

**THE IMPORTANCE OF EMPLOYABILITY SKILLS AS PERCEIVED BY THE
EMPLOYERS OF UNITED STATES' LAND-GRANT COLLEGE AND UNIVERSITY
GRADUATES**

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Abstract

The purpose of this study was to analyze the perceptions of employers of land-grant college graduates regarding knowledge, skills, and dispositions needed for entry-level positions in the agricultural sector. Overall, it was perceived that possessing interpersonal, communication, technological, and technical skills was important for land grant colleges' graduates. It was recommended that land-grant colleges and universities examine their existing curricula and make changes in order to address the acquisition of these skills.

Introduction

The United States leads the world in agricultural productivity and research. According to “Reinventing Agricultural Education for the year 2020” (a visioning and planning initiative of the National FFA Organization, 1999), the United States’ leading position in agriculture “lies in part, because of its infrastructure for developing and delivering technology, including agricultural education programs and the land-grant college system.” Agriculture is the nation’s largest employer with more than 22 million people working in some phase from growing food and fiber to selling it at the market place. According to Harris (1989), today’s agribusiness environment consists of sophisticated customers in a world beset with intense competition, razor thin profits, and rapidly changing production and business technologies (p.39). In order to improve the academic and technical skills of the future workforce, academic institutions and corporations joined in partnerships (Lankard, 1995). These joint collaborations have huge implications for agriculture. If land-grant colleges strive to prepare its graduates for entry-level positions in the global workforce, it would lead to a stronger economy. In order for land-grant college graduates to compete in today’s highly competitive workforce, they must equip themselves with the requisite knowledge, skills and dispositions (Lankard, 1995). The W.K. Kellogg Foundation (1994) in a report entitled *Visions of Change in Higher Education* encouraged land-grant universities to reexamine their academic programs in agriculture for relevance in relation to today’s global agribusiness society.

Many American and international labor economists point out the importance of continuously developing skills beyond those required for a specific job, and they identify employability skills that enable individuals to prove their value to an organization as the key to job survival. The volume of major studies undertaken in the past two decades to identify and describe employability skills underscores their criticality (Askov and Gordon 1999; Murnane and Levy 1996). Employability skills are transferable core skill groups that represent essential functional and enabling knowledge, skills, and attitudes required by the 21st century workplace (SCANS 1991). They are necessary for career success at all levels of employment and for all levels of education. Adequate employability skills are needed by practically all workers in the agricultural field.

Conceptual Framework

In May 1990, the Department of Labor commissioned a comprehensive study to determine how well schools prepare young people for the work force. Under the leadership of former Secretary of Labor, Lynn Martin, the Secretary's Commission on Achieving Necessary Skills (SCANS Report), was momentous in that it was the first time American businesses were given a platform to clearly communicate to educators what students needed to know to be successful in the workplace. The SCANS Report outlined and examined the demands of the nation's workplace and concluded that more than half of American youth leave school without the knowledge or foundation required to find and hold a good job. The SCANS Report “caused quite a stir in education, as school boards, administrators, and teachers were shown that they simply were not teaching the nation's students what they needed to know in order to be prepared for global workforce of the 21st century” (SCANS, 1991).

One objective of the report was to describe the necessary functional and enabling skills that society must offer to every child by age 16 (SCANS, 1991). The SCANS staff conducted studies of cognitive science research literature related to the importance of learning in context, met with cognitive scientists, and subsequently advocated the teaching of skills within the functional context of the workplace. This represented what the commission termed the most radical change in educational content since the 20th century (Workplace Know, 2003). The SCANS report consisted of a three-part foundation component and five workplace competencies. The three foundation skills were Basic Skills, Thinking Skills, and Personal Qualities. Additionally, the report provided five competencies that effective workers must possess: Resources, Interpersonal Skills, Information, Systems, and Technology.

Three Part Foundation

Basic Skills

Reading

Employees will have to read well enough to understand and interpret diagrams, directories, correspondence, manuals, records, charts, graphs, tables, and specifications. Without the ability to read diverse sets of materials, workers cannot locate the descriptive and quantitative information needed to make decisions or to recommend courses of action. “Reading identifies relevant details, facts, and specifications; infers or locates the meaning of unknown or technical vocabulary; and judges the accuracy, appropriateness, style, and plausibility of reports, proposals, or theories of other writers” (Workplace Know, 2003).

