Student Perceptions of Workforce Readiness in Agriculture

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Abstract

The purpose of this study was to examine postsecondary agriculture students' perceptions of and their personal competence in various workforce readiness skills. In addition, we sought to determine students' views of the importance of workforce readiness skills. The findings indicate that the participants felt most confident in their abilities to work independently and without supervision, demonstrate loyalty, and act in a manner that displays responsibility and respect for others. They felt least confident in all areas of communication, but especially in written formats such as formal reports and documents. Rankings of skill importance revealed that participants believed maintaining harmony in the workplace and building positive relationships were considered to be most essential, with personal responsibility and communication close behind. Finally, an analysis of entry-level job announcements indicates that the skills most sought by employers include communication, teamwork, attitude, creativity, flexibility, and independence.

Introduction

If the United States is to continue feeding and clothing an ever-increasing population, it is essential that today's college students be properly prepared to fill the agricultural jobs of tomorrow (Goerker, Smith, Fernandez, Ali, & Goetz, 2015). Recent trends have revealed that employers seek graduates who leave their college or university prepared not only with career- or situation- specific technical skills, but also with higher-order behavioral skills that can be applied to many different needs, issues, and careers (Bentley University, 2014; Casner-Lotto, Barrington, & Wright, 2006; Landrum, Hettich, & Wilner, 2010; Paranto & Kelkar, 2000; Partnership for 21st Century Learning, 2015; Rateau, Kaufman, & Cletzer, 2015).

Unfortunately, a gap exists between the workforce readiness expectations of future employees and their employers (Casner-Lotto, Barrington, & Wright, 2006; Jaschick, 2015; McNamara, 2009; Robinson & Garton, 2008). Employers report that recent college graduates do not possess the transferrable, higher-order skills necessary for workplace success, and that as a result they are essentially unprepared to become productive employees (Robinson & Garton, 2008). Research indicates that few young people recognize the value of higher-order behavioral traits and

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skills in general, and that many believe technical skills are more important to possess and display (Bentley University, 2014; Dunne & Rawlins, 2010).

In addition, many graduates also find themselves overestimating the extent of their own behavioral competencies (AACU, 2015; Bentley University, 2014; Jaschick, 2015). A 2013 study commissioned by educational company Chegg noted that while 50% of surveyed students believed themselves to be "completely or very prepared for a job in their field of study," only 39% of employers could say the same about recent graduates they had interviewed for job openings (p. 3). The survey also found large disparities between students' and employers' views of students' financial planning, prioritization, management, and communications skills (Chegg, 2013). Another survey from the American Association of Colleges and Universities (2015) also found that employers placed higher value on written and oral communication, teamwork, ethics, decision-making, critical thinking, reasoning, and knowledge application than students did.

Regarding the agriculture industry, Dailey, Conroy, and Shelley-Tolbert (2001) explored how secondary agricultural education can be used as a context for teaching life skills such as "public speaking," "communication," "leadership," and "responsibility and dedication" (p. 16) that have been "identified as crucial for the workforce" (p. 11). Robinson and Garton (2008) assessed the employability skills of graduates from the University of Missouri's College of Agriculture and Natural Resources and identified that the ability "to solve problems, work independently, deal with stress, stay positive, and listen" were seen as key qualities to workplace success (p. 102).

Through 2020, 58% of projected agricultural job openings are expected to be agricultural business, education, communication, management, or governmental positions that actively require higher-order behavioral, interpersonal, leadership, and decision-making skills (Goerker et al., 2015). In order to succeed in these future agricultural careers, students must not only possess vocation-specific capabilities, but also master such abilities as critical thinking, leadership, teamwork, communication, creativity, adaptability, and accountability (Bentley University, 2014; Casner-Lotto, Barrington, & Wright, 2006; Landrum, Hettich, & Wilner, 2010; Paranto & Kelkar, 2000; Partnership for 21st Century Learning, 2015; Rateau, Kaufman, & Cletzer, 2015).

