skills, Leadership Skills, Self Confidence, and Teamwork Skills. These eight skills were uniformly cited by three reports investigating the skills employers seek in college graduates (Kretovics & McCambridge, 1998; National Association of Colleges and Employers, 1997; Scheetz, 1997).

Participants in this study engaged in activities that led to certain skills more often than others (refer to Table 4). They seemed to engage most often in activities that lead to Analytical Skills, Adaptability/Flexibility, and Communication Skills. Over 21% (n=568) of the 2,662 activities they reported were related to Analytical Skills. Two of the activities most often reported in this skill group were applying aspects of training to solve problems or answer questions (57.75%) and solving a problem independently (21.48%).

Over 18% (n=491) of the total activities reported were related to Adaptability/Flexibility (see Table 4). More than three quarters of the responses within this group were associated with two of the five activities. Forty five percent (45%) of the activities involved interrupting one task to start another, while more than 31% of activities in this skill group entailed employees performing a task which was not previously assigned to them.

An additional 18.26% (n=486) of the 2,662 activities reported by participants related to Communication Skills (refer to Table 4). Most often reported within this group was speaking with another person about a job related issue. These activities represented over 42% of the total responses in this skill group. Other activities which indicated employees were learning Communication Skills on the job were activities like verbally communicating a concern or idea to a boss or co-worker (16.87%), writing official correspondence or interoffice memos (15.64%), and documenting a procedure or incident in writing (12.76%). This pattern of responses seem to indicate that participants were practicing both written and oral communication skills while working.

There are two skill areas which participants practiced to a moderate degree (see Table 4). Four hundred six (15.25%) of the 2,662 activities reported were associated with Interpersonal Skills. The three most reported activities in this skill area were conversing with co-worker(s)

(55.67%), creating harmony between/among co-workers or customers (19.21%), and exhibiting a sense of humor on the job (18.72%).

Teamwork skills were also moderately reported by participants (see Table 4). Just over 10% (n=269) of the total activities reported related to Teamwork Skills. Two of the five activities in this skill group were most often reported. Collaborating with co-worker(s) was reported 35.32% of the time, while sharing responsibility with co-workers on tasks or projects garnered almost 25% of the reported activities.

Activities related to the remaining three skill areas examined in this study were not practiced extensively by participants. Leadership Skills, Self Confidence, and Initiative each comprised less than 10% of the total of activities reported. This suggests that students in wage positions do not learn these skills to the same extent that they learn some other skills.

The final research question posed in this study was whether there were differences by gender in the skills that undergraduate students learn while employed in on-campus wage positions. Table 6 summarizes the frequency of responses by job skills and gender. Overall, women reported more activities than men (1,477 to 1,185) and also reported more activities than men in six of the eight skill categories. This pattern may suggest several possibilities.

Women may have merely reported more activities than men. This may have happened because women felt more comfortable with the log sheets, or felt more responsible for completing the task assigned to them. There may also be other reasons why women would have simply reported more activities than men. Men may have felt that they did not need to report every instance of every task they performed. This would have influenced the number of activities they reported.

It is also possible that women take more advantage of their opportunities to learn skills while working in on-campus wage positions. If this is the case, they would have reported more activities than men. While it was beyond the scope of this study to investigate whether they were engaging in these activities purposefully, it is still important to note these differences.

Noting which skills were reported at a higher rate by women and men invites some interesting analysis. Female respondents reported more activities related to Communication Skills (63.17%), Adaptability/Flexibility (62.53%), and Teamwork Skills (61.34%) that did male respondents. These results tend to support common conceptions of how women relate to others. Men reported 57.75% (n=328) of all activities related to Analytical Skills. Thinking analytically is a proficiency typically attributed to men. The results of this study tend to support this assumption. Men also reported a majority of the responses (55.65%) within the Self Confidence skill group. Again, men are typically credited with having more self confidence than women. The results of this study tend to support this suspicion.

In one skill group (Leadership Skills), women (n=74) reported significantly more activities than men (n=24). These results would tend to indicate that women in the study were able to find more opportunities than men to practice and learn leadership skills while working in on-campus wage positions.

