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Falling Short?

College Learning and Career Success

*Hart Research Associates
Washington, DC*

- A Reprint



Abstract

Employers overwhelmingly endorse broad learning as the best preparation for long-term career success. They believe that broad learning should be an expected part of college for all students, regardless of their chosen major or field of study. When hiring recent college graduates, employers say they place the greatest priority on a demonstrated proficiency in skills and knowledge that cut across majors. Written and oral communication skills, teamwork skills, ethical decision-making, critical thinking skills, and the ability to apply knowledge in real-world settings are the most highly valued among the 17 skills and knowledge areas tested. Employers broadly endorse an emphasis on applied learning in college today. They believe that engaging students in applied learning projects would improve learning and better prepare them for career success. College students agree with employers on the career value of broad learning and cross-cutting skills. Employers are more likely than college students to see room for colleges and universities to improve in ensuring graduates possess the full set of skills and knowledge needed for success. Many employers feel that college graduates are falling short in their preparedness in several areas, including the ones employers deem most important for workplace success. College students are notably more optimistic about their level of preparedness across learning outcomes, however. Employers say that, when evaluating a job candidate, it would be helpful for them to have access to an electronic portfolio summarizing and demonstrating the individual's accomplishments in key skill and knowledge areas, in addition to a résumé and college transcript.

Methodology

From November 3 to 11, 2014, Hart Research Associates conducted an online survey on behalf of the Association of American Colleges and Universities among 400 employers whose organizations have at least 25 employees and report that 25% or more of their new hires hold either an associate degree from a two-year college or a bachelor's degree from a four-year college. Respondents are executives at private sector and non-profit organizations, including owners, CEOs, presidents, C-suite level executives, and vice presidents.

The objective of the survey is to understand which learning outcomes employers believe are most important to acquire to be able to succeed in today's economy, how prepared they believe recent college graduates are in these areas, and employers' feelings about the importance of applied and project-based learning in college.

In addition, from November 13 to December 3, 2014, Hart Research conducted an online survey among 613 college students. Respondents included 455 four-year college seniors (304 at public colleges and 151 at private colleges) and 158 community college students who plan to receive their associate degree or transfer to a four-year college within the next 12 months. This survey explored many of the same topics as the survey of employers in order to provide a comparative perspective among college students.

This report highlights selected findings from both the research among employers and the survey of current college students. A report that highlights additional findings from the employer survey related to global learning will be available in the future.

Seven Key Findings

Results of the survey lead to seven key findings which we present.

Key Finding 1: Employers overwhelmingly endorse broad learning as the best preparation for long-term career success. They believe that broad learning should be an expected part of college for all students, regardless of their chosen major or field of study.

The majority of employers think that having both field-specific knowledge and skills and a broad range of skills and knowledge that apply to a variety of fields is important for recent college graduates to achieve long-term career success at their company. Just 15% think it is more important to have knowledge and skills that apply to a specific field or position, while 25% think it is more important to have a range of skills and knowledge across a variety of fields. Three in five (60%) employers think it is most important to have both (Table 1). This is up slightly from 55% of employers who felt this way nearly two years ago. College students are aligned with

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Table 1: Three in five employers believe that it takes BOTH specific knowledge/skills and broad knowledge/skills to achieve long-term career success.

Which is more important for recent college graduates to have who want to pursue advancement and long-term career success at your company?	
Knowledge and skills that apply to a specific field or position	15 %
Range of knowledge and skills that apply to a range of fields or positions	25%
Both field-specific and broad range of knowledge and skills	60%
College Students:	%
Specific	15%
Both	63%
Broad range	22%

Table 3: Learning Outcomes Four in Five Employers Rate as Very Important*

The ability to effectively communicate orally	85%
The ability to work effectively with others in teams	83%
The ability to effectively communicate in writing	82%
Ethical judgment and decision making	81%
Critical thinking and analytical reasoning skills	81%
The ability to apply knowledge and skills to real-world settings	80%

*Proportion of employers who rate each outcome an 8,9, or 10 on a zero-to 10 scale

Table 2: Employers are in broad agreement on college learning outcomes for all students, regardless of their chosen field of study.*

	Strongly Agree	Somewhat Agree	Total Agree	Students Total Agree
All college students should have educational experiences that teach them how to solve problems with people whose views are different from their own	59%	37%	96%	94%
All college students should gain an understanding of democratic institutions and values	32%	55%	87%	85%
Every college student should take courses that build the civic knowledge, skills, and judgment essential for contributing to our democratic society	33%	53%	86%	86%
Every college student should acquire broad knowledge in the liberal arts and sciences	29%	49%	78%	83%
All college students should gain intercultural skills and an understanding of societies and countries outside of the United States	21%	57%	78%	87%

* Agreement among employers with statements about aims of college learning regardless of student's chosen field of study.

employers on this question, with 63% believing it is most important for recent college graduates to achieve both field-specific and cross-cutting skills and knowledge.

Additionally, there is broad agreement among employers that all students, regardless of their chosen field of study, should gain broad learning across areas including 1) problem solving with people who have differing views, 2) democratic institutions and values, 3) civic capacity, 4) liberal arts and sciences, and 5) intercultural skills (Table 2).

Nearly all employers (96%) agree that, regardless of their chosen field of study, all students should have experiences in college that teach them how to solve problems with people whose views are different from their own, including 59% who strongly agree with this statement. Large proportions of employers also agree that that all students, regardless of their chosen field of study, should gain an understanding of democratic institutions and values (87%), take courses that build the civic knowledge, skills, and judgment essential for contributing to a democratic society (86%), acquire broad knowledge in the liberal arts and sciences (78%) and gain intercultural skills and an understanding of societies outside the United States (78%). While the proportion of employers who strongly agree that each of these should be outcomes of college learning is slightly lower than for learning how to solve problems with diverse peers, agreement spans most of the employers surveyed.

There are similarly broad levels of agreement among students that all college students, regardless of their major, should gain broad knowledge across these areas.

Key Finding 2: When hiring recent college graduates, employers say they place the greatest priority on a demonstrated proficiency in skills and knowledge that cut across majors.

Written and oral communication skills, teamwork skills, ethical decision-making, critical thinking skills, and the ability to apply knowledge in real-world settings are the most highly valued among the 17 skills and knowledge areas tested.

Employers were asked to rate how important it is that recent college graduates they are hiring demonstrate proficiency in 17 different skill and knowledge areas. Employers make some clear distinctions in the priority they place on certain learning outcomes relative to others.

College learning outcomes employers deem most important:

Demonstrated proficiency in the cross-cutting skills related to communication, teamwork, ethical decision-making, critical thinking, and applying knowledge in real-world settings rank as employers' top priorities when hiring. At least four in five employers rates each one as very important (a rating of eight, nine, or 10 on a zero-to-10 scale) (Table 3).

College learning outcomes of moderate importance to employers:

Other learning outcomes that are close behind in importance include capacities to problem solve, locate and evaluate information from multiple sources, innovate, and stay current on changing technologies (Table 4). Nearly as many say that the ability to work

Table 4: Learning Outcomes More Than Half of Employers Rate as Very Important*

The ability to analyze and solve complex problems	70 %
The ability to locate, organize, and evaluate information from multiple sources	68%
The ability to innovate and be creative	65%
Staying current on changing technologies and their applications to the workplace	60%
The ability to work with numbers and understand statistics	56%
The ability to analyze and solve problems with people from different backgrounds and cultures	56%

*Proportion of employers who rate each outcome an 8, 9, or 10 on a zero-to-10 scale

Table 5: Learning Outcomes Less than Two in Five Employers Rate as Very Important*

Awareness of and experience with diverse cultures and communities within the United States	37%
Staying current on developments in science	26%
Staying current on global developments and trends	25%
Awareness of and experience with cultures and societies outside of the United States	23%
Proficiency in a language other than English	23%

*Proportion of employers who rate each outcome an 8,9, or 10 on a zero-to-10 scale

with numbers and understand statistics and the ability to analyze and solve complex problems with people from different backgrounds and cultures are very important.

College learning outcomes of less importance to employers:

Employers rate proficiency in areas related to awareness of and experience with cultures both inside and outside the United States, staying current on global trends and developments, and staying current on developments in science, as notably less important when compared with the other learning outcomes tested. (Table 5) While employers may endorse all college students having educational experiences that teach them about some of these areas (as seen in Table 1), they clearly do not view them as being as critical to career success as cross-cutting skills and other skill and knowledge areas.

While employers say that both cross-cutting skills and field-specific skills and knowledge are important, they prioritize key skills over a candidate’s major. Indeed, employers nearly universally agree that to achieve success at their companies, a candidate’s demonstrated capacity to think critically, communicate clearly, and solve complex programs is more important than his or her undergraduate major (91% totally agree; 57% strongly agree).

Key Finding 3: Employers broadly endorse an emphasis on applied learning in college today.

Employers believe that engaging students in applied learning projects would improve learning and better prepare them for career success.

Employers see great value in applied learning, and they indicate

that there is room to improve college graduates’ preparedness in this area. Fully 80% of employers say that during the hiring process it is very important to them that recent college graduates demonstrate the ability to apply learning in real-world settings. Yet, as is described in Section 5 of this report, just 23% of employers say that recent college graduates are well prepared when it comes to having the ability to apply knowledge and skills in real world settings and 44% rate them as not that or not at all prepared.

Employers believe that requiring students to complete a significant applied learning project in college would improve both the quality of learning and the quality of graduates’ preparation for careers: 70% of employers think that it would improve the quality of college learning a lot (28%) or a fair amount (42%). Seventy-three percent of employers believe that it would improve the quality of graduates’ preparation for work a lot (30%) or a fair amount (43%).

Fully 60% of employers think that ALL college students should be expected to complete a significant applied learning project before they graduate, while 40% believe that only some students should be required to do so. And fully 88% of employers think that it is important (47% very important, 41% fairly important) for colleges and universities to ensure that ALL students are prepared with the skills and knowledge required to complete a significant applied learning project. Yet just 14% of employers think that most of today’s college students are prepared with the skills and knowledge needed to complete a significant applied learning project before graduation, while another 53% think about half of them are prepared.

Employers generally value graduates’ completion of various applied and project-based learning experiences, indicating that their company would be more likely to consider hiring a recent college graduate if the individual had engaged in these types of experiences. When it comes to considering a job candidate, employers value completion of an internship or apprenticeship most among the applied and project-based learning experiences tested. Nearly all employers say they would be more likely to consider hiring a recent college graduate who had completed an internship or apprenticeship, including three in five (60%) who say their company would be much more likely to consider that candidate (Table 6).

Table 6: Employers say they are more likely to consider hiring recent college graduates who have completed an applied learning or project-based learning experience.

How much more likely your company is to consider hiring a recent college graduate if they have had this experience, completed this course?	Much more likely to consider	Somewhat more likely to consider	Total on likely to consider
Internship/apprenticeship with company/organization	60%	34%	94%
Senior thesis/project demonstrating knowledge research, problem -solving communication skills	39%	48%	87%
Multiple courses involving significant writing	27%	54%	81%
Research project done collaboratively with peers	24%	56%	80%
Service-learning project with community organization	21%	48%	69%
Field project in diverse community with people from different background/culture	22%	44%	66%
Study abroad program	13%	38%	51%

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Large majorities of employers indicate that a recent graduate's completion of various other types of applied and engaged learning experiences — such as a comprehensive senior project, a collaborative research project, a field-based project with people from other backgrounds, or a community-based or service learning project — would also positively influence their hiring decision. Nonetheless, with no more than 39% who say any of these would make them much more likely to consider that individual as a job candidate, these learning experiences all rank behind an internship or apprenticeship in their ability to influence hiring decisions.

Underscoring the importance, they place on written communication skills when hiring, four in five employers also say they would be more likely to consider an individual as a job candidate if he or she had completed multiple courses that require significant writing assignments.

Key Finding 4: College students agree with employers on the career value of broad learning and cross-cutting skills.

Students largely agree with employers on the importance of various learning outcomes for workplace success, ranking cross-cutting skills of communication, teamwork, ethical decision-making, critical thinking, and applying knowledge in real-world settings as more important than other learning outcomes (Table 7).