Yet the question of who is responsible for teaching these skills remains (McNamara, 2009). Many employers believe the duty falls upon America's colleges and universities (AACU, 2015; Robinson & Garton, 2008). However, many of these same employers do not feel as if current models of employee preparation regarding behavioral skill development are working (Career Builder, 2017; Robinson & Garton, 2008). In a 2017 survey of over 2,300 hiring professionals, employment company Career Builder found that academic institutions placed "too much emphasis on book learning instead of real-world learning," (para. 12), and that students needed "a blend" of technical and liberal arts skills. As careers and technology become increasingly more complex (Career Builder, 2017), it is essential that educators understand the needs and desires of today's workforce as well as the relative readiness of future employees, and also identify methods through which vital behavioral skills can be most effectively taught.

Theoretical Framework

This study is based upon the Human Capital Theory, which was largely developed by economist Gary Becker. Human capital has been defined as an investment in "the abilities and qualities of people that make them productive" (Gary Becker's Concept, 2017, para. 3). While there are many factors that can impact a person's productivity, one's knowledge is usually considered to be the most influential. Becker (1993) wrote that "education and training are the most important

investments in human capital" (p. 17), and van Loo and Rocco (2004) stated that human capital was "an investment in skills and knowledge" (p. 99).

Human capital is divided into two varieties: specific and general. Specific human capital is "knowledge directly tied" to one's workplace, and is thus non-transferrable from career to career (Gary Becker's Concept, 2017, para. 7). As such, employers are usually willing to train employees in such knowledge as a means of improving employee productivity. However, general human capital is more nebulous, and can often be learned from and applied across many different locations, experiences, and industries. As such, many employers expect new hires to proactively exhibit human capital skills, regarding the teaching of such while on the job as a waste of time, effort, and resources.

The workforce readiness competencies studied in this research can all be considered general human capital, as they can be learned through many different channels and applied in myriad ways. By understanding how secondary and postsecondary educational opportunities can invest in human capital through the impartation of vital knowledge and skills, it is possible to create a workforce that is not only more valuable and desirable to employers (Paranto & Kelkar, 2000), but also better equipped to face the challenges that arise in everyday life.

In addition to the Human Capital Theory, the Employability Skills Framework developed by the United States Department of Education's Office of Career, Technical and Adult Education was also used to provide a theory base for this study. According to the framework, skills fall into 3 categories: applied knowledge, effective relationships, and workplace skills.

Applied knowledge is defined as "the thoughtful integration of academic knowledge and technical skills, put to practical use in the workplace" (U.S. Department of Education, 2017). This category involves students using reading, writing, mathematical, and scientific principles to understand the world around them and become productive employees and members of society. It also includes the use of critical thinking and decision-making skills in organizational, analytical, and problem-solving activities.

Effective relationships involve using "a combination of interpersonal skills and personal qualities" to build positive and collaborative understanding between employees, employers, and customers (U.S. Department of Education, 2017). Interpersonal skills focus on concepts such as communication, teamwork, attitude, and motivation, and personal qualities include professionalism, responsibility, flexibility, and integrity. Knowledge of the needs and emotions of oneself and others, as well as an understanding of cultural differences fall into this category.

Workplace skills "are the abilities employees need to successfully accomplish work tasks" (U.S. Department of Education, 2017). This category covers a wide range of competencies including management of time and resources, communication across many formats, and in recognizing and understanding how systems function and operate. This category also includes the implementation and application of emerging techniques and technologies.

Purpose and Objectives

Studies show that graduates, at large, do not value these skills and even overestimate the level at which they competently display them (Bentley University, 2014; Casner-Lotto, Rosenblum, & Wright, 2009; Casner-Lotto et al., 2006; Coplin, 2004; Jaschik, 2015; NACE, 2016). Previous studies have examined this issue in other career fields, (Hickey, 2009; Hodge & Lear, 2011; Kaminski, Switzer, & Gloeckner, 2009; Kavanagh & Drennan, 2008; Landrum et al., 2010), but

little has been done to examine the self-perceived behavioral skill competencies of agriculture students. If colleges are to adequately prepare students for their future careers in the agricultural industry, it is important to first understand how these students view their own levels of workplace readiness, and how such views relate to the expectations and needs of the modern workforce. Such a disparity in the definition of workforce readiness has made this issue an important priority in the American Association for Agricultural Education's National Research Agenda (AAAE, 2016). This study intends to explore college agriculture student perceptions of workforce readiness skills and identify possible methods through which these skills might be taught. The following research objectives guided this study:

1. Identify agriculture students' perceptions of their personal workforce readiness.
2. Identify agriculture students' perceptions of the importance of workforce readiness skills.
3. Identify skills sought by employers in the American agricultural industry by examining entry-level position announcements
4. Identify methods through which students might learn and develop important workforce readiness skills

Methodology

Participants in this study ($N = 59$) were members of two undergraduate agriculture classes in the School of Human Sciences at Mississippi State University. Both classes focus on teaching students behavioral and communication skills they will need in their professional careers. All participants were offered five extra credit points in their class for completing the survey.