To find out if differences were significant, a chi square analysis was run. Results revealed significant differences by gender in six of the eight skill areas. Of these six skill areas, five recorded higher frequency counts by women (Communication Skills, Initiative, Interpersonal Skills, Leadership Skills, and Teamwork Skills). These results (see Table 7) may seem to suggest that women who are employed in wage positions as undergraduates will be better prepared for post-graduation employment than men with similar experience, since they are learning skills which

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employers seek at significantly higher levels. However, this would only be true if they are performing more tasks and not just reporting more tasks. Further study would be required to make such a definitive statement.

Implications of the Study

These findings suggest a number of implications. Some of these relate to future practice and others relate to future research.

Implications for Future Practice

Several constituency groups may benefit from the results of this study, including campus employers, administrators, staff at career centers, and future employers. First, knowing that students employed in on-campus wage positions engage in activities that lead to learning Analytical Skills, Adaptability/Flexibility, and Communication Skills, campus employers may wish to market their jobs as such. For example, during the recruiting process, employers at the student union could emphasize that the high level of customer contact and employee interaction inherent in the job leads to developing Communication Skills. They could, at the same time, emphasize that these skills are valued by other employers.

Similarly, library employers may wish to inform potential employees that the training and experience they receive allow them to process a lot of information in an efficient manner. These activities lead to learning Analytical Skills which employers will seek in candidates when they graduate.

Conversely, since this study revealed that students in on-campus wage positions do not learn Leadership Skills, Self Confidence, nor Initiative to any great extent on the job, campus employers may wish to recommend to students that by balancing their time between classes,

employment, and other activities (e.g., leadership positions in student clubs) they may come close to gaining many of the skills employers seek in college graduates.

Administrators may also benefit from the results of this study. There is a major press in higher education today to demonstrate the outcomes associated with going to college. While academic outcomes (e.g., graduation rates, job placement rates) are believed to illustrate certain ends, outcomes associated with activities outside the classroom are more difficult to identify and measure. The present findings suggest that there are very clear outcomes associated with at least one out-of-class activity, working in a wage position. Being able to demonstrate that students employed on campus are learning skills which employers seek in college graduates would allow administrators to show that students are learning outside the classroom. This is particularly important given that a significant percentage of college undergraduates work in wage positions on campuses.

Staff members at career centers may benefit from the results of this study. Since this study found that students in wage positions were more likely to learn Analytical Skills, Adaptability/Flexibility, and Communication Skills than other skills sought by employers of college graduates, career advisors may wish to help students highlight these skills to employers during the job search process. For example, counselors may wish to show students who worked in the campus library how to write line items in resumes that would highlight their exposure to learning analytical skills. Counselors may also wish to advise these students to include examples of how they learned analytical skills through their job experience.

Staff of career centers may also wish to note that this study found that students learned adaptability through their on-campus wage position experiences. When counseling students with this type of employment in their history, staff members may wish to emphasize that the things they

learned in their jobs are sought by employers. This kind of advice may encourage students to apply for post graduation positions that they would not have considered otherwise.

Since this study revealed that student wage positions foster the learning of communication skills, professionals at career centers may want to ensure that those skills appear in the resumes of the students they counsel. Additionally, they may wish to encourage students to use those skills when interviewing with potential employers or when writing cover letters to attach to their resumes. Showing students how to market themselves to future employers is one of the charges of career centers on college campuses. With the results found in this study, personnel at career centers may be better prepared to carry out that charge.

Future employers of students who work in on-campus wage positions may also benefit from the results of this study. During job interviews, employers often ask candidates more detailed questions about their on-campus work experience. Employers who can best assess candidates' experience hire people who are well matched for their jobs.

For example, employers who are familiar with the results of this study may wish to ask candidates questions which would assess their level of exposure to experiences on the job which led to each of the top three skills found to be learned by participants. If employers wish to delve into a applicants' work history with the purpose of assessing learning of analytical skills, they may ask if, during their tenure at a certain job, they had the opportunity to revise a procedure, or if they had to solve problems without the help of co-workers or supervisors.