Interestingly, the only notable differences between employers and college students are in the areas that employers rate as relatively less important: students believe them all to be more important than employers do for recent college graduates' success in the workplace. The gap is most notable when it comes to the perceived importance of, awareness of, and experience with diverse cultures both inside and outside the United States, and staying current on developments in science.

Students also agree with employers that applied learning experiences are important preparations for career success (Table 8). College students recognize that internships and other applied and project-based learning experiences can give a recent graduate an edge when applying for a job. Large majorities of students think that an individual's completion of each of these college learning experiences will cause an employer to be more likely to consider them as a job candidate.

Table 7: Employers and College Students Rate the Importance of College Learning Outcomes*

	Employers	College Students
The ability to effectively communicate orally	85%	78%
The ability to work effectively with others in teams	83%	77%
The ability to effectively communicate in writing	82%	75%
Ethical judgment and decision-making	81%	74%
Critical thinking and analytical reasoning skills	81%	79%
The ability to apply knowledge and skills to real-world settings	80%	79%
The ability to analyze and solve complex problems	70%	73%
The ability to locate, organize, and evaluate information from multiple sources	68%	73%
The ability to innovate and be creative	65%	69%
Staying current on changing technologies and their applications to the workplace	60%	68%
The ability to work with numbers and understand statistics	56%	55%
The ability to analyze and solve problems with people from different backgrounds and cultures	56%	71%
Awareness of and experience with diverse cultures and communities within the United States	37%	58%
Staying current on developments in science	26%	49%
Staying current on global developments and trends	25%	49%
Awareness of and experience with cultures and societies outside of the United States	23%	46%
Proficiency in a language other than English	23%	35%

*Proportion of employers and students who rate each outcome an 8,9, or 10 on a zero-to-10 scale

Table 8: Students Agree with Employers on the Value of Applied Learning Experiences*

	Employers	College Students
Internship/apprenticeship with company/organization	94 %	95 %
Senior thesis/project demonstrating knowledge, research, problem-solving, and communication skills	87 %	89 %
Multiple courses involving significant writing	81 %	76 %
Research project done collaboratively with peers	80 %	82 %
Service-learning project with community organizations	69 %	85 %
Field project in diverse community with people from different backgrounds/cultures	66 %	87 %
Study abroad program	51 %	71 %

*Proportion of employers and students who say a company would be more likely to consider hiring a recent college graduate if they have had this experience

Two learning experiences that current students are more likely to think employers will value than employers say they do include completion of a field project in a diverse community with people from different backgrounds, and completion of a study abroad program.

Key Finding 5: Employers are more likely than college students to see room for colleges and universities to improve in ensuring graduates possess the full set of skills and knowledge needed for success.

The majority of employers feel that colleges and universities must make improvements to ensure graduates' workplace success. Fully 58% think improvements are needed to ensure that graduates gain the skills and knowledge needed to succeed in entry-level positions at their company, while 42% think they are doing a good job. And an even larger proportion (64%) think that improvements are needed to ensure that graduates have the skills and knowledge needed to advance within their company (Table 9).

There is a clear gap between employers' impressions and students' more optimistic views on these measures, however. College students give their colleges notably higher marks: 74% think they are doing a good job preparing graduates with the skills/knowledge needed for entry-level positions, and 64% express satisfaction with their college's efforts toward ensuring that

graduates achieve the learning outcomes needed for advancement.

While some employers see room for colleges and universities to improve in terms of ensuring that graduates achieve both field-specific and cross-cutting knowledge and skills, they are nearly twice as likely to feel that there is a need for improvement in helping graduates gain cross-cutting skills and knowledge (81%) than in ensuring they gain field-specific skills and knowledge (48%). (Overall, 14% of employers think colleges and universities need to improve more in ensuring field-specific learning outcomes, 47% think they need to improve more in ensuring cross-cutting learning outcomes, and 34% of employers think equal amounts of improvement are needed in both; just 5% think neither area needs improvement) (Table 10).

Overall, 62% of college students think their college or university needs to improve in ensuring that graduates gain a range of knowledge and skills that apply to a variety of fields, while 52% think they need to improve in ensuring graduates gain knowledge and skills in a specific field. This includes 31% who think both areas are in need of improvement, 31% who think more improvement is needed in ensuring cross-cutting skills/knowledge, and 21% who think more improvement is needed in ensuring field-specific skills/knowledge. Seventeen percent (17%) of students do not think their college needs to improve in either area.

Key Finding 6: Many employers feel that college graduates are falling short in their preparedness in several areas, including the ones employers deem most important for workplace success. College students are notably more optimistic about their level of preparedness across learning outcomes.

Employers' ratings of recent college graduates' preparedness across the same 17 learning outcomes discussed earlier in this report reveal room for improvement across the board. (Table 11) Even in the areas in which employers rate recent graduates as most prepared, less than two in five rate them as well prepared (a rating of eight, nine, or 10 on a scale from zero to 10).

When it comes to the types of skills and knowledge that employers feel are most important to workplace to success, large majorities of employers do NOT feel that recent college graduates are well prepared. This is particularly the case for applying knowledge and skills in real-world settings, critical thinking skills, and written and oral communication skills — areas in which fewer than three in 10 employers think that recent college graduates are well prepared. Yet even in the areas of ethical decision-making and working with others in teams, many employers do not give graduates high marks.

Table 9: Employers are more likely than students to think improvements are needed to ensure college graduates gain the skills and knowledge needed for success.

How well are colleges and universities doing in ensuring that college graduates possess the full set of skills and knowledge that they will need for success in this?

	Doing good job	Needs Minor improvement	Needs Moderate improvement	Needs Major improvement	Total Improvement needed
Employers- Entry-level positions	42%	7%	38%	13%	58%
Students- Entry-level positions	74%	6%	16%	4%	26%
Employers- Advancement/Promotion	36%	9%	41%	14%	64%
Students- Advancement/Promotion	64%	10%	20%	6%	36%

Table 10: Top Priorities for Improvement

In which area do you think colleges and universities need to improve more?	Employers		Students	
	Employers	Students	Employers	Students
Ensure college graduates gain knowledge and skills that apply to a specific field or position	14%	21%		
Equal amount of improvement needed in both areas	34%	31%		
Ensure graduates gain range of knowledge and skills that apply to a range of fields or positions	47%	31%		
Neither area needs improvement	5%	17%		

Table 11: Employers give college graduates low scores for preparedness across learning outcomes; students think they are better prepared. *

	Employers	Students
Working with others in teams	37%	64%
Staying current on technologies	37%	46%
Ethical judgement and decision making	30%	62%
Locating, organizing, evaluating information	29%	64%
Oral communication	28%	62%
Working with numbers/statistics	28%	55%
Written communication	27%	65%
Critical/ analytical thinking	26%	66%
Being innovative/creative	25%	57%
Analyzing/solving complex problems	24%	59%
Applying knowledge/skills to real world	23%	59%
Awareness/experience of diverse cultures in US	21%	48%
Staying current on developments in science	21%	44%
Working with people from different backgrounds	18%	55%
Staying current on global events	18%	43%
Proficient in other language	16%	34%
Awareness/experience of diverse cultures outside of US	15%	42%

*Proportions saying they/recent college graduates are well prepared in each area; Proportion of employers and students who rate each outcome an 8,9, or 10 on a zero-to-10 scale

There is a notable gap between college students' feelings about their level of preparedness across key learning outcomes and employers' assessment of recent college graduates. Majorities of college students feel that their college has prepared them well in 11 of the areas. Even for categories for which fewer than half of college students feel their college has prepared them well, students are notably more optimistic about their preparedness than employers are about the readiness of recent graduates in these areas.

Key Finding 7: Employers say that, when evaluating a job candidate, it would be helpful for them to have access to an electronic portfolio summarizing and demonstrating the individual's accomplishments in key skill and knowledge areas, in addition to a résumé and college transcript.

Fewer than half of employers say that they find the college transcript very (9%) or fairly (36%) useful in helping them to evaluate job applicant's potential to succeed at their company. A notably higher 80% of

Falling Short?

Table 12: Most employers say they would find e-portfolios useful.

Employers: How useful do you find/would you find this in helping you evaluate job applicants'/recent college graduates' potential to succeed at your company	Very Useful	Fairly useful	Total on being useful
College Transcript	9%	36%	45%
Electronic portfolio of student work summarizing and demonstrating accomplishments in key skill and knowledge areas	36%	44%	80%

employers say that it would be very (36%) or fairly (44%) useful to be able to see an electronic portfolio of student work that summarizes and demonstrates a candidate's accomplishments in key skill and knowledge areas (e.g. effective communication, knowledge in their field, applied skills, evidence-based reasoning, and ethical decision-making) (Table 12).

Summary

The majority of employers continue to say that possessing both field-specific knowledge and a broad range of knowledge and skills is important for recent college graduates to achieve long-term career success. Very few indicate that acquiring knowledge and skills mainly for a specific field or position is the best path for long-term success. Notably, college students recognize the importance of having both breadth and depth of skills and knowledge for their workplace success.

Echoing findings from previous Hart Research employer surveys, employers say that when hiring, they place the greatest value on demonstrated proficiency in skills and knowledge that cut across all majors. The learning outcomes they rate as most important include written and oral communication skills, teamwork skills, ethical decision-making, critical thinking, and the ability to apply knowledge in real-world settings. Indeed, most employers say that these cross-cutting skills are more important to an individual's success at their company than his or her undergraduate major. However, employ-

ers feel that today's college graduates are not particularly well prepared to achieve the learning outcomes that they view as important. This critique applies to all of the 17 learning outcomes tested, including the cross-cutting skills that employers highly value. Employers value the ability to apply learning in real-world settings and

broadly endorse an emphasis on applied learning experiences in college today. Eighty-eight percent think that it is important for colleges and universities to ensure that all students are prepared with the skills and knowledge needed to complete an applied learning project. Seventy-three percent think that requiring college students to complete a significant applied learning project before graduation would improve the quality of their preparation for careers. Sixty percent think that all students should be expected to complete a significant applied learning project before graduating.

Large majorities say they are more likely to consider a job candidate who has participated in an internship, a senior project, a collaborative research project, a field-based project in a diverse community setting with people from different backgrounds, or a community-based project. College students are closely aligned with employers on the importance of key learning outcomes, and, like employers, they believe that applied learning experiences are an important preparation for career success.

College students are notably out of sync with employers in their perception of their preparedness on a wide range of skills and knowledge areas, however, students express much greater confidence in their level of preparedness in all areas than employers indicate they see demonstrated.

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An Applied International Equine Experience Benefits Employability Skills in Undergraduate Students¹

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Abstract

Applied international experiences benefit students in many ways and possibly contribute to skills deemed important by employers. The objective of this study was to determine specific skillsets gained by undergraduate students during an applied equine international experience from both student and employer perspectives. Eight students were selected to conduct horse management seminars in an international setting. Students completed a reflection where they reported experience with a new culture, becoming more global and marketable, communication skills, credibility and responsibility as useful components of the impending trip. A student reflection suggested communication, problem solving and teamwork as the top skills enhanced as a result of the international experience. Current employers of graduated students who participated in the trip reported that those employees were good team players, possessed excellent public speaking skills, worked well in a diverse group and were good problem solvers. An applied international equine program had student and employer perceived advantages for soft skill development and enhancement. International programs offer varied experiences to students; a more concrete description of the advantages of applied international programming would be useful to assist job seekers with illustrating the benefits of an international experience and support university programs when justifying and promoting international programming.

Introduction

Preparing graduates with specific skills necessary for success in the workplace is a common goal of all university programs. Most skills necessary for success in the workplace might be specific to each discipline, but many soft skills are valued by most employers, including communication, problem solving, being a team player and leadership skills (Crawford et al., 2011). Certainly equine programs are interested in graduating competent students who not only possess the technical equine knowledge and hands-on experience required for entry

level jobs, but that also possess important soft skills highly sought after by employers.

