

An Assessment of the Employability Skills Needed by College of Agriculture, Food and Natural Resources Graduates at the University of Missouri-Columbia

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Abstract

*The purpose of this descriptive study was to: 1) assess graduates' perception of the importance and competence levels of performing identified transferable skills in the workplace; and 2) use the Borich (1980) needs assessment model to identify the skills most in need to enhance the curriculum. The findings revealed that solving problems, working independently, and functioning well in stressful situations were perceived by graduates as being most important to their job, while identifying political implications of the decisions to be made was the least important. In terms of competence, graduates perceived themselves to be most competent at working independently, relating well with supervisors, and working well with fellow employees and least competent at identifying political implications of the decisions to be made. When using the Borich model, solving problems, allocating time efficiently, communicating ideas verbally to groups, and accepting constructive criticism were the skills with the highest mean weighted discrepancy score, indicating a high need for curriculum enhancement.*

Introduction/Theoretical Framework

Numerous studies have noted the importance for graduates from higher education institutions to possess transferable skills prior to entering the workplace (Atkins, 1999; Billing, 2003; Candy & Crebert, 1991; Evers, Rush & Berdrow, 1998; Hewitt, 2005; Hofstrand, 1996). Crebert, Bates, Bell, Patrick, and Cragolini (2004) stated that it is becoming increasingly important for graduates to be able to apply the knowledge and skills learned in higher education institutions to the workforce. Evers et al. (1998) stated that "there is a need for a fundamental shift toward an emphasis on general skills in education" (p. 12). However, research has hinted that entry-level graduates are not equipped with the general, transferable skills necessary for employment and thus are not prepared to enter the workforce (Becker, 1993; Brown, Hesketh, & Williams, 2003; Crebert, Bates, Bell, Carol-Joy and Cragolini, 2004; Peddle, 2000; Tetreault, 1997).

Dunne and Rawlins (2000) stated that a reason for graduates being ill-prepared to apply the transferable skills to their work is the fact that students often fail to realize the importance of possessing transferable skills and assume that mastery of technical skills within disciplinary content is more important to employees than transferable skills. However, research has shown that skills such as solving problems, communicating effectively, working on a team, thinking critically, and possessing interpersonal skills (Billing, 2003; Schmidt, 1999) are the employability skills most desired by employers. While these transferable, employability skills

should assist every person entering the workforce, Candy and Crebert (1991) concluded that graduates are not prepared in these areas.

The blame for the lack of graduate preparation prior to entering the workforce should not rest solely on graduates. Researchers have noted a “skills gap” is occurring between the demands of employment and the level of educational preparation of graduates (Andrews & Wooten, 2005; Askov & Gordon, 1999; Atkins, 1999; Evers et al., 1998; Kivinen & Aloha, 1999; Kivinen & Silvennoinen, 2002; Morley, 2001; Robinson, 2000; Shivpuri & Kim, 2004; Understanding Employers, 1998). Specifically, employers do not feel as though higher education is succeeding in the role of adequately developing the employability skills of graduates (Peddle, 2000).

A common belief in industry is that higher education institutions should equip graduates with the proper skills necessary to achieve success in the workplace. Before higher education institutions can be held accountable for providing such skills, a series of basic questions must first be answered: What skills are most important for graduates in performing their job? How competent are graduates at performing these skills? How does curriculum need to be enhanced to include the necessary skills to better prepare future graduates for the workplace?

The theoretical framework for this study is based on the Human Capital Theory. Swanson (2001) defined human capital as an investment in people, while van Loo and Rocco (2004) stated that it “is an... investment in skills and knowledge” (p. 99). Often times this investment is employed to enhance knowledge and skills of employees in hopes of increasing worker productivity (Swanson, 2001; van Loo & Rocco, 2004). Higher education systems can increase human capital by improving the skills of its graduates (Knight & York, 2003). In his book, *Human Capital*, Gary Becker (1993) described that “education and training are the most important investments in human capital” (p 17). Van Loo and Rocco (2004) stated that “in early human capital literature, educational background was considered one of the most important determinants of human capital” (p. 99).