This study utilized a survey instrument originally developed by Landrum et al. (2010) to examine workforce readiness perceptions of Boise State University psychology graduates. Two experts in the field of agriculture education examined the instrument for relevancy to the agriculture industry, and ultimately recommended that, as the items were applicable to many career areas, no changes be made regarding item content. However, references to participant competency levels at the time of or after graduation were removed, as this study examined current university students instead of graduates. Reliability coefficients were not calculated for the instrument, as its intent was "not to create a scale where individuals receive scores that predict future preparedness or competence," but to understand "multiple individual ideas and emotional qualities rather than broad concepts and factor analyzed outcomes" (R.E. Landrum, personal communication, April 10, 2018).

Section I of the instrument provided respondents with 54 skills related to workforce readiness. Sample items included "work well with others," "identify, prioritize, and solve problems," "present information verbally to others," and "possess the ability to work without supervision." Participants were asked to rate their current perceived levels of competence regarding each item along a 3-point scale, with 1 = low and 3 = high.

Section II of the survey asked participants to look back at the items in Section I and list which skills most important to success in the workplace from 1 = most important and 10 = least important. From this, two lists of students' most important behavioral skills were derived. In addition, participants were asked to provide possible activities (either academic or non-academic) that might help a typical undergraduate student develop each of their top 10 behavioral skills.

Section III of the survey collected demographic information from participants such as age, gender, ethnicity, major, and planned post-graduation career field. IRB approval was obtained prior to data collection. Students were asked to sign a consent form before the questionnaires were

distributed. Class time was provided for participants to complete the instrument. Data were analyzed using descriptive statistics including means, standard deviations, and frequencies.

In addition to the survey instrument, 50 job announcements from all across the United States were reviewed to formulate a list of behavioral skills sought by employers in the agriculture industry. Job announcements were collected from AgCareers.com, AgHires.com, and the National FFA Organization's Employment Skills Leadership Development Event. All announcements were examined by the researchers and selected for their relevance to the agriculture industry and their appropriateness for recent university graduates.

Results

Student participants ($N = 59$) ranged in age from 20 to 50 years old ($M = 22.10$, $SD = 3.89$), with 42 men (71.2%) and 16 women (27.1%). One respondent chose not to identify their gender. The majority of respondents were White (93.2%). Ninety-four percent of students ($n = 55$) were pursing an agriculture-related degree at the time of the survey, and 84% ($n = 50$) indicated that they would enter an agriculture-related career upon graduation.

Objective 1

Section I of the survey asked students to rate their perceived levels of competence regarding 54 behavioral skills deemed as useful in the workplace. Respondents rated each item using a scale of 1 = low and 3 = high. Table 1 is sorted in descending order based upon students' perceptions of their competence in each area.

Table 1

*Means and Standard Deviations of Workforce Readiness Items (*N = 59)

Workforce Readiness Items	Student Level of Competence		
	n	*M*	*SD*
Work without supervision	59	1.89	.35
Demonstrate loyalty to the organization and its goals	59	1.83	.37
Work independently	59	1.81	.39
Act responsibly and conscientiously	59	1.79	.44
Appreciate the importance and value of humor at work	59	1.79	.40
Teach and learn from others on the job	59	1.79	.44
Appreciate the need for organization, supervision, policies, and procedures	59	1.77	.49
Possess self-discipline, including punctual attendance and dependability	59	1.76	.46
Take steps to achieve career goals	59	1.74	.43
Handle conflict maturely	59	1.72	.44

Table 1 (continued)

*Means and Standard Deviations of Workforce Readiness Items (*N = 59)