Equine students are increasingly crossing borders and seeking experience in their chosen field through international networks as evidenced by the large number of international equine experience programs at universities across the globe. Employers are interested in hiring personnel with experience related to cultural issues and managing international relationships (Ledwith and Seymour, 2001; Earley et al., 2006; Crossman and Clarke, 2010). Yet employers are hesitant to rank international experiences very high in importance when evaluating potential employees compared to other important soft skills like communication, problem solving and leadership skills (Crawford et al., 2011). Even though this disparity remains, university programs recognize that striving to make their students global is essential in an effort to make graduates marketable (Acker and Scanes, 2000; Moore et al., 2009; Rowan-Kenyon and Niehaus, 2011).

For university equine programs, the key to a successful international program is being able to quantify the benefit a student receives as a result of the experience and specifically how the experience will benefit the student once they are in the workplace. Identifying the benefit of an international experience or program will help to justify the tremendous funds required to conduct such programs, assist administrators when assessing curriculum and can assist employers with understanding the benefits derived from an international experience when evaluating potential employees. Therefore, the objective of this study was to determine specific skillsets gained or enhanced by undergraduate students during an applied international experience.

Methods

This study was deemed exempt by the NMSU Institutional Review Board (IRB). Eight female students from New Mexico State University were selected based on their horse knowledge and public speaking ability

¹Travel and accommodations for clinicians were provided by the American Quarter Horse Association, Aggies Go Global and Cuarto de Milla Paraguay.

Table 1. Horse management topics covered by NMSU clinicians in Paraguay as a part of an interactive international experience. Seminar topics were decided with assistance from Paraguayan horsemen to meet their needs. Students prepared seminars and clinics in small groups with the assistance of the faculty advisor for the international trip then delivered them in country at Expo Paraguay.

Form to Function	Horse Behavior
First Aid	Aging Horses by Teeth
Functionality of Bits	Genetics
Ranch Horse Management	Nutrition
Exercise Physiology	Coat Color
Halter Breaking	Groundwork

through interviews to conduct horse management seminars and clinics. All students were majoring or minoring in animal science with an emphasis in equine science at New Mexico State University.

Preparation Before the International Experience

Through an industry grant, a basic horse science curriculum was created that covered twelve pertinent topics for the horse industry and horse production in Paraguay to be delivered during an international agricultural exposition at Expo Paraguay. Seminars and clinics on basic horse management and training the young horse were prepared in advance of the trip. Topics were synthesized with the help of the university students responsible for delivering information and the Paraguayan horsemen they would teach to be relatable to that specific industry. Students were required to use their knowledge of the equine industry in the United States coupled with research they conducted regarding the equine industry in South America to complete their seminars with help from equine faculty. Students worked in teams of 2-3 to prepare seminars and clinics and deliver them once in country. Topics that were covered are presented in Table 1.

To include a reflection as suggested by Jones and Bjelland (2004), students were asked to brainstorm and create a list of positive skillsets that could be gained from their international experience during preparation time.

During the International Experience

Students conducted clinics and seminars about basic horse management and training for fifty Paraguayan horsemen over a 7-day period. Students were assisted by multiple interpreters and delivered information in a classroom setting, hands-on with horses in the arena and on-site of several local equine facilities. Students interacted with Paraguayan horsemen throughout the trip and were immersed in the culture, attending several local events. Students began the day with a coaching session from the faculty leader for the trip, conducted seminars or clinics throughout the morning, toured facilities and taught on-site in the early afternoon, then spent the rest of the

day immersed in the culture, while practicing for the following day’s clinic at the culmination of each day. All students contributed to a journal for reflection and a blog to keep family and friends at home apprised of the trip. In addition to group seminars, students had the opportunity to work with horsemen in a one-on-one fashion to understand the needs of each individual producer and help design producer specific strategies for improvement in horse management.

After the International Experience

Four months after students returned from the international trip, they were asked to elaborate on their positive and negative experiences and specific skills gained or enhanced that have been useful since the trip as a form of reflection. The analysis was conducted four months after the international trip because researchers wanted to know if the students were using skills learned or enhanced from the trip in everyday life. Four months was chosen to be short enough of a time period that students would still remember the international trip and long enough that any habits or behaviors currently exhib-

Figure 1. Questionnaire given to students four months after returning from an international experience in Paraguay. Questionnaire was distributed via email and returned in the same manner.

1. What are you doing now? Still a student? Working? If working, please describe what you do and where you work.
2. What is your best memory from the international trip to Paraguay?
3. What is your least favorite memory from the international trip to Paraguay?
4. What do you wish you had known before you left for Paraguay? What would have been most helpful for to get prepared for an international trip? (more than 1 response is okay)
5. How will this trip impact your future?
6. What skills did you gain from the experience that are helpful to you now, or might be helpful in your future career? Please elaborate on the experience you had and its impact on the specific skills listed and feel free to add in additional skills not on this list.
 - a. Communication Skills
 - b. Leadership Skills
 - c. Problem Solving Skills
 - d. Teamwork Skills
 - e. Other Skills
7. Please indicate how the international trip to Paraguay ranks among the following factors on a scale of 1 to 5 where 5 is the highest.

	5	4	3	2	1	
	Useful	○	○	○	○	Not Useful
Good experience	○	○	○	○	○	Bad experience
Important for my future	○	○	○	○	○	Not important for my future
Time well spent	○	○	○	○	○	Time wasted
Developed important skills	○	○	○	○	○	No skill development

Figure 2. List of phone interview questions asked of employers of students who participated in an international experience in Paraguay. The interview was conducted in a semi-structured interview style by the same person for each employer.

1. What is (name of student)’s job title? How long has (name of student) held that position/worked for your company?
2. What are (name of student)’s primary responsibilities as your employee?
3. Where you aware that (name of student) participated in an international trip to Paraguay in July of this year?
4. Do you consider an international experience in college an important experience for potential employees of your company?
4. Can you please comment on (name of student)’s abilities as observed at work regarding the following skills:
 - a. Communication Skills?
 - b. Leadership Skills?
 - c. Problem Solving Skills?
 - d. Teamwork Skills?
 - e. Other Skills that you deem important to complete the job (name of student) has at your company?
5. Is there anything else I should know about (name of student)’s employment?

ited and attributed to the international trip are rooted in everyday behavior. The reflection period (Kolb, 1948; Roberts, 2006) was conducted via personal email correspondence with the faculty leader from the international experience. Students were asked to fill out a questionnaire and elaborate on their experiences (Figure 1). Current employers of graduated students (n=6) were contacted by phone six months after the trip for an interview by the faculty lead to determine usefulness of the skills gained from the international experience to the student's progress as employees. Interviews were conversational in nature, but specific questions were asked to elucidate employer perception of those specific employees. A list of questions asked of the employers is reported in Figure 2.

Results and Discussion

Data was analyzed using Microsoft Excel and is discussed using descriptive statistics.

Before the International Experience

Prior to taking the international trip, students completed a brainstorming session and all contributed to a word cloud written on the blackboard. The student created word cloud (Figure 3) revealed several factors as useful to their future employment, including: becoming more global and marketable, experience with a new culture, communication skills, credibility and responsibility. Students surmised that experience with a new culture equated to their becoming more well-rounded and global. Students thought communication skills would be enhanced through disseminating important information both one-on-one and in a large group setting to Paraguayan horsemen who were eager to learn. Certainly students were proud to have been selected for the trip and felt this enhanced their credibility to future employers and they recognized the importance of the material to Paraguayan horsemen and felt a great deal of responsibility to deliver useful information. The students' sense of responsibility was integral in ensuring they were com-

mitted to performing well according to the faculty lead from the experience.

After the International Experience: Student Perception

Four months after returning from Paraguay, students completed a questionnaire (Figure 1) where they detailed the impact of the international trip in several categories with results reported in Table 2 and Table 3. In the Likert response portion of their survey, all students indicated the international trip was useful, a good experience, important for their future, time well spent and helped to develop important skills (Table 2). Students then elaborated on their experiences and skill development. Students (n=8) reported they had opportunities to enhance team-work and communication skills by preparing and coordinating with other students and interacting with a diverse group of people once in country. Students learned multiple ways to communicate with people who spoke alternate languages and several students (n=6) reported learning another language to some degree and sharpening language skills while on the international trip. All students reported the experience helped them to work intimately with someone they did not know and accredited those skills to having to interact with multiple interpreters while on the trip. Students (n=7) recognized the immense patience it took to communicate with horsemen from another country, especially those who didn't speak the same language or possess the same basic knowledge or experience related to the topic. One student reported they had many opportunities to "adapt my teaching style to the group I was teaching to and was forced to step out of my comfort zone." All students reported their improvising skills were tested and ultimately increased, as one student stated: "...when one method of communication wasn't working, I could only try another." Clearly communication skills were tested and enhanced during this interactive immersion experience, which is important since they are regarded as the most important skill set of a potential employee to most employers (Crawford et al., 2011).

Students (n=8) recognized the problem solving skills required to conduct this type of international program as many students indicated that the research they did prior to the trip was helpful, but could not prepare them for some of the hardships Paraguayan horsemen face. Students were required to think critically to address and solve real world problems facing our hosts and indicated that their problem solving skills were heightened. One student reported: "gauging the audience to determine what information would help them best was a difficult task at the beginning of our clinics, but became second nature by the end" another student said "When we were at a site visit, a horseman showed me some fresh cut grass they were feeding and had some questions about best practices for feeding several different horses. I had never seen that type of grass or method of cutting, so several of us worked together in a group to make helpful recommendations that utilized our diverse previous

Figure 3. Student created word cloud detailing perceived benefits from an international experience in Paraguay created prior to traveling abroad.



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experiences.” Development of problem solving skills is paramount since they are deemed the second most important soft skill by potential employers, right behind communication skills (Crawford et al., 2011). Students (n=8) also recognized the substantial teamwork and leadership skills that were developed as a result of the preparation process and time spent conducting clinics in country. The immersion in the project and high expectations for the students’ work contributed to each student feeling an obligation to provide accurate and useful

information to people they began to care about according to most students (n=7), which agrees with development of soft skills for undergraduates (Boyce et al., 2001).

All students indicated that they enjoyed working as team to deliver important information to people that had a relationship with and felt a duty to. One student said: *“working with other horsemen who have different experiences than me was challenging and rewording, I learned as much as I taught”* and another stated: *“I was a little intimidated to be teaching alongside other students and I was shy at first. I quickly learned to speak up and contribute, or get left behind. I am so fortunate to have had the opportunity to work with this group of people.”* Another student elaborated: *“working as part of team has new meaning to me after our trip to Paraguay, I experienced first-hand how beneficial we were when we contributed to each other’s ideas and helped each other succeed in an effort to help the Paraguayan horsemen. It was so nice to not be concerned about the grade we would receive from our work, but to be concerned about helping people we cared about. Since we had the opportunity to get to know our hosts so well, we really wanted to do something nice for them and helping them with their horses was the best way for us to help them.”*

All students reported that this system of coaching, high expectations of performance and down-time that allowed them to spend quality time getting to know their hosts was extremely useful and contributed to their success and skill enhancement. All students were grateful to have been selected to travel to and teach in Paraguay and they thought the experience would be helpful to obtain a job in the future and were glad to add the experience to their resume. Most students (n=5) thought the international trip would convey important skills they possessed to their potential employers simply because they participated in the experience and had it listed on their resume. One student clarified: *“I very*

Table 2. Student responses (n=8) from the Likert scale survey questions regarding their perception of an international experience in Paraguay taken four months after returning. Students were asked to rank the experience in each category from 1 to 5 with 5 being the highest possible response for each category.