In addition to the Human Capital Theory, the Secretary’s Commission on Achieving Necessary Skills (SCANS) was also used as a framework for this study. In 1992, the SCANS report was published in an attempt to define the skills needed by employees in the workplace. This report defined three key elements: functional skills, enabling skills, and scenario. Functional skills were used to describe the actual functions workers perform at their specific job. Enabling skills were defined as skills workers learn as a result of attending formal education and participating in school related activities. Enabling skills require specific training to apply knowledge which enables workers to perform their jobs. Scenario was the term used to describe how the skills were applied in the work setting to produce a particular outcome.

After further inquiry, the Commission was able to refine the three key elements into specific skills. Five skills were determined to be related to functional skills. These five were: resource management, information management, social interaction, understanding of systems behavior and performance, human and technology interaction. Resource management dealt with the outcome associated with the organization (managing plans, budgets, and resources). Information management consisted of both oral and written communication skills. Social interaction included developing teamwork skills. Understanding of systems behavior and

performance dealt with developing problem solving and analytic skills. Lastly, human and technology interaction included the ability needed to select the proper technology and media for job tasks.

### Purpose/Objectives

The purpose of this study was to assess the employability skills of graduates of a College of Agriculture, Food and Natural Resources (CAFNR) at the University of Missouri-Columbia. The study sought to assess graduates' perceptions regarding level of importance of identified employability skills and their self-perceived level of competence at performing those skills. The following objectives were used to guide the study:

1. Describe graduates' perceptions of the importance of the employability skills needed for the workforce.
2. Describe graduates' self-perceived level of competence at performing the employability skills.
3. Prioritize the employability skills, according to graduates, in need of curriculum enhancement using the Borich needs assessment model.

### Methods/Procedures

The population for this study was CAFNR graduates at the University of Missouri-Columbia from January 2004 – May 2005 ( $N = 711$ ). It was determined that a random sample of 290 was needed to approximate the population (Krejcie & Morgan, 1960). A 67-item questionnaire was adapted from Evers et al. (1998) with responses ranging from 0 – no importance (or competence) to 3 – major importance (or competence). By employing the Borich (1980) needs assessment model for objective three, both importance and competence constructs were accounted simultaneously. The instrument was reviewed by a panel of experts for face and content validity. For reliability purposes, it was disseminated to 100 graduates, not included in the sample, resulting in a Cronbach's alpha of .94.

The Dillman Total Design Method (2004) was used to collect data consisting of an initial postcard, a complete package (cover letter, questionnaire, and return envelope), a follow-up postcard and a second complete package (cover letter, questionnaire, and return envelope). However, upon mailing the initial postcards, a valid address was not realized for 18 individuals, resulting in frame error. After multiple attempts to secure an address for these individuals failed, they were eliminated from the study, reducing the sample size to 272. After the initial mailing and subsequent follow-up procedures, 141 usable questionnaires were received for a 52% response rate.

Based on a previous study conducted by the authors, it was revealed that 66 (47%) of the respondents were male and 75 (53%) were female with an overall mean GPA of 3.18. Agricultural systems management (87%) had the greatest response rate, followed by agricultural education (74%), and agricultural journalism (73%). The lowest response rates came from graduates with degrees in parks, recreation, and tourism (22%), hotel and restaurant management (28%), and general agriculture and soil and atmospheric sciences (33%). The academic majors

having the highest GPA was biochemistry and forestry (GPA = 3.47), and the academic major having the lowest GPA was general agriculture (GPA = 2.56).

Because non-response error is a threat to external validity, early and late respondents were compared (Miller and Smith, 1983). In an effort to be conservative, the first 25% ( $n = 35$ ; early respondents) were compared to the last 25% ( $n = 35$ ; late respondents). This represented the extreme ends of the spectrum concerning early and late respondents, allowing the greatest discrepancy. No differences were found between the two groups.

### Results/Findings

Objective one sought to describe graduates' perceptions of the importance of the employability skills needed for the workforce. The 67 employability skills were ranked in order of importance based on their mean importance (Table 1).