Similarly, employers who are interested in employees who can be flexible or adapt well to different environments may wish to use an interview to probe deeper into candidates' wage position experience. Employers may ask whether their job required that they be creative on a regular basis, or if they often interrupted one task to start another. These type of questions would

allow employers to determine whether candidates developed flexibility skills in their wage positions.

Employers would also benefit from noting the third skill which was reported most frequently by participants of this study (Communication Skills). During the recruitment process, employers may wish to focus their attention on these skills. They may take advantage of an interview to ask candidates how they communicated concerns to their supervisors, or if they often discussed job related matters with co-workers. Employers may also want to assess candidates' written communication skills. They may inquire whether students who worked in wage positions communicated in writing on the job.

Likewise, the results which show that students in wage positions are learning Leadership Skills and Self Confidence to lesser extents may be beneficial to future employers. If employers know that students do not learn these skills on the job, they may ask whether their co-curricular activities led to learning these skills. Upon seeing campus wage positions on resumes, employers may wish to seek evidence of some leadership positions on campus. They may also ask certain questions during interviews which would assess the extent of candidates' leadership experiences. They may ask if the candidates' positions required that they instruct co-workers, or if they ever took charge of group projects.

Similar tactics may be used to ascertain candidates' self confidence. Employers may ask prospective employees whether they ever risked making mistakes while working, or whether they ever presented ideas to their supervisors.

Implications for Future Research

The present study also has implications for future research. This study did not examine all activities or skills learned by undergraduate students employed in on-campus wage positions.

Future scholars may wish to examine other activities (e.g., preparing spreadsheets for analysis) or skills (e.g., computer skills).

Additionally, the present study examined the work activities of students engaged in a variety of jobs, but did not include representatives from every type of job. Future scholars may wish to measure skills learned by students in other job types like student security workers, convenience store clerks, and student groundskeepers. This kind of study might prove to be valuable because individual employers would see if their employees are likely to be learning certain skills.

This study sampled students who were involved in a variety of wage positions, but it did not attempt to report findings by job type. Future scholars may benefit from such a study because they may learn if different skills are learned by student wage employees who work in dissimilar jobs. For example, future researchers may select a sample of students working in food service jobs and a sample of students working in library positions. This type of research design may find that students who work in the library exhibit more initiative, self confidence, and analytical skills, while those students who work at food service jobs exhibit more communication skills, teamwork skills, and interpersonal skills.

The current study was conducted on one large, land-grant institution in the mid-Atlantic region. Future research may focus on skills students learn in wage positions at different types of institutions (e.g., community college, liberal arts college). Such a study may reveal whether the same kinds of jobs at different institutions lead to the same skills.

While this study was designed to explore differences by gender, future scholars may wish to examine the roles that other demographic characteristics play in on-campus student employment. For example, differences by race could be explored. Results of such a study may

reveal whether students of different racial backgrounds who work in identical positions learn the same skills.

Other researchers may wish to study the effects of socio-economic status on students' acquisition of skills through on-campus employment. Such a study might identify patterns in employment and skills learned by the students' socio-economic levels.

The present study investigated students employed in their positions for varying periods of time. A study which controlled for longevity on the job may yield some interesting results.

Finally, another study may focus on one group of student wage employees over an extended period of time. Such a longitudinal study may reveal whether different activities are learned over time in the same positions and, if so, if they lead to different skills.

Limitations

As with all research, this study was not free of limitations. Some were noted in Chapter One. First, these results should be interpreted cautiously due to the limited number of participants in the study. Second, this study examined student employees on one campus only. The results may be generalized to students in wage positions on that campus, but may only be generalized to other campuses in very limited ways.

Also, participants in this study were volunteers. The data from these participants may have differed from that of non-volunteer participants. If so, the results may have been influenced.

Finally, all data collected for this study regarding skills students learn while working in wage positions were self-reported. It is possible that students were not candid in their responses. If they were less than candid, the results might have been skewed.