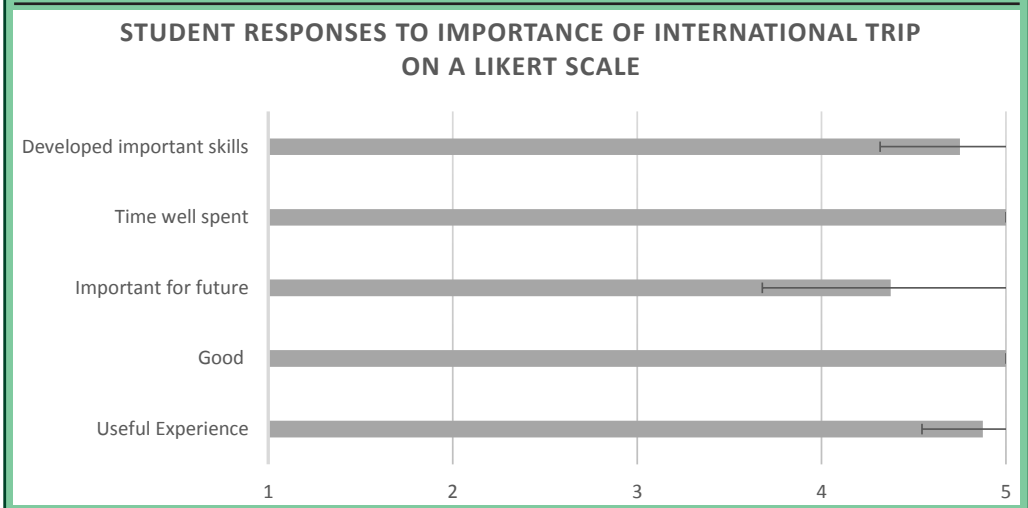


Table 3. Student (n=8) perception of their soft skill development four months after returning from an international trip to Paraguay. Results are reported as frequency of individual student responses for each skill.

Skill	Developed or Enhanced	Not Developed	Not Applicable or Not Reported
Communication	8 (100 %)	0	0
Leadership	8 (100 %)	0	0
Problem Solving	8 (100 %)	0	0
Teamwork	8 (100 %)	0	0
Learning a Language	6 (75 %)	0	2 (25 %)
Improvising	8 (100 %)	0	0
Understanding of and compassion for Paraguayan horsemen	7 (87.5 %)	0	1 (12.5 %)

much enjoyed being part of a diverse group of students and think it will be an asset to me in the future because it shows I can be a team player, responsible for my duties and can communicate well” while another thought *“When you live and work in a foreign country, you are forced to think out of the box and step out of your comfort zone. I think employers will appreciate this experience and it will help my resume to stand out from my peers.”*

After the International Experience: Employer Perception

Six months after the international experience, employers (n=6) were contacted via telephone and a short interview (Figure 2) was conducted to determine overall perception of their new employees’ soft-skills with all results reported in Table 4. Six employers were contacted because only six of the eight students who participated in the international trip had since graduated and gained employment. Five out of the six employers were aware that their employee participated in an international trip the previous summer. Employers reported that their employees who had experienced the international trip were good communicators and team players (n=6), worked well in a diverse group (n=4) and were good problem solvers (n=5). Some employers (n=5) also reported excellent public speaking skills in their employees who had been on the trip. This agrees with previous research that indicated international experiences had a high impact on students’ career skill

Table 4. Employer (n=6) perception of the soft skill ability of their employees who participated as students in the international experience in Paraguay. Employers were surveyed six months after students returned from Paraguay. Six employers were surveyed because only 6 of the students had graduated and were employed six months after the international trip. Results are reported as frequency of individual responses of employers responding for each skill.

	Excellent or Good	Acceptable	Not Acceptable	Not Applicable*
Communication Skills	6 (100 %)	0	0	0
Leadership Skills	1 (17 %)	0	0	5 (83 %)
Problem Solving	5 (83 %)	1 (17 %)	0	0
Team Player	6 (100 %)	0	0	0
Public Speaking Ability	5 (83 %)	1 (17 %)	0	0
Diversity	4 (67 %)	2 (33 %)	0	0

*Most employers (n=5) indicated they had not yet had the opportunity to observe their employees leadership ability.

but for their own pride in a job well done delivering information to people they cared about in a field in which they were very dedicated. Additionally, the model utilized to engage students before, during and after the global experience was successful and followed suggested framework (Roberts et al., 2013).

development (Thompson et al., 2000). Regardless, several employers (n=5) surveyed here reported that an international experience is not high on their list of priorities when interviewing potential employees. One of those five employers did indicate that while an international experience is not one of the top experiences they are looking for in employees, they think that it is “an advantageous experience for a student to have while in college”. This agrees with previous research where international experiences were low on a priority list for hiring employees (Crawford et al., 2011). One employer in that study clarified: *“One ‘experience’ I am seeing on more and more resumes of new grads is trips abroad or student exchanges... I do not hire for international positions nor does my company send employees abroad but I know these experiences can make for a better prepared candidate. I would like to see more students who are able to tell what that experience taught them and how it would make them a better fit for my company and the role they are pursuing”* (Crawford et al., 2011). The international experience itself may not be as important to employers as the many soft skills gained from the experience. While an international experience might not be the most sought after experience for most employers, it has the potential to contribute to all the highest ranking skillsets employers are looking for in potential employees. This revelation makes it more important than ever to qualify the types of skills gained from each international experience and help students package and convey those skills in a useful way when applying for jobs. It is worthwhile to note that none of the employers surveyed here indicated their employees were unacceptable regarding the aforementioned skillsets.

Summary

Students were completely committed to the success of the international trip, specifically because they were integral in preparing materials for conducting the clinics and because the content of the seminars and clinics is directly related to their future career path. Students acted as consultants, using knowledge gained through university curriculum to solve legitimate problems for the Paraguayan horse producers. Students felt a great deal of responsibility to help Paraguayan horseman and worked extremely hard to solve their management problems. Students were deeply invested in performing well not because they were to receive a grade for the trip,

It is widely accepted that international experiences contribute many skillsets that employers deem important, yet the experience as a whole is not considered paramount, specifically ranked the lowest soft skill for desired experience by employers (Crawford et al., 2011). However, the international experience in this study contributed to many of the highest ranking soft skills (communication, problem solving, teamwork). Certainly there are several factors contributing to this confusion, including the varied experiences students have on the many international trips offered through university programs. A more concrete description of the advantages of applied international programming would be useful to assist job seekers with illustrating the benefits of an international experience to potential employers. Additionally, packaging the entire experience as specific soft skills gained or enhanced in an attractive way for potential employers would be beneficial for a student’s resume. This international experience should be highly regarded by potential employers because it developed or enhanced important employability skills (related horse knowledge and experience, teamwork, problem solving and communication skills) in students that researchers have determined are the highest ranked skills of potential employees (Crawford et al., 2011).

Finally, university administrators and international program coordinators need more concrete evidence for the benefit derived from international experiences. Scientifically supported evidence could help to justify the extensive funds required to run successful programs. This information could also help parents and students when considering the risks vs. rewards of including international programming in their collegiate experience.

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How Prepared are Undergraduates for a Career?

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Abstract

An online survey was conducted from 2004 to 2013 to ascertain graduating seniors' perceptions of their career preparedness learning outcomes in the College of Agriculture and Natural Resources (CANR) at Michigan State University. Seniors who participated in the survey perceived that their coursework and departmental/school services contributed moderately to considerably to attaining their learning outcomes and their perceptions of career preparedness improved over the years. Knowledge applicable to their anticipated career path received the highest perception ratings; diversity and computer technology and database research skills received the lowest ratings. Students with research experience felt more prepared for a job, but those with a specialization felt the opposite. Females perceived themselves to be more competent than males in teamwork; students from rural farming backgrounds reported having lower critical thinking, problem-solving and verbal communication skills. Overall, the contribution of undergraduate education to career preparedness learning outcomes was positive.

Introduction

Undergraduate education plays a pivotal role in shaping students' worldviews, their behaviors and their career paths. Students' experiences as undergraduates help them deal intelligently with the world and with societal problems. Today's fast-paced, highly competitive, knowledge-based global economy puts pressure on students to master subject matter knowledge and competencies. Once graduated, some students self-employ and use their expertise for their own businesses; others seek employment elsewhere. In either case, they need skills, knowledge, attitudes and behaviors with which they can pursue their work and their careers. Employers and other stakeholders are increasingly looking for graduates with proficiencies such as adaptability, communication skills and the ability to solve complex problems (Fischer, 2014). Therefore, it is important to understand whether undergraduates are ready for careers after

graduation and have the qualities that employers are looking for. This study sought to determine graduating seniors' perceptions of the career preparedness learning outcomes they achieved in the College of Agriculture and Natural Resources (CANR) at Michigan State University (MSU).

Undergraduate education is central to students' overall development; thus, it is essential that colleges offer good education to their undergraduates. Brooks et al. (2014) assert that colleges need to tailor their programs to address students' needs for learning outcomes. On a similar note, Wagenaar (2014) argued that learning outcomes are the manifestations of what learners are expected to know, understand and do after graduation. Wilson et al. (2004) advised educational institutions to assess their academic programs regularly and to be cognizant of whether the required courses adequately prepare students for their careers. Andelt et al. (1997) suggested assessing students' and employers' perceptions about skills preparation every three to five years.

Scholars have highlighted the merits of receiving student feedback, especially from seniors (Corts et al., 2000). As firsthand consumers, students are directly influenced by college programs and services and so students are in the best position to assess these experiences. Seniors who are about to graduate have gone through all the phases of undergraduate education and their experiences are current — therefore, their feedback is preferred over those of alumni and other, newer students (freshmen, sophomores, juniors) for assessing the overall college experience.

What are the qualities and/or abilities that seniors must have when they graduate? Ten abilities (called "learning outcomes" hereafter) reported by the National Association of Colleges and Employers Job Outlook 2013 (NACE, 2013) that employers want to see in new hires are: to communicate verbally with persons inside and outside the organization; to work in a team structure; to make decisions and solve problems; to plan, organize and prioritize work; to obtain and process information; to

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analyze quantitative data; to have technical knowledge related to the job; to have proficiency with computer software programs; to create and/or edit written reports; and to influence others. On a similar note, the Boyer Commission (1998) stressed that undergraduate education in research universities (e.g., Michigan State University) should aim to produce individuals with zeal for inquiring and problem solving, with skills in communication and with rich and diverse experiences so that they are able to provide scientific, technological, academic, political and creative leadership for the next century. The Association of American Colleges and Universities (2010) recommended sixteen learning outcomes, which it calls “value rubrics,” that students need to possess upon graduation. The new learning outcomes recommended by AACU that were not included in NACE (2013) and the Boyer Commission (1998) are: reading, civic engagement — local and global, intercultural knowledge and competence, ethical reasoning, foundations and skills for lifelong learning, global learning, integrative and applied learning.

This study is based on the student development theory of Chickering and Reisser (1993), which lists the abilities that students are supposed to attain from their education to remain knowledgeable, skillful, competitive and intellectual. These abilities are: developing competence (cognitive, psychological and technical); managing emotions; moving through autonomy toward interdependence; developing mature interpersonal relationships; establishing identity; developing purpose and setting clear career goals; and developing integrity. According to Phinney’s theory of racial and ethnic identity (2003), students of minority backgrounds struggle for their identity in college. Many college services do not suit them and efforts to help them benefit are not adequate. Although these students adapt to majority cultures, complete adaptation might not be possible, resulting in a direct impact on learning.

Most studies done to assess seniors’ perceptions of their undergraduate education in colleges of agriculture were based on cross-sectional data (Taub et al., 2006; Connors et al., 2006). Assessments of seniors’ perceptions of learning outcomes based on longitudinal data are lacking. This study sought to fill this knowledge gap. The findings of this study can help colleges of agriculture to focus on achieving desired learning outcomes among their undergraduates.

Study Goals and Objectives

The overarching goal of this study was to assess student perceptions of their career preparedness learning outcomes and to suggest measures to improve the undergraduate program in the CANR at MSU. The specific objectives of this study were to identify any trends in students’ perceptions of their career preparedness learning outcomes over the past decade and to examine whether student perceptions of their career preparedness learning outcomes differ by their demographics — i.e.,

research experience, specialization, academic status, gender, residence, residency status and ethnicity.

Methodology

This study employed an online survey of the graduating seniors in the CANR conducted from 2004 to 2013. After the initial survey instrument was designed, input from CANR undergraduate advisors and coordinators was sought to ensure face and content validity. This study was deemed exempt by MSU’s Institutional Review Board (IRB) on the Use of Human Subjects.