Workforce Readiness Items	Student Level of Competence		
	n	*M*	*SD*
Show respect for the opinions, customs, and individual differences of others	59	1.69	.50
Possess the ability to work under supervision	59	1.69	.46
Assist in continuous improvement	59	1.64	.48
Demonstrate pride in accomplishment	59	1.62	.52
Possess a positive attitude towards work	59	1.62	.52
Identify, prioritize, and solve problems	59	1.61	.49
Demonstrate initiative, motivation, and perseverance	59	1.59	.52
Work well with others	59	1.59	.49
Meet the needs of others, such as clients or customers	59	1.57	.56
Manage several tasks at once	59	1.52	.59
Monitor progress towards goals	59	1.52	1.16
Participate in reaching group decisions	59	1.50	.53
Understand how the work flows through the system	59	1.49	.56
Receive and use both positive and negative feedback	59	1.49	.56
Respond appropriately to constructive criticism	59	1.49	.53
Consider and evaluate alternative solutions	59	1.47	.56
Set priorities and allocate time efficiently in order to meet deadlines	59	1.47	.59
Provide leadership and followership as appropriate	59	1.45	.53
Contribute ideas and answers to solve problems	59	1.45	.53
Determine the costs, time, or resources necessary for a task	59	1.45	.56
Gather information effectively	59	1.45	.59
Make defensible/appropriate decisions	59	1.45	.56
Function effectively in stressful situations	59	1.44	.53
Motivate oneself to function at optimal levels of performance	59	1.44	.56
Demonstrate self-motivated learning	59	1.42	.64

Table 1 (continued)

*Means and Standard Deviations of Workforce Readiness Items (*N = 59*)*

Workforce Readiness Items	Student Level of Competence		
	n	*M*	*SD*
Give direction and guidance to others	59	1.38	.61
Apply knowledge from formal educational experiences	59	1.37	.58
Apply thinking/problem-solving skills to technology situations	59	1.37	.61
Evaluate own interests, strengths, and weaknesses	59	1.35	.63
Understand simple probability and statistics	59	1.33	.60
Interpret charts, tables, and graphs	59	1.33	.60
Organize information in a logical and coherent manner	59	1.33	.63
Demonstrate highly-developed social skills	59	1.32	.70
Regulate your emotions effectively	59	1.25	.63
Identify and resolve sources of conflict between oneself and others, or among other people	59	1.23	.59
Adapt to change	59	1.23	.62
Recognize the political and ethical implications of decisions	59	1.23	.56
Accurately monitor others' emotional states	59	1.23	.77
Present information verbally to others	59	1.20	.60
Participate effectively in discussions	59	1.18	.62
Apply the rules of correct spelling, punctuation, and capitalization	59	1.15	.69
Apply information to new or broader contexts	59	1.03	.55
Write formal reports and business correspondence	59	.83	.62

Note. Based on a 3-point rating scale with 1 = low and 3 = high.

Results indicate respondents felt the most competent about their ability to maintain harmony at work by modulating personal behaviors and actions. This is best demonstrated through the higher ratings received for skills such as "work without supervision" (*M = 1.89, SD = .35*), "work independently" (*M = 1.81, SD = .39*), "act responsibly and conscientiously" (*M = 1.79, SD = .44*), and "possess self-discipline, including punctual attendance and dependability" (*M =1.76, SD = .46*).

Respondents provided varying ratings for critical thinking-related skills. Students felt the most competent in their problem-solving abilities, as illustrated by the higher ratings for the items

"identify, prioritize, and solve problems" (*M = 1.61, SD = .49*), "consider and evaluate alternative solutions" (*M = 1.47, SD = .56*), "contribute ideas and answers to solve problems" (*M = 1.45, SD = .33*), "determine the time, cost, or resources necessary for a task" (*M = 1.45, SD = .56*), and "make defensible/appropriate decisions" (*M = 1.45, SD = .56*). In contrast, ratings revealed that respondents' felt less confident in their abilities to use extant knowledge to address new or unfamiliar situations and recognize possible outcomes. "Apply knowledge from formal educational experiences" (*M = 1.37, SD = .58*), "adapt to change" (*M = 1.23, SD = .62*), "recognize the political and ethical implications of decisions" (*M =, SD=*), and "apply information to new and broader contexts" (*M = 1.03, SD = .55*) were all ranked demonstrably lower.