After completing the study, several other limitations were identified by the researcher. First, the list of 43 job-related activities included items which were similar in nature. As a result,

similar tasks completed by participants were linked to different activities on the list. For example, collaborating with co-worker(s) and sharing responsibility with co-worker on a task or project, two of the 43 activities on the list, were almost indistinguishable to some participants. If participants could not clearly distinguish among activities, the results of this study might be misleading. In the example reported above the results were not affected because both activities related to Teamwork Skills, but some similar items crossed skill group boundaries.

In a related limitation, respondents may have over-represented or underrepresented activities. For example, conversing with co-worker(s) (item 24), was meant to measure Interpersonal Skills, since being involved in a conversation, regardless of topic, was all that was important. By contrast speaking with someone about a job related issue (item 12), was meant to measure Communication Skills insofar as discussing issues important to the job help to hone certain skills. However, while some respondents wrote down "12" and "24" for discussions which were job-related, some only wrote "24," as that minimally described the activity. Again, if participants could not clearly delineate activities, the results of the study might have been influenced.

Fatigue also seemed to be an issue for respondents. In spite of instructions which indicated that they should write down every activity within the 20 hour block of time, some respondents only wrote representative activities. For example, one participant wrote, "this happens every shift; so I'm going to stop repeating it now." If participants viewed the reporting of activities as merely being representative and not actual (as some did), then the results of this study could have been misinterpreted.

Fourth, some participants were prolific reporters, while some were not. The total number of activities reported by participants for the 20 hours of work ranged from 32 to 399. For

example, one participant reported applying aspects of training to solve problems or answer questions (item 10) as applying to virtually every task he performed because he had been trained in each activity. Consequently, he reported the activity 180 times during his 20 hours of work. No other participant reported an activity more than 62 times. His reports of this activity accounted for almost one third of the total activities reported in the Analytical Skills group. This imbalance may have skewed the results to only reflect the habits of one or two participants.

Fifth, the list of 43 job related activities did not account for many more menial tasks engaged in by participants. Activities such as shelving books, ringing up a sale on a cash register, and filing documents were not easily addressed by any items on the list. As a result, 451 job-related activities reported by participants were labeled as "other" and excluded from the data analysis. Discounting so many job-related activities may have influenced the results of this study.

Finally, it is possible that since the researcher used a chi square analysis on the reported activities and did not weight the responses to account for differences in number of responses by each participant, the data may have been skewed. If the researcher had given equal weight to the responses of each participant, the result of this study may have differed.

In spite of these limitations, the present study revealed some interesting trends about the skills undergraduate students in wage positions learn. First, participants in this study engaged in activities which led to learning Analytical Skills, Adaptability/Flexibility, and Communication Skills more frequently than they engaged in activities which led to Interpersonal Skills and Teamwork Skills and engaged in activities which led to Interpersonal Skills and Teamwork Skills more frequently than they engaged in activities which led to Leadership Skills, Self Confidence, and Initiative. This suggests that they do learn, but in limited ways.

Maybe students need to learn to balance skills learned in jobs with skills learned through other experiences that lead to other skills. For example, participating in clubs or organizations may lead to leadership and self confidence. By balancing how they spend their time, students can gain more and different skills to present a more well rounded picture to employers.

In short, student wage earners do learn. Campus officials can use this data to illustrate outcomes at college. Employers can use this knowledge to better assess undergraduates applying for jobs in their companies. Overall, the state of undergraduate educational institutions is better served if outcomes at all levels can be assessed.

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Appendix A:

Flyer to Solicit Participants

Earn Extra Money While You Work!

- ◆ Are you a student working in one <u>on-campus</u> job?
- ◆ Do you work at least <u>12 hours per week</u>?
- ◆ Do you get <u>paid by the hour</u>?
- ◆ Do you use <u>e-mail</u>?
- ◆ Would you like to earn **$25.00** for keeping track of what you do at your job?

If so, contact me. I am a graduate student doing a research project and would appreciate your participation in a study I am conducting.