The survey instrument included questions about subjects’ academic information (primary major, specialization, dual major, second degree, participation in research) followed by ten statements on career preparedness learning outcomes: knowledge applicable to student’s anticipated career path; skills required for students’ anticipated career paths; critical thinking and problem-solving skills; written communication skills; verbal communication skills; teamwork skills; research skills; computer technology and database research skills; ability to work with diverse audiences; and leadership and interpersonal skills. Respondents were asked to indicate the degree to which their academic major contributed to the development of those learning outcomes on a five-point scale from “made no contribution” (1) to “contributed a great deal” (5). Other questions included subjects’ demographic information (gender, age, residency, residency status and ethnicity).

Graduating seniors received an email alerting them to the availability of the online survey during fall and spring semesters when senior students applied for graduation. Participants who completed the survey were provided with a free two-scoop ice cream coupon to use in a university dairy store.

Descriptive statistics (frequency, mean and standard deviation) were calculated for each academic year to look at the trends. An average score was calculated for each learning outcome. Independent sample t-tests were calculated to study the differences in perception ratings using the average scores by gender and differences in perceptions between students who participated in research and earned specializations and/or minors and those who did not. F values using one-way analysis of variance (ANOVA) were calculated to examine the differences in perceptions by academic year and subjects’ ethnicity, residency and residency types ($p < 0.05$). For the variables with significant differences reported in one-way ANOVA tests, post-hoc tests were conducted to identify which categories differ from one another. The Statistical Package for Social Sciences was used to analyze the data.

Results and Discussion

Seniors participating in the survey totaled 2,556. The academic year (AY) 2010-2011 had the highest number of respondents ($n = 370$); 2003-2004 (when

the survey was initiated and included only spring semester data) had the fewest respondents (n=144). The majority of respondents (n = 1,936) were 23 years old; 98% of respondents were in the age range of 20 to 31. Females (60.6%) outnumbered male respondents. The majority of respondents identified themselves as Caucasian American (87.3%). African American, Asian American, Hispanic, Native American and “other” students accounted for 4%, 2.9 %, 1.9%, 0.6% and 3.4%, respectively. Students from suburban areas were more prevalent (48.5%) than students from rural areas who did not live on farms (25%), students from rural regions who did live on farms (15.2%) or students from urban regions (11.3%). Michigan residents dominated the respondents (90.3%). Out-of-state and international students represented 7% and 2.7% of the respondents, respectively. The Cronbach’s alpha coefficient calculated post hoc for the reliability of the survey instrument pertaining to items for career preparedness learning outcomes was 0.91.

Trend of Learning Outcome Perceptions

Student perceptions of all career preparedness learning outcomes showed a gradual improvement over the study period (Table 1). Knowledge applicable to anticipated career paths dominated the skill list throughout the study. Participants indicated that they felt positive about their teamwork skills, skills required for a career and critical thinking and problem-solving skills, which indicates that the CANR undergraduate programs were focusing not only on the theoretical aspects of learning but also on the skills required for their practical

application. The lowest ratings — of diversity, computer technology and database research and research skills — are, however, worrying.

After a slow but positive start from 2004 to 2006, student perceptions of learning outcomes declined during the 2007-2009 and 2010-2011 periods. Whether an internal management and/or an academic decision within the CANR or an external (state or federal) economic and/or educational policy affected undergraduate advising and thus student perceptions needs further inquiry. The ratings of perceived learning outcomes improved again from 2012 on.

Findings in Table 1 show that academic majors contributed considerably to acquiring knowledge applicable to students’ anticipated career paths (4.03 ± 0.89), teamwork skills (3.92 ± 0.97), skills needed for students’ career paths (3.89 ± 0.93) and critical thinking and problem-solving skills (3.89 ± 0.90). Given that teamwork is the second most important skill that employers look for in their employees (NACE, 2013; NACE, 2015), it is encouraging that undergraduates in the CANR give the second highest mean rating for teamwork skills and that there has been gradual improvement in its rating over the past decade. This indicates that the CANR is committed to developing teamwork skills among its undergraduates. It should be noted that, though this rating is higher than the rating by CANR graduates from 1993 to 1998, as found by Suvedi and Heyboer (2004), it is lower than the ratings of perceived preparedness for teamwork by the seniors in colleges in the southeastern United States (DuPre and Williams, 2011). Importantly, ratings of teamwork

Table 1. Perceptions of Learning Outcomes from 2004 to 2013

Career preparedness learning outcomes	Academic Year (n)										Ten years' average (n=2,477)
	2003-04 (144)	2004 - 05 (167)	2005 - 06 (179)	2006 - 07 (169)	2007 - 08 (328)	2008 - 09 (291)	2009 - 10 (239)	2010 - 11 (370)	2011 - 12 (306)	2012 - 13 (274)	
	M(SD)										
Knowledge applicable to your anticipated career path	3.95 (1.03)	4.02 (0.93)	4.02 (0.91)	4.02 (0.98)	4.03 (0.83)	4.02 (0.90)	4.03 (0.88)	4.00 (0.91)	4.07 (0.82)	4.10 (0.87)	4.03 (0.89)
Skills required for your anticipated career	3.84 (1.02)	3.87 (0.98)	3.93 (0.91)	3.95 (0.93)	3.89 (0.91)	3.84 (0.94)	3.86 (0.95)	3.86 (0.95)	3.91 (0.89)	3.96 (0.91)	3.89 (0.93)
Critical thinking and problem-solving skills	3.79 (1.08)	3.93 (0.94)	3.96 (0.86)	3.91 (0.88)	3.84 (0.89)	3.81 (0.94)	3.92 (0.85)	3.88 (0.90)	3.94 (0.84)	3.92 (0.90)	3.89 (0.90)
Written communication skills (e.g., papers, reports, news articles)	3.71 (1.05)	3.88 (1.10)	3.82 (0.99)	3.81 (0.96)	3.66 (0.97)	3.62 (0.98)	3.85 (0.93)	3.64 (1.03)	3.76 (0.87)	3.77 (0.91)	3.74 (0.98)
Verbal communication skills (e.g., class presentations, group discussions)	3.78 (1.02)	3.87 (1.06)	3.91 (0.98)	3.88 (0.99)	3.78 (0.93)	3.78 (0.99)	3.98 (0.87)	3.81 (0.97)	3.94 (0.90)	3.92 (0.93)	3.86 (0.96)
Teamwork skills	3.76 (1.10)	3.96 (1.06)	3.96 (1.04)	4.02 (0.97)	3.94 (0.92)	3.90 (0.97)	4.01 (0.90)	3.88 (0.97)	3.91 (0.95)	3.93 (0.91)	3.92 (0.97)
Research skills	3.40 (1.17)	3.66 (1.16)	3.72 (1.02)	3.79 (1.08)	3.71 (1.02)	3.60 (1.07)	3.73 (0.99)	3.50 (1.08)	3.65 (1.04)	3.65 (1.01)	3.64 (1.06)
Computer technology and database research skills	3.48 (1.15)	3.50 (1.22)	3.51 (1.11)	3.60 (1.02)	3.51 (1.04)	3.50 (1.02)	3.66 (0.93)	3.47 (1.02)	3.57 (1.05)	3.50 (1.01)	3.53 (1.05)
Diversity (e.g., working with others from diverse backgrounds)	3.28 (1.24)	3.36 (1.26)	3.11 (1.16)	3.30 (1.20)	3.32 (1.12)	3.38 (1.09)	3.44 (1.13)	3.35 (1.13)	3.39 (1.14)	3.53 (1.10)	3.36 (1.15)
Leadership and interpersonal skills (e.g., club management, understanding others, conflict management)	3.60 (1.13)	3.87 (1.08)	3.63 (1.11)	3.67 (1.00)	3.62 (1.01)	3.63 (1.00)	3.73 (1.01)	3.65 (1.10)	3.76 (1.31)	3.77 (1.07)	3.69 (1.05)

Scale: 1 =made no contribution, 2 =made some contribution, 3 =made a moderate contribution, 4 =made a considerable contribution and 5 =contributed a great deal.

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and problem-solving skills in this study are higher than the ratings given by employers of graduates of the U.S. landgrant university as reported by Alston et al. (2009).

Students and academia alike have to tackle agricultural and natural resources issues stemming from human (sociopolitical, ethical) and economic activities. Reasoned and purposive problem-solving skills are required (Quinn et al., 2009). In addition, critical thinking and problem-solving skills are considered important employability attributes in new job applicants for employers making hiring decisions (NACE, 2013). CANR graduates have consistently indicated that their education contributed considerably to attaining these skills (Table 1). Communication skills (e.g., writing, verbal, interpersonal) are essential for students, both during college and beyond (Shrestha, 2009). Findings in Table 1 indicate that education in the CANR helped considerably in honing students' verbal and written communication skills. The ratings of communication skills by CANR seniors are consistent with the ratings by undergraduates in the southeastern United States (DuPre and Williams, 2011).

Increased diversity within societies is creating new challenges and opportunities for employers and employees. Employers value employees who can work with multicultural and multilingual consumers. According to Cabrera et al. (2002), collaborative and cooperative learning breaks down stereotypes among students because students learn to work together, develop interpersonal skills and learn about people from other backgrounds. Having students in large numbers in colleges will be worthwhile only when students from diverse backgrounds are able to interact with one another (Gurin et al., 2004). Therefore, with diversity rated the lowest overall (3.36 ± 1.15), there is reason for concern about how the college is addressing this outcome (Table 1).

Computer competence is an indispensable part of students' lives. Ratings of perceptions of computer skills in the CANR (3.53 ± 1.05) were moderate but better than those found by Johnson et al. (2001). Uses of computers and computer technologies are many. Computers and computer software are essential in data storing, data analysis and program modeling. Given that computer skills received the second lowest rating, the recommendations by Suvedi and Heyboer (2004) that colleges should better prepare their graduates for software and computer use still seem relevant. Computer-related needs of students of 2004 (when this survey started) might have been different from what students need today. Despite the fact that colleges at MSU, including the CANR, have advanced greatly in the use of computer technologies in recent years and students are learning more online and out of class than they are in classes, the findings indicate that seniors' wants and needs for computer use in the CANR are not fully met. The CANR may want to ask students what specific needs they have so that these needs can be addressed.

Use of research as a tool to educate undergraduates and consideration of research experience as a cri-

terion for hiring employees are both gaining ground. Undergraduate students who engaged in research activities with faculty members had a higher probability of pursuing graduate education, conducting research in the future (Russell et al., 2007; Shrestha, 2009) and finding jobs more quickly (Kinkel and Henke, 2006). Research universities such as MSU need to foster a research culture and teach the associated skills among their students (Boyer Commission, 1998). The low perception ratings by seniors (3.64 ± 1.06) suggest that the CANR has to work harder to engage its undergraduates in research.

Perceptions of Learning Outcomes by Research Experience and Specialization and/or a Minor

To address the second objective of this study, we calculated independent sample t-tests and one-way analysis of variance between respondents' sociodemographic traits and learning outcome average scores. Respondents who participated in research activities felt that they acquired better learning skills than did those without research experience (Table 2). Students who participated in research indicated that their education contributed to their acquisition of knowledge applicable to their anticipated career paths ($p < 0.01$), the skills required for those anticipated career paths ($p < 0.01$), critical thinking and problem-solving skills ($p < 0.01$), written communication skills ($p = 0.03$) and research skills ($p < 0.01$) more than those who did not participate in research (Table 2). Our findings are consistent with those of Hamilton et al. (2013), who reported that undergraduates with research exposure gained better analytical and critical thinking skills, written communication abilities and self-confidence. Besides gaining firsthand research experience, research students get opportunities to delve in-depth into problems and work to find solutions using appropriate research methods, thus enhancing their reasoning and analyzing power. Students doing research engage in writing both research proposals and research reports. This could explain why seniors with research experience reported having higher writing skills.