Table 1  
*Graduates' Perceptions of the Importance of the Employability Skills (n = 141)*

Rank	Employability Skill	<i>M</i>	<i>SD</i>
1.	Solving problems	2.87	.38
2.	Ability to work independently	2.84	.45
3.	Functioning well in stressful situations	2.84	.38
4.	Maintaining a positive attitude	2.81	.46
5.	Listening attentively	2.79	.43
6.	Identifying problems	2.77	.47
7.	Working well with fellow employees	2.77	.49
8.	Setting priorities	2.77	.50
9.	Allocating time efficiently	2.76	.52
10.	Relating well with supervisors	2.75	.54
11.	Functioning at an optimal level of performance	2.74	.53
12.	Managing/overseeing several tasks at once	2.69	.51
13.	Gaining new knowledge from everyday experiences	2.67	.58
14.	Establishing good rapport with subordinates	2.67	.67
15.	Meeting deadlines	2.66	.63
16.	Prioritizing problems	2.65	.51
17.	Responding positively to constructive criticism	2.65	.61
18.	Communicating ideas verbally to groups	2.64	.61
19.	Recognizing the effects of decisions made	2.63	.54
20.	Conveying information one-to-one	2.63	.59
21.	Adapting to situations of change	2.62	.63
22.	Identifying essential components of the problem	2.57	.55
23.	Using proper grammar, spelling, and punctuation	2.57	.71
24.	Keeping up-to-date on developments in the field	2.56	.68
25.	Responding to others' comments during a conversation	2.55	.58
26.	Making decisions on the basis of thorough analysis of the situation	2.54	.63
27.	Maintaining a high energy level	2.51	.66
28.	Assessing long-term effects of decisions	2.50	.66
29.	Understanding the needs of others	2.49	.66
30.	Establishing the critical events to be completed	2.49	.74
31.	Making decisions in a short time period	2.46	.64
32.	Giving direction and guidance to others	2.46	.71
33.	Combining relevant information from a number of sources	2.43	.74
34.	Revising plans to include new information	2.40	.71
35.	Initiating change to enhance productivity	2.40	.79
36.	Knowing ethical implications of decisions	2.39	.82
37.	Recognizing alternative routes in meeting objectives	2.36	.68
38.	Sorting out the relevant data to solve the problem	2.34	.63
39.	Providing novel solutions to problems	2.33	.67
40.	Gaining new knowledge in areas outside the immediate job	2.30	.77
41.	Resolving conflicts	2.30	.82
42.	Contributing to group problem solving	2.27	.68

Table 1 (Continued)  
*Graduates' Perceptions of the Importance of the Employability Skills (n = 141)*

Rank	Employability Skill	<i>M</i>	<i>SD</i>
43.	Identifying potential negative outcomes of a risky venture	2.27	.86
44.	Keeping up-to-date with external realities to company's success	2.27	.95
45.	Empathizing with others	2.25	.79
46.	Supervising the work of others	2.25	.89
47.	Monitoring progress against the plan	2.21	.75
48.	Assigning/delegating responsibility	2.17	.76
49.	Integrating information into more general contexts	2.14	.74
50.	Delegating work to subordinates	2.14	.91
51.	Coordinating the work of subordinates	2.14	.96
52.	Applying information to new or broader contexts	2.11	.74
53.	Taking reasonable job-related risks	2.11	.77
54.	Making effective business presentations	2.11	.93
55.	Identifying sources of conflict among people	2.09	.83
56.	Delegating work to peers	2.09	.87
57.	Monitoring progress toward objectives in risky ventures	2.05	.83
58.	Coordinating the work of peers	2.01	.88
59.	Writing internal business communication	2.01	.91
60.	Integrating strategic considerations in the plans made	2.00	.74
61.	Writing reports	1.98	.95
62.	Conceptualizing a future for the company	1.94	.93
63.	Providing innovative paths for company's future development	1.90	.95
64.	Making impromptu presentations	1.88	.96
65.	Writing external business communications	1.87	1.00
66.	Reconceptualizing your role to changing corporate realities	1.84	1.01
67.	Identifying political implications of the decisions to be made	1.53	.90

*Note.* Scale: 0 = No Importance, 1 = Minor Importance, 2 = Moderate Importance, 3 = Major Importance

Four employability skills were found to have a mean importance rating greater than 2.80. The four items were "solving problems" ( $M = 2.87$ ), "ability to work independently" ( $M = 2.84$ ), "functioning well in stressful situations" ( $M = 2.84$ ), and "maintaining a positive attitude" ( $M = 2.81$ ). In addition, seven items possessed a mean importance of less than 2.00. The seven items were "writing reports" ( $M = 1.98$ ), "conceptualizing a future for the company" ( $M = 1.94$ ), "providing innovative paths for the company to follow for future development" ( $M = 1.90$ ), "making impromptu presentations" ( $M = 1.88$ ), "writing external business communications" ( $M = 1.87$ ), "reconceptualizing your role to changing corporate realities" ( $M = 1.84$ ), and "identifying political implications of the decisions to be made" ( $M = 1.53$ ).