Jim: 232-3043 or <earn$25@vt.edu>

Appendix B:

Screening Questions for Possible Participants

Screening questions for initial respondent contact

Name: _____   **Gender:**   Male   Female

Phone number: _____

❑   Year in school?   FR   SO   JR   SR   Age? _____

❑   What is your major? _____
      Where do you work? _____
      What do you do?   _____
      How long have you worked at your job? _____

❑   How many hours do you work per week? _____

❑   Are you paid an hourly wage?   Y   N   What is your hourly wage? _____

❑   Do you use e-mail?   Y   N   E-mail address: _____

❑   Are you currently working at another job?   Y   N   _____

Which meeting can you attend?

                    Tues., 26JAN at 9:30p.m.   Wed., 27JAN at 9:30 p.m.
                          location   location

Attended meeting?   ❑   ❑

Remember: You'll have to keep a log while working. You may need to get permission from your boss.

Selected for participation in study?   Y   N

If no, why not?   _____

Comments: _____
_____
_____
_____

                                                            Date: _____

Appendix C:

List of Skills and Associated Activities

Skills sought by employers	Activities associated with skills
Adaptability/Flexibility	• performed task not previously assigned • interrupted one task to start another • used creativity on the job • worked cooperatively with someone who is different than you • dealt with ambiguity

Analytical Skills
  (Critical Thinking,
  Decision Making, Problem
  Solving)
	• completed a task given only vague instructions
	• revised a procedure
	• solved a problem on your own
	• extracted important ideas from words, charts, graphs, or tables
	• applied aspects of training to solve problem or answer questions
	• synthesized previously given instructions to extrapolate solution to new problem

Communication Skills (Oral and Written)	• spoke with someone about job related issue • wrote official correspondence or inter office memos • wrote instructions for co-workers or users • verbally communicated a concern or idea to boss or co-worker • documented a procedure or incident in writing • reached an agreement with co-worker • persuaded another person
Initiative	• began a task that was not assigned to you • initiated new procedure • asked for more responsibility • arrived to work early or remained late • took advantage of free time to do some job-oriented task
Interpersonal Skills	• conversed with co-worker(s) • created harmony between/among co-workers or customers • negotiated a compromise • exhibited a sense of humor on the job • influenced others in organization
Leadership Skills	• trained co-worker on task I usually perform • set example for co-workers by performing an unpleasant task • took charge of group project • made decisions regarding behavior of group • encouraged co-worker to do a good/better job
Self Confidence	• risked making a mistake rather than asking for help from supervisor • stuck to convictions rather than compromise own values on the job • recommended that a procedure be used or not be used • presented idea to supervisor • accepted criticism
Teamwork Skills	• collaborated with co-worker(s) • solved a problem with co-worker(s) • discussed with co-workers solutions to workplace problems • coped with undesireable behavior of supervisor or co-worker(s) • shared responsiblity with co-worker on a task or project

The list of skills was gathered from available literature on the skills sought by employers of college graduates. The corresponding list of activities associated with each skill was compiled by the researcher based partly on available literature and partly on personal experience. This list was created by Jim Espinoza at Virginia Tech for a study on the skills students learn while working in college. 1998

Appendix D:

Work Site Log

Work Site Log

Name: _____

Please print clearly.

Day/Date	Shift Time	Activity #	Description

List of Job-Related Activities

1. performed task not previously assigned
2. interrupted one task to start another
3. used creativity on the job
4. worked cooperatively with someone who is different than you
5. dealt with ambiguity

6. completed a task given only vague instructions
7. revised a procedure
8. solved a problem on your own
9. extracted important ideas from words, charts, graphs, or tables
10. applied aspects of training to solve problem or answer questions
11. synthesized previously given instructions to extrapolate solution to new problem

12. spoke with someone about job related issue
13. wrote official correspondence or inter office memos
14. wrote instructions for co-workers or users

15. verbally communicated a concern or idea to boss or co-worker
16. documented a procedure or incident in writing
17. reached an agreement with co-worker
18. persuaded another person

19. began a task that was not assigned to you
20. initiated new procedure
21. asked for more responsibility
22. arrived to work early or remained late
23. took advantage of free time to do some job-oriented task