To our surprise, students with a specialization and/or a minor rated all learning outcome skills lower than did students with no specialization and/or a minor (Table 2). Students pursuing a specialization or minor rated skills required for an anticipated career path ($p < 0.05$), verbal communication ($p < 0.01$), teamwork skills ($p < 0.01$), computer use ($p < 0.01$) and diversity ($p < 0.05$) lower than those not pursuing a specialization and/or a minor (Table 2). Cole and Thompson (2002) reported that technical competencies and specialization in their respective fields of study are among the most important criteria used by employers when hiring for entry-level positions. The results indicated that respondents' specializations and/or minors were not perceived as assisting in honing their skills. The findings raise questions about the format and options for specializations.

Table 2. Perceptions of Learning Outcomes by Gender, Participation in Research, and Specialization and/or Minor

Career preparedness learning outcomes	Participation in undergraduate re- search: Yes (n=515); No (n=878)				Pursued specialization/minor: Yes (n=562); No (n=836)				Gender: Male (n=966); Female (n=1,496)			
	Yes/No	M	t-value	p-value	Yes/No	M	t-value	p-value	Gender	M	t-value	p-value
Knowledge applicable to your anticipated career path	Yes	4.16	3.848	0.000	Yes	4.02	0.722	0.470	Male	4.05	0.593	0.553
	No	3.98			No	4.06			Female	4.03		
Skills required for your anticipated career	Yes	3.99	3.064	0.002	Yes	3.82	2.530	0.012	Male	3.89	0.046	0.963
	No	3.84			No	3.94			Female	3.90		
Critical thinking and problem- solving skills	Yes	4.02	4.099	0.000	Yes	3.85	1.545	0.122	Male	3.91	0.509	0.611
	No	3.82			No	3.93			Female	3.89		
Written communication skills (e.g., papers, reports, news articles)	Yes	3.80	2.193	0.028	Yes	3.71	0.592	0.554	Male	3.72	0.711	0.477
	No	3.68			No	3.74			Female	3.75		
Verbal communication skills (e.g., class presenta- tions, group discussions)	Yes	3.94	1.518	0.129	Yes	3.79	3.210	0.001	Male	3.83	1.349	0.177
	No	3.86			No	3.95			Female	3.88		
Teamwork skills	Yes	3.91	0.317	0.752	Yes	3.79	4.185	0.000	Male	3.88	2.238	0.025
	No	3.92			No	4.00			Female	3.97		
Research skills	Yes	3.92	8.781	0.000	Yes	3.60	0.568	0.570	Male	3.62	0.651	0.515
	No	3.44			No	3.63			Female	3.65		
Computer technology and database research skills	Yes	3.58	1.544	0.123	Yes	3.41	3.553	0.000	Male	3.51	0.771	0.441
	No	3.50			No	3.61			Female	3.54		
Diversity (e.g., working with others from diverse backgrounds)	Yes	3.38	1.000	0.317	Yes	3.33	2.305	0.021	Male	3.37	0.319	0.750
	No	3.44			No	3.47			Female	3.36		
Leadership and interpersonal skills (e.g., club management, understanding others, conflict man- agement)	Yes	3.77	1.757	0.079	Yes	3.66	1.531	0.126	Male	3.66	1.170	0.242
	No	3.67			No	3.75			Female	3.72		

Scale: 1= made no contribution, 2= made some contribution, 3= made a moderate contribution, 4= made a considerable contribution, 5= contributed a great deal.

Is it because specializations are elective courses that students take to transition to graduate programs? Is it because students doing a specialization and/or a minor are very focused in their work and communication with others may be a lesser priority? Do they hold ambitious targets, including acquiring computer skills? Additional studies are needed to answer these questions.

Perceptions of Learning Outcomes by Respondents’ Gender, Residence, Residency Type and Ethnicity

In teamwork skills only, females’ ratings were higher ($p < 0.05$) than males’ ratings (Table 2). Females share their views more with others than males do; females are generally more frequent users of mediated communication; and compared with men, women more frequently use social media to communicate (Kimbrough et al., 2013). Better communication could have helped females to form groups and work together.

Rural students who lived on farms tended to rate their career preparedness skills lower than the other three groups. Rural students who did not live on farms (4.07) and suburban students (4.07) rated knowledge applicable to their anticipated career paths higher than did rural students who lived on farms (3.90) and students who came from urban communities (3.98) (Table 3). The post-hoc tukey-b result showed that ratings of students who lived on farms were significantly lower than ratings of rural students who did not live on farms and those who came from suburban regions ($p < 0.05$).

Similarly, rural students who did not live on farms (3.96) and those who came from suburban communities (3.93) rated skills required for their anticipated career paths higher than rural students who lived on farms (3.69) (Table 3). The post-hoc tukey-b tests confirmed that the ratings were significantly different ($p < 0.01$). Students with a suburban background perceived themselves to be better in critical thinking and problem solving and verbal communication than students from other backgrounds (Table 3). The post-hoc tukey-b tests did not show any differences between the groups for critical thinking and problem solving, however, though post-hoc tests showed differences between suburban and rural students who lived on farms on ratings of verbal communication. Students differed in computer skills, teamwork and diversity skills, with higher ratings from urban students (Table 3). The post-hoc tukey-b tests showed that ratings of rural students who lived on farms were lower in teamwork than those of the other three groups; ratings of rural students who lived on farms were lower in computer technology than those of urban students; and urban students’ ratings in diversity were higher than those of the other three groups. Having had exposure to farming, students who came from rural regions and who grew up on farms might be expected to find undergraduate education in the CANR interesting and achieve higher skills, but the results showed the opposite. The recent trends show that rural youths are hesitant to pursue farming and those who attend colleges do not find agricultural education as beneficial as other

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Table 3. Perceptions of Learning Outcomes by Residency, Residence Status and Ethnicity

Career preparedness skills	Rural on rural farm (n=298), rural but not a farm (n=497), suburban (n=958), urban (n=223)				In-state (n=1,789), out-of-state (n=139), international (n=50)				White (n=2,030), Hispanic (n=44), African American (n=88), Asian American (n=66), Native American (n=13)			
	M	F value	p value		M	F value	p value		M	F value	p value	
Knowledge applicable to your anticipated career path	Rural area, on a farm	3.90	3.409	0.017	In-state	4.05	9.523	0.000	White	4.05	0.929	0.426
	Rural but not on a farm	4.07			Out-of-state	4.04			Hispanic	3.89		
	Suburban	4.07			International	3.51			African American	4.10		
	Urban	3.98			Asian American	3.94						
Skills required for your anticipated career	Rural area on a farm	3.69	6.963	0.000	In-state	3.90	8.321	0.000	White	3.91	1.192	0.311
	Rural but not on a farm	3.96			Out-of-state	3.92			Hispanic	3.71		
	Suburban	3.93			International	3.37			African American	4.01		
	Urban	3.82			Asian American	3.84						
Critical thinking and problem-solving skills	Rural area on a farm	3.76	2.849	0.036	In-state	3.90	5.41	0.005	White	3.90	0.602	0.614
	Rural but not on a farm	3.90			Out-of-state	3.89			Hispanic	3.84		
	Suburban	3.93			International	3.48			African American	3.99		
	Urban	3.85			Asian American	4.00						
Written communication skills (e.g., papers, reports, news articles)	Rural area on a farm	3.65	0.635	0.593	In-state	3.72	1.315	0.269	White	3.73	1.465	0.222
	Rural but not on a farm	3.72			Out-of-state	3.75			Hispanic	3.78		
	Suburban	3.73			International	3.51			African American	3.95		
	Urban	3.73			Asian American	3.78						
Verbal communication skills (e.g., class presentations group discussions)	Rural area on a farm	3.72	2.972	0.031	In-state	3.88	2.608	0.074	White	3.86	1.326	0.264
	Rural but not on a farm	3.86			Out-of-state	3.76			Hispanic	3.84		
	Suburban	3.90			International	3.63			African American	4.07		
	Urban	3.87			Asian American	3.88						
Teamwork skills	Rural area on a farm	3.73	5.754	0.001	In-state	3.94	1.036	0.355	White	3.93	1.342	0.259
	Rural but not on a farm	3.93			Out-of-state	3.89			Hispanic	4.04		
	Suburban	3.98			International	3.76			African American	4.12		
	Urban	4.00			Asian American	3.92						
Research skills	Rural area on a farm	3.55	2.216	0.084	In-state	3.65	0.202	0.817	White	3.64	2.284	0.077
	Rural but not on a farm	3.64			Out-of-state	3.70			Hispanic	3.69		
	Suburban	3.65			International	3.61			African American	3.92		
	Urban	3.79			Asian American	3.75						
Computer technology and database research skills	Rural area on a farm	3.40	2.541	0.055	In-state	3.54	0.39	0.677	White	3.52	1.996	0.113
	Rural but not on a farm	3.56			Out-of-state	3.53			Hispanic	3.60		
	Suburban	3.54			International	3.41			African American	3.74		
	Urban	3.64			Asian American	3.70						
Diversity (e.g., working with others from diverse backgrounds)	Rural area on a farm	3.34	3.417	0.017	In-state	3.40	0.491	0.612	White	3.34	4.431	0.004
	Rural but not on a farm	3.34			Out-of-state	3.30			Hispanic	3.71		
	Suburban	3.38			International	3.40			African American	3.64		
	Urban	3.61			Asian American	3.60						
Leadership and interpersonal skills (e.g., club management, understanding others, conflict management)	Rural area on a farm	3.70	0.131	0.942	In-state	3.70	2.105	0.122	White	3.70	1.605	0.186
	Rural but not on a farm	3.68			Out-of-state	3.64			Hispanic	3.77		
	Suburban	3.68			International	3.42			African American	3.92		
	Urban	3.72			Asian American	3.62						

Scale: 1= made no contribution, 2= made some contribution, 3= made a moderate contribution, 4= made a considerable contribution, 5= contributed a great deal.

students do. These two issues seem to be related. The low ratings on teamwork, verbal communication and diversity skills by rural students who grew up on farms might have been due to insufficient opportunities to mingle with youths from urban and diverse communities. The CANR needs to be responsive in addressing issues that students from rural regions face so that more youth from rural areas will join undergraduate programs in the future.

American (in-state and out-of-state) students believed that they attained higher career preparedness skills from their undergraduate education than international students. Student perceptions of their knowledge applicable to anticipated career paths, skills required for anticipated career paths and critical thinking and problem-solving skills differ by their residency types (in-state, out-of-state and international), with $p < 0.01$, $p < 0.01$ and $p < 0.01$, respectively (Table 3). The post-hoc tests showed international students' ratings of all three of these variables to be significantly lower than those of the other two groups. U.S. universities are in a campaign to internationalize college education, to enhance diversity

in their institutions and to attract international students (Brooks et al., 2006). The findings show, however, that international students are not benefiting in the same way as domestic students. International students gave lower ratings on honing their knowledge, skills and critical thinking and problem-solving skills required for their postcollege careers. Most international students come from entirely different academic systems and cultural environments and they find it challenging to accustom to the new academic and cultural atmosphere in the United States. Studies indicating that proficiency in English, social communication with compatriots (Li et al., 2010) and teaching strategies are affecting international students' learning may apply to CANR students as well. Cultural and other challenges that international students have to face could also be a factor and perhaps pedagogical methods are not suiting international students' past experiences. However, the findings of this study contradict the findings of Zhao et al. (2005) that international students engage themselves in more educational activities than their American counterparts and by the time of graduation they are more like

American students in their engagement patterns. These conflicting findings indicate the necessity to examine further the factors that are limiting international students from learning and initiate efforts to address them.

For analyzing the perceptions of students by their ethnicities, one-way ANOVA was conducted. Findings show that students of four ethnicities—white American, Asian American, African American and Hispanic (Native Americans were excluded from analysis because of their minimal responses)—differ in their perception ratings of diversity ($p < 0.01$), with the highest ratings from Hispanic students and the lowest ratings from white students.