Objective two sought to describe graduates' self-perceived level of competence at performing the employability skills. Eight employability skills had a mean competence of greater than 2.50 (Table 2).

Table 2  
*Graduates' Perceptions of their Level of Competence at Performing the Employability Skills*  
*(n = 141)*

Rank	Employability Skill	<i>M</i>	<i>SD</i>
1.	Ability to work independently	2.69	.56
2.	Relating well with supervisors	2.65	.55
3.	Working well with fellow employees	2.65	.58
4.	Listening attentively	2.55	.64
5.	Setting priorities	2.53	.65
6.	Maintaining a positive attitude	2.52	.59
7.	Establishing good rapport with subordinates	2.52	.66
8.	Meeting deadlines	2.51	.67
9.	Functioning well in stressful situations	2.49	.61
10.	Gaining new knowledge from everyday experiences	2.49	.66
11.	Managing/overseeing several tasks at once	2.45	.65
12.	Using proper grammar, spelling, and punctuation	2.43	.77
13.	Functioning at an optimal level of performance	2.42	.65
14.	Identifying problems	2.40	.53
15.	Responding to others' comments during a conversation	2.40	.67
16.	Solving problems	2.39	.57
17.	Understanding the needs of others	2.39	.67
18.	Conveying information one-to-one	2.36	.71
19.	Maintaining a high energy level	2.34	.71
20.	Prioritizing problems	2.32	.64
21.	Allocating time efficiently	2.31	.71
22.	Adapting to situations of change	2.30	.70
23.	Giving direction and guidance to others	2.28	.70
24.	Recognizing the effects of decisions made	2.27	.66
25.	Empathizing with others	2.27	.77
26.	Combining relevant information from a number of sources	2.24	.65
27.	Making decisions in a short time period	2.24	.69
28.	Supervising the work of others	2.24	.70
29.	Responding positively to negative criticism	2.24	.75
30.	Knowing ethical implications of decisions	2.24	.77

Table 2 (Continued)  
*Graduates' Perceptions of their Level of Competence at Performing the Employability Skills*  
*(n = 141)*

Rank	Employability Skill	<i>M</i>	<i>SD</i>
31.	Identifying essential components of the problem	2.22	.61
32.	Making decisions on the basis of thorough analysis of the situation	2.22	.64
33.	Communicating ideas verbally to groups	2.22	.75
34.	Writing reports	2.21	.76
35.	Resolving conflicts	2.19	.68
36.	Keeping up-to-date on developments in the field	2.19	.70
37.	Establishing the critical events to be completed	2.19	.70
38.	Revising plans to include new information	2.19	.75
39.	Assigning/delegating responsibility	2.17	.76
40.	Contributing to group problem solving	2.14	.63
41.	Assessing long-term effects of decisions	2.14	.65
42.	Initiating change to enhance productivity	2.14	.72
43.	Coordinating the work of subordinates	2.14	.83
44.	Sorting out the relevant data to solve a problem	2.12	.59
45.	Identifying sources of conflict among people	2.12	.77
46.	Gaining new knowledge in areas outside the immediate job	2.11	.80
47.	Integrating information into more general contexts	2.09	.69
48.	Providing novel solutions to problems	2.08	.66
49.	Delegating work to subordinates	2.08	.81
50.	Recognizing alternative routes in meeting objectives	2.07	.69
51.	Making effective business presentations	2.04	.78
52.	Identifying negative outcomes when considering a risky venture	2.04	.80
53.	Taking reasonable job-related risks	2.02	.79
54.	Monitoring progress against the plan	2.01	.74
55.	Delegating work to subordinates	2.01	.75
56.	Coordinating the work of peers	1.98	.78
57.	Writing internal business communication	1.96	.82
58.	Applying information to new or broader contexts	1.95	.59
59.	Keeping up-to-date with external realities of company's success	1.93	.77
60.	Writing external business communication	1.91	.85
61.	Making impromptu presentations	1.89	.87
62.	Integrating strategic considerations in the plans made	1.87	.71
63.	Monitoring progress toward objectives in risky ventures	1.87	.81
64.	Conceptualizing a future for the company	1.66	.83
65.	Reconceptualizing your role to changing corporate realities	1.63	.86
66.	Providing innovative paths for a company's future development	1.61	.78
67.	Identifying political implications of the decisions to be made	1.46	.80