Writing

Most jobs will call for writing skills to prepare correspondence, instructions, charts, graphs, and proposals, in order to make requests, explain, illustrate, and convince. Writing “communicates thoughts, ideas, information, and messages in writing; records information completely and accurately; includes, where appropriate, supporting documentation, and attends to level of detail; and checks, edits, and revises for correct information, appropriate emphasis, form, grammar, spelling, and punctuation” (Workplace Know, 2003, and Radhakrishna and Bruening, 1994).

Mathematics

Mathematics and computational skills are also essential. Virtually all employees will be required to maintain records, estimate results, use spreadsheets, or apply statistical process controls as they negotiate, identify trends, or suggest new courses of action. Most individuals cannot leave their mathematics behind them in school. “Mathematics approaches practical problems by choosing appropriately from a variety of mathematical techniques; uses quantitative data to construct logical explanations for real world situations; expresses mathematical ideas and concepts orally and in writing; and understands the role of chance in the occurrence and prediction of events” (Workplace Know, 2003).

Listening

Very few people will work alone. More and more work involves listening carefully to clients and co-workers and clearly articulating one's own point of view. Today's worker has to listen and speak well enough to explain schedules and procedures, communicate with customers, work in teams, understand customer concerns, describe complex systems and procedures, probe for hidden meanings, teach others, and solve problems. "Listening receives, attends to, interprets, and responds to verbal messages and other cues such as body language in ways that are appropriate to the purpose" (Workplace Know, 2003).

Thinking Skills

Creative Thinking

Creative thinking uses imagination freely, combines ideas or information in new ways, makes connections between seemingly unrelated ideas, and reshapes goals in ways that reveal new possibilities.

Decision Making

Individuals use their decision-making skills to solve problems by selecting one course of action from several possible alternatives. Decision-making skills are also a key component of time management skills. Almost any decision involves conflicts or dissatisfaction. The difficult part is to pick one solution where the positive outcome can outweigh possible losses. Decision-making "specifies goals and constraints, generates alternatives, considers risks, and evaluates and chooses best alternatives" (Workplace Know, 2003).

Problem Solving

Problem solving is a natural part of everyday life. Most of the situations in life are so familiar that one does not even consider them to be problems. The more advanced society becomes the more complex problems one will face on a daily basis. "Problem solving recognizes that a problem exists, identifies possible reasons for the discrepancy, and devises and implements a plan of action to resolve it" (Workplace Know, 2003, and Andelt, Barreet, and Bosshamer, 1997).

Knowing How to Learn

Educational psychology studies increasingly show high-achieving students know what needs to be learned and how to learn it. While making those kinds of self-assessments may sound simple and something most college students could do, many psychology professors find their students are not self-aware enough to conduct them. Knowing how to learn involves being aware of "learning tools such as personal learning styles (visual, aural, etc.), formal learning strategies (note taking or clustering items that share some characteristics), and informal learning strategies" (Workplace Know, 2003).

Reasoning

Reasoning “discovers a rule or principle underlying the relationship between two or more objects and applies it in solving the problem. For example, using logic to draw conclusions from available information, extract rules or principles from a set of objects or written text; apply rules and principles to a new situation, or determine which conclusions are correct when given a set of facts and a set of conclusions” (Workplace Know, 2003).

Personal Qualities

Individual Responsibility

Individual Responsibility involves exerting “a high level of effort and perseverance toward goal attainment, working hard to become excellent at doing tasks by setting high standards, paying attention to details, working well, and displaying a high level of concentration even when assigned an unpleasant task” (Workplace Know, 2003).

Self-Esteem

Self-esteem is a crucial component to ensure success in life. Low self-esteem leaves one vulnerable to being taken advantage of by others. However, building self-esteem is impossible for most people when they have no strategy for improvement. Self-esteem increases one confidence and allows one to respect one’s own wishes by believing “in own self-worth and maintaining a positive view of self; and knowledge of one’s own emotional capacity and needs how to address them” (Workplace Know, 2003).

Sociability

Sociability “demonstrates understanding, friendliness, adaptability, empathy, and politeness in new and on-going group settings. Sociability involves asserting one’s self in familiar and unfamiliar social situations; relating well to others; responding appropriately as the situation requires; and taking an interest in what others say and do” (Workplace Know, 2003).