Overall, respondents did not feel particularly competent in emotion-related skills. They did indicate higher levels of competence for the skills "demonstrate pride in accomplishment" (*M = 1.62, SD = .52*), "possess a positive attitude towards work" (*M = 1.62, SD = .52*), and "work well with others" (*M = 1.59, SD = .49*), but lower levels for those that involved understanding, evaluating, and motivating oneself as well as controlling one's own emotions. Interestingly, respondents did not feel as competent in their abilities to "accurately monitor others' emotional states" (*M = 1.23, SD = .77*).

Respondents indicated noticeably lower levels of competence regarding both written and oral communications skills such as "present information verbally to others" (*M = 1.20, SD = .60*), "participate effectively in discussions" (*M = 1.18, SD = .62*), "apply the rules of correct spelling, punctuation, and capitalization" (*M = 1.15, SD = .69*), and "write formal reports and business correspondence" (*M = .83, SD = .62*). However, they did feel more confident when communicating through mathematical concepts such as statistics, charts, and graphs.

Objective 2

Section II of the survey asked students to select and rank the top 10 behavioral skills they viewed as most integral to success. From this, two top 10 lists were created. Table 2 examined the top 10 skills by frequency, which actually amounted to 16 skills when ties between items were taken into account. Table 3 utilized student rankings to eliminate ties and develop an overall list of top 10 necessary career skills.

Table 2

*Top 10 workforce-readiness skills identified by undergraduate students (*N = 59*)*

Rank	Item (Question #)	*f*	%
1	Work well with others (Q1)	39	66.0
2	Adapt to change (Q37)	30	50.8
3	Work independently (Q10)*	24	40.6
3	Teach and learn from others on the job (Q52)*	24	40.6
4	Manage several tasks at once (Q5)	23	38.9
5	Handle conflict maturely (Q28)*	21	35.5
5	Possess a positive attitude towards work (Q30)*	21	35.5
6	Demonstrate highly developed social skills (Q21)	19	32.2
7	Function effectively in stressful situations (Q8)	18	30.5
8	Possess self-discipline, including punctual attendance and dependability (Q31)*	16	27.1
8	Possess the ability to work without supervision (Q32)*	16	27.1
9	Show respect for the opinions, customs, and individual differences of others* (Q26)	13	22.0
9	Apply knowledge from formal educational experiences (Q4)*	13	22.0
10	Identify, prioritize, and solve problems (Q12)*	12	20.3
10	Receive and use both positive and negative feedback (Q47)*	12	20.3
10	Present information verbally to others (Q2)*	12	20.3

Note. Items with the same frequency value are denoted with an *.

Table 3

Top 10 workforce readiness skills identified by undergraduate students according to student rankings (N = 59)

Rank	Item (Question #)	*f*	%
1	Work well with others (Q1)	39	66.0
2	Adapt to change (Q37)	30	50.8
3	Work independently (Q10)	24	40.6
4	Teach and learn from others on the job (Q52)	24	40.6
5	Manage several tasks at once (Q5)	23	38.9
6	Possess a positive attitude towards work (Q30)	21	35.5
7	Handle conflict maturely (Q28)	21	35.5
8	Demonstrate highly developed social skills (Q21)	19	32.2
9	Function effectively in stressful situations (Q8)	18	30.5
10	Possess self-discipline, including punctual attendance and dependability (Q31)	16	27.1

These lists indicate that respondents had a distinct preference for maintaining independence, dignity, and harmony at work despite challenges. "Work well with others" was the most commonly listed item across all top 10 lists, and it was also the item that received the most #1 rankings. Related items such as "teach and learn from others on the job," "possess a positive attitude towards work," and "demonstrate highly developed social skills," demonstrate the value that respondents placed upon building positive relationships with their co-workers and customers.

The unranked list also includes "show respect for the opinions, customs, and individual differences of others," a social skill that did not earn enough high rankings to find a place in the final top 10. The high rankings given to "adapt to change," "manage several tasks at once," "handle conflict maturely," and "function effectively in stressful situations," shows that respondents recognize the necessity of continuing to grow both personally and professionally in the face of obstacles.