*Note.* Scale: 0 = No Competence, 1 = Minor Competence, 2 = Moderate Competence, 3 = Major Competence

The eight items were “ability to work independently” ( $M = 2.69$ ), “relating well with supervisors” ( $M = 2.65$ ), “working well with fellow employees” ( $M = 2.65$ ), “listening attentively” ( $M = 2.55$ ), “setting priorities” ( $M = 2.53$ ), “maintaining a positive attitude” ( $M = 2.52$ ), “establishing good rapport with subordinates” ( $M = 2.52$ ), and “meeting deadlines” ( $M = 2.51$ ). In addition, seven employability skills had means of less than 1.90. These seven consisted of “making impromptu presentations” ( $M = 1.89$ ), “integrating strategic considerations in the plans made” ( $M = 1.87$ ), “monitoring progress toward objectives in risky ventures” ( $M = 1.87$ ), “conceptualizing a future for the company” ( $M = 1.66$ ), “reconceptualizing your role to changing corporate realities” ( $M = 1.63$ ), “providing innovative paths for a company’s future development” ( $M = 1.61$ ), and “identifying political implications of the decisions to be made” ( $M = 1.46$ ).

The purpose of objective three was to prioritize the employability skills, as perceived by graduates, in need of curriculum enhancement using the Borich needs assessment model. The Borich (1980) needs assessment model allows two ratings to be taken into account simultaneously in an effort to determine where discrepancies exist (Table 3).

Table 3  
*Graduates' Perceptions of the Employability Skills Using Mean Weighted Discrepancies*

Category	Employability Skill	MWDS
I	Solving problems	1.30
	Allocating time efficiently	1.22
	Communicating ideas verbally to groups	1.09
	Responding positively to constructive criticism	1.07
	Functioning well in stressful situations	.97
	Keeping up-to-date on developments in the field	.95
	Identifying problems	.92
	Recognizing the effects of decisions made	.90
	Assessing long-term effects of decisions	.89
	Identifying essential components of the problem	.86
	Prioritizing problems	.85
	Functioning at an optimal level of performance	.84
	Adapting to situations of change	.81
	II	Maintaining a positive attitude
Making decisions by thoroughly analyzing the situation		.76
Keeping up-to-date with external realities for success		.73
Establishing the critical events to be completed		.73
Conveying information one-to-one		.70
Recognizing alternative routes in meeting objectives		.69
Managing/overseeing several tasks at once		.64
Setting priorities		.64
Listening attentively		.62
Initiating change to enhance productivity		.60
Providing novel solutions to problems		.57
Conceptualizing a future for the company		.56
Making decisions in a short time period		.55
Providing innovative paths for company's future development		.53
Identifying potential negative outcomes on risky ventures		.52

Table 3 (Continued).

*Graduates' Perceptions of the Employability Skills Using Mean Weighted Discrepancies*

Category	Employability Skill	MWDS
III	Sorting out the relevant data to solve the problem	.49
	Revising plans to include new information	.47
	Gaining new knowledge from everyday experiences	.47
	Combining relevant information from a number of sources	.46
	Ability to work independently	.44
	Monitoring progress against the plan	.43
	Assigning/delegating responsibility	.42
	Gaining new knowledge in areas outside the immediate job	.42
	Maintaining a high energy level	.42
	Giving direction and guidance to others	.41
	Meeting deadlines	.39
	Monitoring progress toward objectives in risky ventures	.37
	Responding to others' comments during a conversation	.37
	Establishing good rapport with subordinates	.37
	Reconceptualizing your role to changing corporate realities	.37
	Knowing ethical implications of decisions	.35
	Applying information to new or broader contexts	.32
	Working well fellow employees	.31
IV	Contributing to group problem solving	.29
	Resolving conflicts	.29
	Integrating strategic considerations in the plans made	.25
	Relating well with supervisors	.25
	Understanding the needs of others	.24
	Delegating work to peers	.20
	Taking reasonable job-related risks	.18
	Delegating work to subordinates	.15
	Making effective business presentations	.13
	Integrating information into more general contexts	.12
	Identifying political implications of the decision to be made	.11
	Writing internal business communication	.11
	Supervising the work of others	.09
	Coordinating the work of peers	.08
	Coordinating the work of subordinates	.03
	Making impromptu presentations	-.01
	Identifying sources of conflict among people	-.02
	Empathizing with others	-.05
Writing external business communication	-.07	
Writing reports	-.44	
Using proper grammar, spelling, and punctuation	-1.53	