24. conversed with co-worker(s)
25. created harmony between/among co-workers or customers
26. negotiated a compromise
27. exhibited a sense of humor on the job
28. influenced others in organization

29. trained co-worker on task I usually perform
30. set example for co-workers by performing an unpleasant task

31. took charge of group project
32. made decisions regarding behavior in group
33. encouraged co-worker to do a good/better job

34. risked making a mistake rather than asking for help from supervisor
35. stuck to convictions rather than compromise own values on the job
36. recommended that a procedure be used or not be used
37. presented idea to supervisor
38. accepted criticism

39. collaborated with co-worker(s)
40. solved a problem with co-worker(s)
41. discussed with co-workers solutions to workplace problems
42. coped with undesirable behavior of supervisor or co-worker(s)
43. shared responsibility with co-worker on a task or project

Instructions for Completing Work Site Log

1. Record activities in 30 minute intervals.
2. If you cannot complete the log while you are at work, complete it immediately after the end of your shift, for the entire shift, in 30 minute intervals.
3. Write the day, date, and time of 30 minute interval in the appropriate columns.
4. Use the numbers which correspond to the activity listed above. Write it in the column titled, **Activity Code**.
5. If you participate in a behavior which is not accounted for in the list above, write "other" in the **Activity Code** column.
6. Write a description of the activity you performed in the column titled, **Description**.
7. List as many activities as possible for each 30 minute interval.
8. Consult the Sample Work Site Log you received at the information session if you need help completing this log or contact the researcher at jespinoz@vt.edu or 232-3043.

Appendix E:

Sample Completed Work Site Log

Sample Work Site Log

See back for instructions on completing this log.   *Please print clearly.*

Day/Date	Shift Time	Activity #	Description
Mon. 2/1	9-9:30 a.m.	22	got to work 15 minutes early so I could chat with my friend before starting my shift - I always arrive early
	┊	36	showed my boss that using a scoop instead of a spoon to serve sour cream on burritos was more effective
	9:30-10 a.m.	1	prepared a spreadsheet for office supplies budget for first time - only had done research for budget before
	10-10:30 a.m.	10, 39	one room was double booked - user complained. During training we were taught how to assign rooms in
	┊	┊	emergencies. I and co-worker found empty room and assigned it to one user
	┊	19	cleaned up the work area - not usually my responsibility
	┊	42, 35	co-worker said I was making him look lazy - I cleaned anyway
	┊	24, 33	told fellow staff member that he could get a raise if he would more attentive to customers' requests
	10:30-11 a.m.	15	told boss that cleaning should be added to list of duties for all
	┊	18	boss agreed that cleaning should be added to duties of all employees
	┊	30	was very nice and attended to an elderly woman who always comes to complain about the lack of books
	┊	┊	She usually needs help finding books and carrying them to the counter - I did that
	11-11:30 a.m.	9	made flyer based on information from memo from dean regarding registration for spring semester
	11:30-noon	25	4 people told me the jukebox stole their money. I smiled, gave them refunds, and turned on the radio.
	┊	20	spent some time figuring out a way to track customers' complaints & comments - never done before
	┊	5	boss said to reorganize stock room but was vague about which one - decided to reorganize messy one
	noon-12:30	6, 43	reorganized stock room with co-worker although we had unclear directions
	12:30-1 p.m.	6, 43	reorganized stock room with co-worker although we had unclear directions
Wed. 2/3	4-4:30 p.m.	4	helped Admin. Asst. (24 yr-old, married, three kids) talk to other students at information table
	4:30-5 p.m.	41	spoke to co-worker about ways to ensure that we would have enough chicken to last through dinner
	┊	38	my boss reprimanded me for not having food ready - pointed out huge line of people waiting for food
	5-5:30 p.m.	34	gave refund to customer while working at the cash register - without asking my boss for help