Self-Management

Self-management is a useful technique to assist individuals with disabilities, including autism spectrum disorders, to achieve greater levels of independence in vocational, social, academic and recreational activities. Self-management is a procedure in which people are taught to discriminate their own target behavior and record the occurrence or absence of that target behavior (Koegel, & Parks, 1995).

Integrity

Integrity refers to a person's tendency to be honest, dependable, trustworthy, and reliable. Integrity is an extremely important quality of workers. Integrity or honesty is when one is “faced with making a decision or exhibiting a behavior that may break with commonly-held personal or

societal values; understanding the impact of violating these beliefs and codes on an organization, self, and others; and choosing an ethical course of action” (Workplace Know, 2003, and Blezek and Dillon, 1991).

Five Workplace Competencies

Resources

By using resources, one learns how to manage time, money, materials, space, and staff. Managing time involves, goal-related activities, ranking them in order of importance, allocating time to activities, and understanding, preparing, and following schedules. Managing money involves preparing budgets, including making cost and revenue forecasts; keeping detailed records to track budget performance; and making appropriate adjustments. Resources involve managing human resources assessing knowledge and skills, distributing work accordingly, evaluating performance, and providing feedback (Workplace Know, 2003).

Interpersonal Skills

Competent workers in high-performance workplaces need to use interpersonal skills so they can work on teams, teach others, serve customers, lead, negotiate, and work well with people from culturally diverse backgrounds. “Participating as a member of a team involves working cooperatively with others and contributing to group efforts with ideas, suggestions, and effort. Exercising leadership communicates thoughts, feelings, and ideas to justify a position, encourage, persuade, convince, or otherwise motivate an individual or group, including responsibly challenging existing procedures, policies, or authority. Negotiating to arrive at a decision involves working toward an agreement that may involve exchanging specific resources or resolving divergent interests. Cultural diversity involves working well with men and women and with people from a variety of ethnic, social, or educational backgrounds” (Workplace Know, 2003).

Information

Competent workers in the high-performance workplace need to use information so they can acquire and evaluate data, organize and maintain files, interpret and communicate, and use computers to process information. “By acquiring and evaluating information you identify a need for data, obtain the data from existing sources or create them, and evaluate their relevance and accuracy. Organizing and maintaining information helps to process, and maintain written or computerized records and other forms of information in a systematic fashion. Interpreting and communicating information involves selecting and analyzing information and communicating the results to others using oral, written, graphic, pictorial, or multimedia. Individuals in today’s workforce must be able to acquire, organize, analyze, and communicate information with the use of computer systems” (Workplace Know, 2003).

Systems

Workers in the high-performance workplace must have an understanding of social, organizational, and technological systems. Understanding systems leads one to “know how social, organizational, and technological systems work and operate effectively.” (Workplace Know, 2003).

Technology

Employers in the high-performance workplace demand the use of technology to select the appropriate equipment and tools, apply technology to specific tasks, and maintain and troubleshoot equipment (Workplace Know, 2003).

Purpose and Objective

The purpose of this study was to analyze the perceptions of employers of land-grant college graduates regarding knowledge, skills, and dispositions needed for entry-level positions in the agricultural sector. The objective was to:

- ❖ Describe the level of importance of knowledge, skills, and dispositions needed by land-grant university graduates for entry-level positions within the agricultural industry.

Methodology

The population for this study consisted of 57 exhibitors representing 37 different government and corporate organizations at an agricultural career expo at an 1890 land-grant university. This list was obtained from the career expo program. For this study, a survey was adapted from a study conducted by Graham (2001). The validity of Graham’s instrument was established by means of content and face validity. Brown (1983) defined content validity as “the degree to which items on a test representatively sample the underlying content domain” (p. 487). Brown recommended using expert judges as one means of establishing content validity. For Graham’s study content validity was established by a panel of 10 different representatives from various agricultural disciplines. The reliability of the instrument was established with a pilot test of Arkansas industry representatives.

The survey instrument for this study consisted of four sections. Section one was designed to gauge the opinion of employers regarding the level of preparation of land-grant college graduates in relation to their interpersonal skills, communication skills, computer skills, character skills, and technical competency. Section two of the study was designed to gauge the opinion of employers regarding to the level of importance of basic work-place knowledge, skills, and abilities for entry-level jobs. Section three was designed to rate the importance of various life experiences in relation to land-grant college graduate’s potential career success. Section four was designed to rate the future growth areas that employers feel will impact or change agriculture for the next 5-10 years. This research article will focus upon section two of the study.