Conclusions and Recommendations

Increasing globalization, advancement in science and technology, a surge in unemployment and layoff rates and quickly changing job markets demand that today's graduates be more efficient and skillful than their predecessors. The task of offering students the courses that they need and helping them succeed and sustain their postcollege career trajectories seems daunting but achievable. In this context, undergraduate education in the CANR seems to be contributing considerably to students gaining the skills they require for careers. Students' perceptions of learning outcomes in the CANR have been improving. Academic majors have contributed considerably to acquiring knowledge, teamwork skills, skills needed for students' anticipated career paths and critical thinking and problem-solving skills. Academic majors have contributed the least, or only moderately, to developing diversity skills and computer technology and database research skills. Respondents from various ethnic groups differed in their perceptions of a few of the career preparedness skills, but respondents differed on many of the career preparedness learning outcomes by their residence, residency status, experience in research and specialization and/or minor. Students indicated that their research experience helped them gain higher career preparedness skills but that a specialization did not. Rural students perceived themselves to have lower career preparedness skills than others did.

On the basis of the above discussion, we would like to offer the following suggestions. First, given that white students had lower ratings on diversity than Hispanic and African American students and that diversity is one of the important skills that employers would like to see in new hires, the CANR should work further to nurture diversity among students. Colleges should promote diversity in its undergraduate program by organizing orientations and fairs; designing and distributing diversity-related educational materials; encouraging students and faculty members from diverse backgrounds to participate in diversity fairs and orientations; providing opportunities for students from different states and nations to get acquainted and providing them exposure to multicultural communities; and including more sessions on diversity in the curricula. Second, students should have access to adequately equipped computer labs with the latest software. Colleges should provide computer training to

students if needed. Third, students coming from rural areas may need additional advising. Colleges should encourage these students to take part in extracurricular activities and join student clubs. These students may also need practical and interactive sessions on verbal communication to hone their communication skills. Instructors have to customize their teaching methods to suit these students. Fourth, students should be given ample opportunities to engage in research and colleges should allocate more resources for undergraduate research. If needed, colleges should provide orientation to faculty members to address students' research needs. Fifth, we advise colleges to evaluate their specialization and/or minor programs and examine how specialization is contributing to students and colleges attaining their goals. These programs should be redesigned as needed. Sixth, colleges should try to tailor education programs to suit international students' needs. International students may have academic, sociocultural and other barriers to learning and education that colleges need to address. Therefore, the CANR should provide orientation to its faculty and staff members to address varied educational needs of international students. Encouraging teamwork with American students in assignments and class discussions might help to overcome the language and cultural barriers facing international students.

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The Stakeholders Speak- Directions for the Next Century of Agricultural Education at Auburn University

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Abstract

The purpose of the study was to provide a qualitative look at the phenomenon marked by a student developed proposal to relocate the agriscience education program at Auburn University from the college of education to the college of agriculture. Agricultural Education has a long standing relationship as a program within the College of Education (COE) at Auburn University. In fact, Agricultural Education was the original education program that led to formation of the COE. Semi-structured interviews were conducted with representatives from different stakeholder groups to better understand this unique case. Four major themes emerged from the qualitative interviews. The findings of this study are consistent with those found by Knebel (1977) nearly forty years ago. These students did identify closely with other students and their career aspirations from the college of agriculture. Many of them made the impression that they were agriculturalists who were interested in educating young people concerning this broad subject area. Not one participant indicated that they were a teacher whose subject happened to be agriculture.

Introduction

The first record of formal education in the discipline of agriculture in America dates back to the mid-1700s in Georgia. Over the next 200 years, this instruction would be further developed and delivered extensively through the colleges created by the Morrill Land Grant Act of 1862 and a second act in 1890 that established agricultural education in historically black colleges (Gordon, 2008). In 1917 the Smith Hughes Act was passed that established agricultural education as a vocational training context in our public secondary schools (Phipps et al., 2008). This development established the need for properly educated secondary teachers to provide practical and

scientific instruction to high-school boys who enrolled in vocational agriculture courses. The response to this need came in the form of secondary teacher preparation programs in vocational agriculture. These programs were primarily located within Land Grant institutions because of the technical training that was imperative to proper preparation of teacher candidates (Gordon, 2008). Agriculture teacher preparation programs grew naturally into what would become colleges of agriculture within their respective universities. The vast majority of the teacher preparation programs would remain within the colleges of agriculture even after colleges of education containing other teacher preparation programs were formed. However, during the late 1970s and throughout the 1980s a trend developed where several agriculture teacher preparation programs were consolidated into teacher education departments with other teacher preparation programs that were located within colleges of education. This move was met very often with opposition from faculty, students, and other stakeholder groups (Knebel, 1977) within the field of agricultural education. This trend sparked a national debate concerning the appropriate home for agricultural education programs. This debate even played out partially within the pages of the research journal the Journal of the American Association of Teacher Educators in Agriculture (now known as the Journal of Agricultural Education). In 1977, two articles were published that presented each side of the debate. Knebel argued that the rightful home for agricultural education was in colleges of agriculture while Binkley argued that the most appropriate home for agricultural education was within the college of education. This debate continued up into the early 1980s in this journal. In 1981, the debate focused on the impact of forming agricultural and extension

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education departments (Shinn and Cheek) which were located within colleges of agriculture countered with the position of including agricultural education in vocational education departments (Smith and Gassie) which were commonly located in colleges of education. The prevailing stance that would shape the next two decades for many agricultural education programs was that agricultural education should reside within colleges of agriculture. Subsequently, there were efforts on the part of most of the programs that were consolidated to regain their membership in the respective colleges of agriculture. Most of those programs were successful in their attempts to return to their previous homes in the college of agriculture. In 2014, there were 97 Agricultural Education programs in the nation. Of those 97 programs, 92 were located in colleges of agriculture according to their websites.

The return to colleges of agriculture has seemed to bring positive improvements and growth in the programs. In the last two decades, many agricultural education departments have expanded beyond the traditional agriculture teacher and extension educator programs to include degree options in agricultural communications and agricultural leadership. Tucker et al. (2003) recommended that agricultural education and communications programs work collaboratively for the benefit of the programs and ultimately, the students. This recommendation was built on the premise that the two programs were located in the same department. Further, agricultural leadership programs have shown much growth in many colleges of agriculture across the nation. In 2014, one college of agriculture even boasted of over 1,000 students in an agricultural leadership program (Texas A&M). The growth of many agricultural education programs appear to be related to their relative location within colleges of agriculture. However, there is another model that has rarely been described in agricultural education programs.

The Unique Case of the state of Alabama and Auburn University

Currently, the agriculture teacher education program at Auburn University is the only such program in the state. Previously, agriculture teacher education programs were located at both Tuskegee University and Alabama Agricultural and Mechanical University. Both of the aforementioned institutions are historically black (HBCUs). Auburn University is home to one of the five programs nationally that are not housed in the Colleges of Agriculture (COA). Agricultural Education has a long standing relationship as a program within the College of Education (COE) at Auburn University. In fact, Agricultural Education was the original education program that led to formation of the COE. The College of Education was founded in 1915 at what was then called the Alabama Polytechnic Institute. The University was officially named Auburn University in 1960. This humble beginning was launched with a single teacher preparation plan in a University that was largely still providing

education in agricultural and mechanical skills. In the years to follow, other teacher preparation programs such as math education, science education, music education and various others would be developed and implemented. These programs all shared the same common goal of preparing k-12 school teachers and therefore were held to similar state department of education regulations concerning the certification of school teachers. These teacher preparation programs have remained a cohesive unit in the College of Education which is still home to all teacher preparation programs at the University. Therefore, there is no institutional memory of being transplanted from the COA to the COE as there was in several other institutions. These facts would provide rationale that perhaps the faculty, students, administrators, and other stakeholder groups were satisfied with the location of the program.

However, a tension can be detected concerning the location of the program very quickly when talking to current students and alumni of the program. We, the authors, have been associated with this program for six years (as a professor) and ten years (alumni and agriscience teacher) respectively. One of the earliest memories of interaction with alumni of this program and state staff members included very distinct conversations concerning their wish for the Agriscience Education to be moved from the college of education into the college of agriculture. Several stated that they believed that this move would bring benefits ranging from increased student enrollment to a freedom from an imposed curriculum model that was ill-fitted for agricultural education teachers. It was obvious to us that they believed that this move was a type of "silver bullet" that would solve many problems. Conversations such as these provided adequate information concerning a suspicion of a level of displeasure with the location of the Agriscience Education program even though it had been the original program in the college of education. The event that solidified this concern of wide-spread concern would come in the form of a petition originated by students to have the program relocated into the college of agriculture.

Other important infrastructure concerning agricultural teacher preparation include a group of Alabama State Department of Education staff members (4) that are responsible for providing in-service training and technical support for the 310 secondary agriscience education teachers across the state. This group is also responsible for the leadership and administration of the robust student organization that is integral to secondary agricultural education known as the FFA (formerly Future Farmers of America). This student organization consists of over 15,000 (Alabama FFA, 2014) members in Alabama and upwards of 600,000 nationally (National FFA, 2014). In addition to the state staff, Alabama developed a "Team Ag Ed" in 2006 that brings stakeholders from secondary agricultural education, agricultural industry, state department of education, secondary students, and teacher preparation candidates together as

an advisory group to serve secondary agricultural education in the state (P. Paramore, personal communication April 5, 2015). Each of the stakeholder groups mentioned above have voiced concerns over the years concerning the location of the agriscience education program. In fact, one of the stated goals found within the mission of the Team Ag Ed organization included a specific attempt to relocate the program into the college of agriculture.

Statement of the Problem

Over the last several years, we have witnessed the constant barrage of comments from various members of each stakeholder group concerning their desire to see the agriscience education program at Auburn University moved from the college of education to the college of agriculture. Recently, every undergraduate student in the Agriscience Education major at Auburn University signed a petition to move the major from the COE to the COA. The students were organized by a graduate student who prepared a very elaborate proposal outlining the reasons why he believed that the move would be beneficial. Consequently, this graduate student scheduled meetings with students, faculty, and administrators in both colleges to explain the proposal. However, this proposal was met with opposition. This issue is very complicated and has to be viewed from several vantage points to fully understand. A better understanding of the concerns and demands could provide alternative options for solving a complex problem. Further, the enrollment in the program has increased substantially over the last 6 years but has not kept pace with the demand for agriscience teachers in the state. Perhaps a better understanding of the experiences of agriscience education stakeholders could provide insight concerning the shortage of students who are seeking degrees in agriscience education.

Purpose and Research Questions

The purpose of the study was to provide a qualitative look at the phenomenon of a student developed proposal to relocate the agriscience education program from the college of education to the college of agriculture. The student proposal provided a rational assumption that a large group of program stakeholders perceive various benefits with a move from the COE to the COA. The major benefit that was highlighted in the proposal was a potential increase in enrollment that the stakeholders believed would follow the move. The purpose of this study was to allow those stakeholders a voice in sharing the benefits that they perceived balanced with the position of those that felt that the program should remain in the College of Education. The larger purpose was to determine if the experiences associated with the location of the program may have a bearing on the number of students that choose to major in agriscience education at Auburn University.

The research questions that guided this study were:

- What are student and alumni lived experiences relative to the location of the Agriscience Education program at Auburn University?
- What were stakeholders' perceptions concerning the call for a relocation of the agriscience education program?
- What steps could be identified to better serve the stakeholders needs/desires from the Agriscience Education program?