Sample Work Site Log

Name: _____

See back for instructions on completing this log.   *Please print clearly.*

Day/Date	Shift Time	Activity #	Description
Wed. 2/3	5:30-6 p.m.	31, 32	took charge of group of five that was assigned to set up banquet room for 150 for a formal dinner
	⋮	37	told my boss that we might think about putting napkins at the tables instead of at the counter
	6-6:30 p.m.	7	devised new way to sort books that are ready for reshelving
	⋮	14	left a note for all other stacks assistants - so that they could follow the new procedure
	⋮	7, 16	wrote the reshelving procedure for inclusion in the work manual
	6:30-7 p.m.	13	at supervisor's request I wrote and sent a memo explaining new procedure to all staff
Fri. 2/5	noon-12:30	8, 26	customer demanded money back for smashed twinkies - I explained that the store gave no refunds, but
	⋮	⋮	offered her store credit instead. She accepted.
	⋮	3	spent a few extra seconds per taco salad I made to make them attractive (well presented)
	12:30-1 p.m.	23	during my break I reviewed the training manual because I was not sure about a procedure
	⋮	11	knew how to loan books using computer. used same process to register books for professor's reserve file
	1-1:30 p.m.	40	with help from co-worker took pasta machine apart to clean it and then reassembled it.
	⋮	29	showed another student worker how to prepare the salad and fruit bar for opening. usually my job
	1:30-2 p.m.	16	left an incident report for boss - customers complained that room they reserved was filthy and dark
Mon. 2/8	9-9:30 a.m.	21	told boss that I was usually bored sitting at the desk and asked her for more projects to work on
	⋮	17	after debate about best way to fold, stuff, stamp, and send 4,000 letters, co-worker and I agreed on plan
	9:30-10 a.m.	2, 12	stopped stuffing letters to answer phone and took message for director from her boss
	⋮	12	took phone message for administrative assistant - paychecks are in. they need to be picked up
	⋮	12	phone message for administrative assistant - parent wanted to know when he could meet with director
	⋮	27	kept the whole staff entertained (telling jokes) during a lull in the shift
	10-10:30 a.m.	28	I noticed that many student workers now clean work area - nobody cleaned before I did
	10:30-11 a.m.	other	*[write complete description here]*

Appendix F:

Agenda for Informational Meetings

Informational Meeting
Agenda

I.   Welcome - take attendance

II. Review requirements for participation

    a) work 12-20 hours per week

    b) job unrelated to major or career choice

    c) non leadership position

    d) earning an hourly wage

    e) using e-mail

    f) only one job

III. Data collection period

    A.   1/27-2/10 or 1/28-2/11

IV. Incentive ($5 today; $20 when satisfactorily complete logs)

V.   Distribute sample blank logs

    a) explain - every 30 minutes; get permission; pick a number; write detailed description

    b) If I can't use log, I won't pay you

    c) log 20 hours

    d) I will contact you by e-mail twice

    e) We'll make an appointment at the end to submit and briefly review logs

VI. Distribute informed consent forms

VII. Distribute blank logs and distribute $5 incentives (get signatures!)

VIII. Answer any questions

IX. Thank you

Appendix G:

Revised Screening Questions for Possible Participants

Screening questions for initial respondent contact

Name: _____   **Gender:**   Male   Female

Phone number: _____

❑   Year in school?   FR   SO   JR   SR   Age? _____

❑   What is your major?   _____

What do you do?   _____

❑   Where do you work?   _____

What do you do?   _____

Do you consider your position to be in anyway related to your career aspirations?   Y   N

How long have you worked at your job?   _____

❑   How many hours do you work per week? _____

❑   Are you paid an hourly wage?   Y   N   What is your hourly wage?   _____

❑   Do you use e-mail?   Y   N   E-mail address: _____

❑   Are you currently working at another job?   Y   N   _____

Which meeting can you attend?

          Tues., 26JAN at 9:30p.m.   Wed., 27JAN at 9:30 p.m.
          NRH West Seminar Room   NRH West Seminar Room

Attended meeting?   ❑   ❑

Remember: You'll have to keep a log while working. You may need to get permission from your boss.

Selected for participation in study?   Y   N

If no, why not?   _____

Comments: _____
_____
_____
_____

                                        Date: _____