For this study a mixed-mode survey methodology was employed combining traditional mailings with e-mail surveying (Dillman, 2002). In recent years, there has been a trend toward using multiple methods to collect data because some individuals respond more quickly to one survey method versus another. Other reasons for using a mixed-mode method of surveying include concerns in trying to reduce nonresponse error and cost. Additionally, issues of coverage error are of great concern when using more traditional unimodal methods. Some individuals in today's society may be contacted easier by mail, others by telephone, personnel visits, and lastly by e-mail or Internet mode (Dillman, 2002).

Even though the instrument had preestablished levels of reliability, the researchers of this study conducted a post-hoc reliability test at the conclusion of data collection on each section of the survey instrument. Chronbach's alpha was used as the reliability measure for this study. The benefit of the alpha is that the computer print out gives you a clue as to which items are not contributing to the measure. Nunnally, (1967) suggested that 0.5 to 0.6 would be high enough in the early stages of research. The 0.8 measure is commonly used. Measurements of 0.9 might not be high enough where precision is needed. Chronbach's alpha reliability coefficients for the survey were as follow: Section One = 0.94, Section Two = 0.92, Section Three = 0.85 and Section Four = 0.91.

An initial letter informing the exhibitors of the survey was sent by traditional mail. The letter contained instructions on how to answer the survey, which was conducted by e-mail. Respondents were asked to verify their correct e-mail address if different from the one stated in the letter by sending the correct one electronically to the researchers. Those who preferred a traditional mail were allowed the option. One participant indicated that they would prefer a traditional mail survey; the other surveys were done electronically. Exactly one week after the initial mailing the full survey was sent to each administrator by e-mail with instructions. By the end of one week, 15 surveys had been received. After the week had passed a reminder e-mail was sent, and by the end of this week five more responses had been received. After one week a full survey packet was mailed to all non-respondents through traditional mail. By the end of this week the survey yielded four more responses. Finally follow-up phone calls were made to all non-respondents in order to yield a maximum return rate. Twenty-four surveys were received for a final return rate of 42%. In order to control for non-response error, Miller and Smith (1983) recommended comparing early to late respondents. Research has shown that late respondents are often similar to non-respondents, no significant differences were found in this study on these questions. Readers of this study are cautioned about generalizing the results of this study to a wider population.

Findings

For the following section readers should interpret the findings using the following Indicators: 1.0 – 1.49 = Unimportant, 1.50 – 2.49 = Somewhat Important, 2.50 – 3.49 = Important, 3.50 – 4.49 = Very Important, and 4.50 – 5.0 = Extremely Important.

In Table 1 employers felt that team work and dedication were extremely important, and that the following skills were very important: decision making, problem solving, organizational

skills, leadership, initiative, creativity, appearance, etiquette, global awareness, and being open-minded. Additionally employers also felt that management skills were important in the work force.

Table 1

Interpersonal Skills

Interpersonal Skills	Mean	SD
1. Teamwork	4.58	0.50
2. Dedication	4.50	0.51
3. Appearance	4.25	0.74
4. Creativity	4.17	0.82
5. Decision Making	4.08	0.97
6. Organizational Skills	4.08	0.97
7. Leadership	4.08	0.97
8. Etiquette	4.08	0.65
9. Open-Minded	4.08	0.78
10. Problem Solving	4.00	0.83
11. Initiative	4.00	0.93
12. Global Awareness	3.75	0.85
13. Management Skills	3.25	1.11

Scale: 1 = Unimportant, 2 = Somewhat Important, 3 = Important, 4 = Very Important, 5 = Extremely Important

Table 2, employers felt that understanding instructions, listening, and verbalizing were extremely important in the work force. Employers also felt that telephone, technical writing, creative writing, and presentation skills were very important in the work force, and they also ranked a second language as important.