Objective 3

Openings being advertised included 8 positions in agriculture education and extension (16%); 7 in veterinary or animal science (14%); and six each 6 in livestock management (12%); agricultural sales, business, and economics (12%); and horticulture, plant science, and natural resources (12%). Five positions were in the field of agricultural communications (10%), 4 were in mechanics, 3 each were in transportation (6%) and food science (6%), and 2 positions were in government or agricultural policy and law (4%). Sample jobs selected included veterinary assistant, cattle ranch manager, florist, biotechnologist, welder, salesperson, FFA camp manager, aquaculturist, social media director, engine mechanic, Congressional lobbyist, and agriculture economist.

Communication skills were the most in demand, with verbal skills being referenced on 33 job opening announcements (66%) and written skills on 21 (42%). One posting specifically sought employees that possessed "effective communication skills, both oral and written," that could

"handle controversial issues with tact and a professional manner." Others stressed "excellent communications and math skills," "the ability to read and follow written and oral instructions," "the ability to read and write very well," and being able to "communicate with co-workers and the public." Skills such as teamwork, cooperation, and attitude were also highly sought after, being listed on 23 (46%) of announcements. In this case, employers wanted people who were "friendly and outgoing," "thoughtful and passionate about [their] work," and able to "work cooperatively with others and follow directions." Other important skills identified in job postings included time management and organization (n = 15, 30%), flexibility and adaptability (n = 11, 22%), working independently and/or without supervision (n = 10, 20%), meeting customer needs (n = 9, 18%), problem and conflict management (n = 8, 16%), learning on the job (*n* = 4, 8%), and personal integrity and responsibility (n = 4, 8%). Job postings sought candidates who could "organize large amounts of information," demonstrate "creativity and flexibility," "work independently as well as be a team player," "learn, implement, and teach new protocols," and be "punctual for every shift, courteous to every guest, and diligent in their duties."

Objective 4

Finally, participants were asked to list ways in which college students like themselves might be able to learn or develop each of their top 10 skills. Many indicated that the regular events of college life could be easily used as a training ground for workforce readiness skills. Table 4 shows some of the most common responses received for each item on the final, ranked top 10 list.

Table 4

Student Suggestions for Development of Workforce Readiness Skills

Workforce Readiness Skill	Student Suggestions
1. Work well with others	Group projects
	Clubs/student organizations
	Social events
	Intramural sports
2. Adapt to change	Change in the classroom (due dates, new projects, different teaching styles etc.)
	Working with new technology
	Trying new things/gaining new experiences
	Learning on the job
3. Work independently	Individual class assignments
	Homework
	Tests
4. Teach and learn from others on the job	Mentor others/receive mentoring
	Allow students to teach
	Group projects
	Tutor others/receive tutoring
	Work part-time while in school

Table 4 (continued)

Student Suggestions for Development of Workforce Readiness Skills

Workforce Readiness Skill	Student Suggestions
5. Manage several tasks at once	Take several classes in one semester
	Managing due dates
	Work part time while in school
6. Possess a positive attitude towards work	Positive classroom atmospheres
	Offer incentives for students to work hard
	Group projects
	Keeping a positive attitude in life
7. Handle conflict maturely	Conflict during group projects
	Debate and discussion activities
	Problem-solving activities/workshops
	Disagreements with professors or classmates
8. Demonstrate highly developed social skills	Structured social events
	Activities requiring communication and collaboration
	Public speaking activities
	School promotion activities (tour guide, etc.)
9. Function effectively in stressful situations	Class deadlines and due dates
	Timed tests/assignments
	Managing school, work, and life
	Exposure to new or uncomfortable situations
10. Possess self-discipline, including punctual attendance and reliability	Required attendance to class
	Rewarding students for continued punctuality/attendance
	Managing school, work, and life

Conclusions

Results were mostly concurrent with previous studies exploring student and employer perceptions of workforce readiness skills. The importance of key traits such as the ability to solve problems and work independently, function on a team, communicate with others, think critically, and relate with clients and co-workers have been stressed numerous times across varying career fields (Billing, 2003; Landrum & Harrold, 2003; Landrum et al., 2010; Robinson & Garton, 2008; Schmidt, 1999). This indicates that participants had at least some understanding of the competencies that are required in the modern workplace.