A discrepancy score was calculated by taking the importance rating minus the competence rating for each graduate on each employability skill. A weighted discrepancy score was then calculated by multiplying each discrepancy score by the associated mean importance rating of the employability skill. Lastly, a mean weighted discrepancy score (MWDS) was calculated by taking the sum of the weighted discrepancy scores for each skill and dividing by the number of respondents ( $n = 141$ ).

To prioritize the skills for curriculum enhancement, the employability skills were placed in four categories as a result of the mean weighted discrepancy scores. Category I consisted of all employability skills with an MWDS greater than .80 and represented the items with the highest discrepancy scores. Category II consisted of all employability skills with an MWDS ranging from .50 to .79 (moderate discrepancy). Category III consisted of all employability skills with an MWDS ranging from .30 to .49 (low discrepancy). Category IV consisted of all employability skills with an MWDS below .30 (negligible discrepancy).

As a result, thirteen employability skill items fell into category I as a result of having the highest discrepancy scores, thus, indicating the highest need for curriculum enhancement. The top five skills in category I consisted of: “solving problems” (MWDS = 1.30), “allocating time efficiently” (MWDS = 1.22), “communicating ideas verbally to groups” (MWDS = 1.09), “responding positively to constructive criticism” (MWDS = 1.07), and “functioning well in stressful situations” (MWDS = .97).

Category II contained 15 items that received more moderate discrepancy scores, indicating a more moderate need for curriculum enhancement. The top five skills in category II were: “maintaining a positive attitude” (MWDS = .79), “making decisions by thoroughly analyzing the situation” (MWDS = .76), “keeping up-to-date with external realities for success” (MWDS = .73), “establishing the critical events to be completed” (MWDS = .73), and “conveying information one-to-one” (MWDS = .70).

Eighteen employability skill items fell into category III, indicating lower discrepancy scores and a lower need for curriculum enhancement. The top five skills for category III consisted of: “sorting out the relevant data to solve the problem” (MWDS = .49), “revising plans to include new information” (MWDS = .47), “gaining new knowledge from everyday experiences” (MWDS = .47), “combining relevant information from a number of sources” (MWDS = .46), and “ability to work independently” (MWDS = .44).

Category IV consisted of 21 employability skills (negligible need of curriculum enhancement), of which nine received a mean weighted discrepancy score of less than .10. The nine lowest rated employability skill items consisted of “supervising the work of others” (MWDS = .09), “coordinating the work of peers” (MWDS = .08), “coordinating the work of subordinates” (MWDS = .03), “making impromptu presentations” (MWDS = -.01), “identifying sources of conflict among people” (MWDS = -.02), “empathizing with others” (MWDS = -.05), “writing external business communication” (MWDS = -.07), “writing reports” (MWDS = -.44), and “using proper grammar, spelling, and punctuation” (MWDS = -1.53).

## Conclusions

CAFNR graduates at the University of Missouri-Columbia perceived all 67 employability skill items to be moderately important to entry-level positions in the workplace. It can be concluded that graduates feel it is important to be able to solve problems, work independently, deal with stress, stay positive and listen. Graduates place the least amount of importance on the political implications of the decision they make. This could be because graduates have not yet experienced the ramification of ill-advised decisions in the workplace. Interestingly, graduates rated “writing external business communication” near the bottom of the list of important entry-level employability skills. A possible reason this skill is of little importance to graduates could be due to the fact that this institution is nationally renowned for its writing intensive program and a point of emphasis throughout the University is for students to be well prepared in this skill area. Thus, it might be reasonable for students to fail to realize its importance throughout society.