Table 2

Communication Skills

Communication Skills	Mean	SD
1. Understanding Instruction	4.67	0.48
2. Listening	4.67	0.48
3. Verbalizing	4.67	0.48
4. Telephone	4.00	0.72
5. Presentation Skills	3.92	1.06
6. Technical Writing	3.58	0.97
7. Creative Writing	3.50	1.35
8. Second Language	2.67	1.58

Scale: 1 = Unimportant, 2 = Somewhat Important, 3 = Important, 4 = Very Important, 5 = Extremely Important

In Table 3, respondents felt that presentation graphics, accounting systems, and internet access and use were extremely important when entering the work force. Employers also felt that word processing and spreadsheets skills were very important. Moreover, the following skills were just important: database and CAD.

Table 3

Computer Skills

Computer Skills	Mean	SD
1. Spreadsheets	4.25	1.19
2. Word Processing	4.08	1.14
3. Internet access & use	3.75	1.19
4. Accounting Systems	3.58	1.47
5. Presentation Graphics	3.50	1.35
6. Database	3.42	1.28
7. CAD	2.50	1.29

Scale: 1 = Unimportant, 2 = Somewhat Important, 3 = Important, 4 = Very Important, 5 = Extremely Important

In Table 4, employers ranked the following character skills as extremely important when entering the work force: honesty, dependability, and integrity.

Table 4
Character Skills

Character Skills	Mean	SD
1. Dependability	4.58	1.14
2. Honesty	4.50	1.14
3. Integrity	4.50	1.14

Scale: 1 = Unimportant, 2 = Somewhat Important, 3 = Important, 4 = Very Important, 5 = Extremely Important

As shown in Table 5, respondents felt that technical competency in the careers of social science, mathematics, and agricultural sciences were very important. Respondents ranked physical science, biological science, and humanities as important when entering the work force.

Table 5
Technical Competency

Technical Competency	Mean	SD
1. Mathematics	3.92	0.78
2. Social Sciences	3.75	0.94
3. Agricultural Sciences	3.75	1.11
4. Physical Sciences	3.25	1.33
5. Biological Sciences	2.83	1.17
6. Humanities	2.75	1.33

Scale: 1 = Unimportant, 2 = Somewhat Important, 3 = Important, 4 = Very Important, 5 = Extremely Important

Conclusions

Based upon the finding of this study the following conclusions were made:

1. Concerning interpersonal skills, employers felt that team work and dedication were extremely important, and that the following skills are very important: decision making, problem solving, organizational skills, leadership, initiative, creativity, appearance, etiquette, global awareness, and being open-minded. Given the high value placed upon the aforementioned interpersonal skills perhaps employers would like to see these skills incorporated more into college agricultural curricula, given the highly competitive nature of agribusiness.
2. In relation to communication skills, employers felt that understanding instructions, listening, and verbalizing are extremely important in the work force. Employers also felt

that telephone, technical writing, creative writing, and presentation skills are very important in the workforce, they also ranked a second language as important. Given the need to be able to communicate effectively in the global agribusiness market, perhaps this is an area that land grant universities should place great emphasis upon in their existing curricula.

3. Employers indicated that technology skills are greatly needed by individuals in today's agribusiness society, with this in mind land grant universities should perhaps infuse technological competencies into the academic preparation of their students in order to make them more competitive, when compared to their international counterparts.
4. In relation to character skills, employers felt that the following skills are extremely important when entering the work force: honesty, dependability, and integrity. Given the recent corporate scandals that have impacted American corporations, perhaps this is a skill set that should be focused upon greatly by land-grant universities.
5. Relating to technical competency, employers felt that technical competency in areas such as social science, biological science, agricultural science, and mathematics are very important. Respondents ranked physical science, biological science, and humanities as important when entering the work force. With this finding in mind perhaps employers are starting to see the need for graduates who are better rounded, and possess both a technical agricultural background and comprehensive liberal studies foundation which provides individuals with a more global view of society.

Recommendations

Based upon the aforementioned conclusions the following recommendations are made:

1. Considering the importance of interpersonal and character skills as seen by employers, land-grant universities should consider having student's to take a course in agricultural leadership, which are already offered currently in many agricultural and extension education programs.
2. Given the heavy importance placed upon possessing technological skills by employers, land-grant universities should revise all curricula to require all students to complete a course in technology with an emphasis upon office and business applications.
3. Land-grant universities should consider increasing the existing technical and liberal studies content of their respective curricula in order to increase the overall knowledge base of their graduates.

Implications

Given the importance placed upon the various employability skills cited in this study, land-grant colleges should consider doing a reexamination of their existing programs in order to ensure that they are preparing highly employable graduates.

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