It is interesting to note the differing levels of importance that employers and respondents placed upon communication skills. These skills were the most frequently requested by employers and appeared in well over half of the analyzed job announcements, but they were viewed as less important by respondents. "Demonstrate highly developed social skills," "receive and use both

positive and negative feedback," and "present information verbally to others" all made the first, unranked top 10 list, but they placed relatively low, with the first being #6 and the latter two tying for #10. Of these skills, only "demonstrate highly developed social skills" made the final, ranked top 10 list, receiving the #8 place.

Verbal communications skills also provided the greatest example of a disparity between participant perceptions of skill importance and competence. Even though participants believed that the communication-related items "demonstrate highly developed social skills," "receive and use both positive and negative feedback," and "present information verbally to others," were some of the most important workforce readiness skills to possess in Section II of the questionnaire, these same items all received consistently lower competence ratings in Section I. In other words, survey participants saw value in speaking effectively to others, but they saw themselves as unable to do it well.

No written communication skills made either top 10 list, which indicates that universities may not be doing enough to stress the value of functional, work-related communication such as formal reports, letters, emails, and memos. Written communication items also received extremely low competence ratings overall, with the ability to "write formal reports and business correspondence" receiving the lowest competence ranking of all.

When considering competency areas other than communications, students and employers were able to find more common ground. Just under half of the job announcements used in this study sought applicants who could demonstrate such behaviors as friendliness, cooperation, passion, and teamwork while on the job. Not only did students report high levels of competence regarding these attributes, they also included them frequently on their top 10 lists of most important workforce readiness skills.

Employers also sought applicants who were organized, flexible, independent, and capable of learning on the job. Students rated themselves as particularly able to work independently and/or without supervision, and ranked it quite highly in importance as well. Students also indicated they felt highly competent in their ability to teach and learn from others in the workplace, a construct that was also ranked highly on many top 10 lists. Finally, while students reported slightly lower competence levels in the areas of organization, flexibility, and response to stressful or changing situations, they still recognized the value of such skills by including them as some of the most important. Indeed, the final top 10 list generated from all responses is largely made up of these core competencies, which indicates that on many counts both students and employers recognize the same attributes as being vital to workplace success.

Recommendations

It is recommended that agriculture educators of all levels assess their students' perceptions of career readiness in some manner. This information can help educators better design their agricultural education programs and courses with career-based outcomes in mind. It can also assist educators in recognizing what skills students possess or lack, and ways in which weaker skills might be strengthened. Participants in the study frequently mentioned group work, presentations, in-class debates, and public speaking as common methods through which behavioral skills are practiced. However, educators can expand upon these ideas by creating lessons and activities that require students to think in an industry-based setting. For example, if writing is a weakness (as it was in this study), a teacher might identify examples of writing or correspondence that are actually used in a particular agricultural industry and have students practice constructing and editing such documents. Educators should also create lessons that require students to think critically while

gathering evidence, constructing arguments, making decisions, and solving problems in an industry-specific context. A possible activity might include asking students to perform their own research about industry needs and writing recommendations for students like themselves. Of course, classroom activities need not be limited to behavioral skills; rather they should be expanded to include specific capital skills that are tailored to students' career goals and local industries' needs if possible.

Educators and students are also recommended to develop positive relationships with local industry employees and employers. Educators can use personal relationships to gain insight into current industry trends and demands, and provide students with firsthand accounts of working life via guest lectures, field trips, or interviews. Students who build relationships with industry personnel can benefit from the internships, job openings, recommendations, and other learning opportunities that are offered to those with industry connections.

It is also recommended that agricultural educators help their students to recognize ways in which behavioral skills can be developed or exercised in everyday life. Study participants recommended joining clubs or sports teams, building relationships with classmates, and mentoring or tutoring others as ways to accomplish these goals. Participating in community-engaged learning activities, club competitions, and Supervised Agricultural Experience (SAE) programs are also other possibilities, as is taking on a leadership role in any of these opportunities.

Further research in this area is also recommended so that more specific career needs can be identified. American agriculture is a very broad industry, and it is possible that certain sectors may require or prefer some workforce readiness skills above others. Further research could also be performed to discover the workforce readiness competencies of students in other areas of the United States. This study investigated students from a Southern state, and Robinson and Garton (2008) examined students from the Midwest/South. It is possible that students (or employers) from different areas of the country may view or value the examined competencies in a different manner. Finally, it is recommended that this study be repeated with a larger sample of students from agricultural degree programs.

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