At a minimum, graduates perceive themselves to possess at least minor competence at performing all 67 employability skills. Graduates perceive themselves to be most competent with working independently, relating to their supervisors, working with their colleagues, listening, and setting priorities. Graduates perceived themselves to be least competent at “identifying political implications of the decisions to be made.” This finding was similar to the importance scale, as graduates perceived the political implications of their decisions to be the least important skill needed for success in the workplace. When comparing importance and competence, graduates ranked “ability to work independently” second on the importance scale and first on the competence scale. While “solving problems” was rated as the most important skill needed in the workplace, it was rated sixteenth by graduates on the competence scale.

It can be implied that graduates need more experience at solving problems. While the “ability to work independently” was rated high on the importance scale, it was rated even higher on the competence scale, indicating the curriculum is adequately addressing graduates needs in this area.

Graduates rated 60 of the 67 employability skills higher on the important scale than the competence scale. This finding is consistent with Radhakrishna and Bruening’s study in 1994 when they found that entry-level employees perceived employability skills to be more important than their ability to perform the skills. It can be concluded that the employability skill in greatest need of curricular attention, according to graduates, is problem solving and decision making since six of the thirteen items comprising category I identified problem solving and decision making skills. Category I was comprised of employability skills with the highest discrepancy scores, thus, creating the greatest need for curriculum enhancement. This finding is consistent with prior research conducted by Robinson and Garton (2006) concerning agricultural education graduates. The findings from that study revealed agricultural education graduates lacked employability skills dealing with defining and solving problems and analyzing information in making decisions and that curriculum enhancement was needed in those particular areas.

Nineteen percent of the employability skills fell into category I, which represented the highest need for curriculum enhancement. CAFNR faculty who wish to enhance their curriculum should start by adding or revising their current curriculum to mirror the skills represented in

category I. Twenty-three percent of the employability skills fell into category II, which represented a more moderate need for curriculum enhancement. Therefore, once all the skills identified in category I are tended to, faculty can then adjust their curriculum to include the skills in category II. Twenty-seven percent of the employability skills fell into category III, which represented a lower need for curriculum enhancement, and 31% comprised category IV, which represented a negligible need for curriculum enhancement. It is recommended that while the skills in category IV are currently being addressed, CAFNR faculty at the University of Missouri-Columbia should continue to provide these skills in their curriculum due to the fact that they are perceived as being important to graduates.

In all, thirteen items were perceived to possess the highest discrepancy scores, indicating the greatest need to enhance the existing curriculum to include these skills. Interestingly, “communicating ideas verbally to groups” was a skill identified in category I, while “making effective business presentations” and “making impromptu presentation” were skills included in category IV. Is there a real difference in these three skills? They all represent oral communication. How could one comprise category I (highest discrepancy scores) and the other two comprise category II (negligible discrepancy scores)? Could it be that graduates were confused with the wording on the questionnaire?

In all, fifteen skills comprised category II, indicating a more moderate discrepancy score. One third of the skills in category II dealt with “creativity, innovation, and change,” and “visioning.” Three consist of “organization and time management.” Therefore, it can be implied that students have a moderate need to learn more about creativity, visioning, and organization and time management. Category III consists of nineteen items with “low” discrepancy scores. Of the nineteen, four deal with lifelong learning and motivation. Therefore, graduates, apparently, have less need to obtain additional information on lifelong learning and motivation. Category IV consisted of twenty skills possessing a “negligible” discrepancy score. Three skills listed in category IV dealt with supervising and coordinating. While these skills are highly sought after for some positions, it can be implied that entry-level employees may not need skills in supervising or coordinating the work of peers. Over a third (35%) of the skills comprising construct IV deal with areas of communications, implying the curriculum is currently addressing the entry-level communication needs of graduates.

The findings of this study relate closely to the SCANS skills. Twenty-one of the 67 skills measured in this study dealt specifically with Information Management, Social Interaction, and Understanding of Systems Behavior and Performance. Components of the Information Management skills dealt with oral and written communications. Specifically, ten skills in oral and written communication were noted in this study. Components of the Social Interaction skills comprised interpersonal skills. Five skills related to Social Interaction were measured in this study. Components of the Understanding of Systems Behavior and Performance skills dealt with problem solving and analytic skills. Six skills related to Understanding of Systems Behavior and Performance were observed in this study.

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