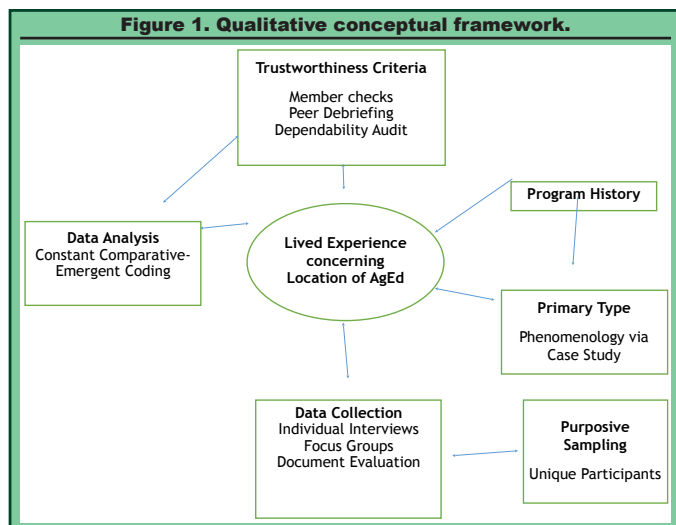
Theoretical Framework

The theoretical framework that underpinned this study was taken from Rogers' Diffusion of Innovations theory (Rogers, 2003). The particular aspects from the theory that guided this study was the attributes of what Rogers' termed as an innovation that influence potential adopters. In the context of this study, the innovation was the decision to enroll in an agricultural teacher education major at Auburn University. A disparity exists between the level of student enrollment and the potential job market in the state. At the time of this study, approximately 25 teaching jobs were opening up every year while only 12-15 students were graduating with degrees in agricultural education and only 10-12 of those entered the teaching field. Rogers identified five major attributes of an innovation that must be considered when evaluating the adoption of any innovation. Those attributes included: relative advantage, complexity, trialability, compatibility, and observeability. Rogers determined that these five attributes must be examined when attempting to diffuse any innovation throughout a social system (Rogers, 2003). The particular attribute that framed this study was compatibility. Rogers said that if a person perceives that an innovation is not compatible with their own belief system or perspective, then an adopter will be much more hesitant to accept the innovation. Specifically, within the context of this study, the attribute of compatibility was examined as a possible barrier to adoption because of the student petition that had recently been signed calling for a move of the agriscience education program from the college of education to the college of agriculture. This document provided reason to believe that the students believed that enrolling in a college of education may not be compatible with their background and expectations. In this situation, both adopters and non-adopters were found within the group of stakeholders. The interviews were designed to reflect the participants lived experiences concerning the decision to enroll in the major and their perceptions concerning the decision of others. By examining the data collected from participants in this study through the lens of Rogers' diffusion of innovations theory, we were better able to connect the interview data with possible experiences concerning the choice to enroll in the major.

Conceptual Framework

Based on the work of Dooley (2007), the following conceptual framework was constructed to guide the

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study. The research problem that was addressed through qualitative measures centered on the unrest associated with the location of the agriscience education program at Auburn University that was brought to light via the phenomenon of the signed petition calling for the move of the program from the college of education to the college of agriculture. The aspects that were pertinent to the investigation of this topic are represented in Figure 1.

Methods

Semi-structured interviews were conducted with representatives from different stakeholder groups to better understand this unique case. This study was classified as a case study based on the boundary of location for the agriscience education program within the college of education and the uniqueness of such location (Dooley, 2007). With nearly all programs in the United States being located in colleges of agriculture, the students and other stakeholder groups face unique challenges that may shape their lived experience within this defined context (Miles and Huberman, 1994). Participants were purposefully chosen (Creswell, 2007) based on their involvement with the agriscience education program and came from five stakeholder groups. Those groups included current undergraduate and graduate students, alumni, state staff, faculty, and agricultural industry professionals. Many of the participants were members of Team Ag Ed at the time of the study. A total of eight students were interviewed as well as two state department of education representatives who were also alumni of the program, two current teachers who were also alumni, and four stakeholders from agricultural industry. Also, as a professor in the program and an alum, have included our experiences as further data for analysis as our intimate involvement with this program has resulted in a certain “connoisseurship” that allowed us to better understand this case (Eisner, 1991). Representatives from each of these stakeholder groups were involved to establish corroboration or triangulation that provided a more accurate description of the participants’ experiences.

The interview procedure was developed per Creswell’s (2007) recommendations. A face-to-face interview protocol was chosen so that we could gather data from both spoken and unspoken communication. The interviews with undergraduate students were held via two focus group sessions. We believed that students would be more willing to share their experiences when in a group that could reduce the unintended coercion or intimidation that we may have presented as their professor and faculty advisor. Two graduate students were interviewed one on one. The interview with alumni and agricultural industry professionals was also conducted via focus group. The two state department officials were interviewed individually.

The participants were informed that this project was a research project that it may hold implications for systematic program improvement. The interviews were based on general questions concerning the perceptions of the implications associated with the location of the agriscience education program at Auburn University and the perceptions associated with the proposed move to the College of Agriculture. The interviews will take approximately one hour each. Memoing (Miles and Huberman, 1994) was employed both during the interviews as well as during analysis as we began to notice possible connections and threads that seemed to connect pieces of data. Following the transcription of the interviews, member checks were used to insure accuracy of transcription. Next, the data were evaluated to search for themes and sub-themes that may serve to answer the research questions. To further establish credibility, peer debriefing was employed at various stages of the process with a faculty member that had very little knowledge of the program (Lincoln and Guba, 1985). The acknowledgement of the researchers’ bias was described to establish confirmability (Lincoln and Guba, 1985). Emergent coding was employed to examine the data for recurring themes from the group of interviewees (Creswell, 2007). Conclusions were drawn based on the themes that emerged and recommendations for practice and further inquiry were made.

Acknowledgement of Potential Researcher Bias

We are obviously very close to this situation as a professor in the agriscience education program and a teacher/alumni within the state. Further, we must disclose that five of our six combined degrees were obtained through agricultural education programs in colleges of agriculture. When I (author 1) first considered coming to Auburn University, I decided not to apply because the program wasn’t located in the college of agriculture. The initial search for my position resulted in a failed search that was launched the following year and I decided to “take a chance” on a program located in a college of education. If I had been asked during the first few months of my employment with Auburn University, I would have stated that I believed that agricultural education programs should be housed within colleges of agriculture.

Results- Emergent Themes

Theme 1

The move has been long anticipated- The first theme that emerged from all groups was the anticipation of this move from the college of education to the college of agriculture. Several of the alumni and the state staff members as well as the agricultural industry professionals indicated that this proposed move was something that they had desired and actually worked toward for years and even decades. Henry is an upper level executive in the Alabama Farmers Federation (ALFA) Henry was very instrumental in establishing the Team Ag Ed organization and has been involved in agriscience education throughout the state for many years. In fact, Henry even served on the search committee for the position that I (author 1) currently hold. Henry was also instrumental in lobbying the state legislature for an appropriation of three million dollars to be awarded to agriscience education teachers for extended duties including professional development and attendance at student FFA events that occur outside of the normal school day. It would be a grave understatement to say that Henry is an influential man in the field of agriscience education in Alabama. He is a very politically savvy man that holds the respect of many groups involved in Alabama agriculture. During the interview, Henry indicated that this move was something that "had been a stated goal of Team Ag Ed since its inception". Henry went on to describe how he and others had gone as far as meeting the president of the university and the deans of the two colleges to work out a plan to move the degree program. He stated that these plans had been put on hold when both colleges underwent changes in leadership four to five years ago. Harris is the state department leader for agriscience education and a former agriscience classroom teacher as well as an alum of the agriscience education program at Auburn University. Harris stated that his office has been trying to support a move such as this for a number of years. Harris went on to say that he had even hoped that this move may have been made before he graduated over 15 years ago. This theme also resonated among many of the students interviewed. Several interviewees asked if this move could possibly come to fruition before they graduated. One graduate student, Tom, went as far as to state that "if my master's diploma will read 'College of Agriculture' when I graduate in August, I will burn my undergraduate diploma." As a faculty member, I too have anticipated that a proposal to carry out this move would surface for the last six years. As I talked with each stakeholder group over the first few months on the job, it seemed that each one wanted to take me aside and explain their desires and rationale for moving the agriscience education program out of the college of education and into the college of agriculture. This theme emerged with nearly every interviewee.

Theme 2

Residing in the college of education is a recruitment problem- Frances is a young professional who is also employed by ALFA who graduated from the college of agriculture five years ago with a degree in agricultural communications. Frances stated clearly that she "did not major in agriscience education solely because it was not in the college of agriculture." In a follow-up conversation, Frances went on to explain that she was the product of a very strong agricultural background. Her father was a cattleman and she was actively involved in the FFA in high school, especially in showing cattle. She said that agriculture was her identity and that she did not want to have to forfeit that identity by choosing a major that was outside of the college of agriculture. Olivia is a junior in agriscience education that changed her major after her sophomore year from animal science. Olivia stated "I almost didn't change to agriscience education because it wasn't in the college of agriculture." Olivia told the story of how she sat down with an academic advisor to discuss her major change and realizing for the first time that agriscience education wasn't in the college of agriculture. Olivia said that she immediately stopped the process when this became apparent and she asked the advisor if they could resume the process after she met with me. I talked to Olivia that day and assured her that this was normal procedure and that she would still attend many classes in the COA and could even apply for most of their scholarships. Olivia made the decision to change to agriscience education but not without great internal struggle. Harris also supported this theme by describing the loss of students to Mississippi State University where the ag ed program is located in the college of agriculture. He stated that this is a major selling point to Alabama students. Harris told of how several former state FFA officers had chosen to attend MSU largely because of the location of the program. Jack is a student who was very active in the FFA as a high school student and is now active in recruiting other FFA members into agriscience education at Auburn. Jack has attended several recruiting events along with college of Ag recruiters at various FFA events. Jack said, "the location of our program causes a lot of confusion in high school students." He went on to explain "they see all of the events put on by the college of ag and all the invitations to become a member of the COA family only to find out that they will be kind of a step-brother if they choose to major in ag ed since it isn't in the College of Agriculture." Hannah is an alternative master's student in agriscience education who completed her undergraduate in animal science. Hannah stated in her interview that she chose to pursue an animal science degree first so that she could have the whole "COA experience" even though she knew that her ultimate goal was to teach. As a professor in the program and an alum, we do feel that this is the major concern with being located in a COE. We have personally talked to many potential students that desperately want to be identified with agriculture and it has definitely affected their decisions concerning a major.

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Theme 3

Moving colleges will affect course work requirements- Rhett is an alum of the program and shared some thoughts on the problems associated with the program's location. Rhett said, "we need to quit having to take all of those useless classes." Rhett went on to explain that he had to take a class called "Great Books" that did not benefit him as an agriscience teacher. When we followed up on the question, it became apparent that Rhett was referring to core courses that are required of all students. Several students held similar points of view concerning college of education related course work. Ashley is a senior who stated "I don't think we need to take all of those foundation classes that the college of education requires." Ashley went on to explain that she didn't feel like the classes were applicable to agriscience teachers. This theme also resonated with Tom, a graduate student who believed that a move would change the course requirements. Tom said "I think we are seen as second rate citizens in those foundations classes." We probed further concerning this statement and Tom told me that it wasn't the instructors of the courses that made him feel that way, it was the other students. He couldn't or wouldn't provide specific examples of instances that shaped these feelings but he said "I just think they [the other students] look down on us."

As a professor in this program, I understand that the core is simply the core, the same for everybody. I also understand the standards that are presented in the COE courses that all future teachers take and that the state department rightfully demands that they be upheld. It is my position that the beliefs that the course work would change substantially if a move were to take place are largely unfounded.

Theme 4

A double major could be a happy medium. The vast majority of teacher preparation programs at this university lead to double-major degrees. For example, mathematics education students are double majors in the College of Science and Mathematics. This allows students to gain the necessary technical expertise along with the pedagogical strategies. Each interviewee was questioned concerning the creation of a double major between the COE and COA for agriscience education students. Carson is a graduate student who believed this strategy could hold some merit. Carson said, "it's not exactly what I was hoping for when I signed the petition, but it could be a good step." Danielle is a senior that was currently doing her teaching internship when she was interviewed. Danielle said, "*yes! I would have loved to be a double major, that would have made me feel more at home in the COA instead of just an outsider who was taking a bunch of courses there.*" The problem that came up with this option is that this isn't a quick fix like transplanting may be. This was evident in Tom's response. Tom said "*yeah, I guess that having a double major would be good but there isn't one that we could do right now in the COA and who knows how long that*

would take, I will probably be long gone." The general reaction among all interviewees concerning the possible double major was very positive. We too believe that this could be the solution to this specific case. The creation of a double major will allow students to be majors of both colleges which will fulfill their need to identify with the culture and technical nature of the COA while simultaneously honing their craft of teaching through pedagogical instruction in the COE.

Discussion, Recommendations, Implications

The people in this study made it very clear that the anticipation of this proposal to move Agriscience Education from the COE to the COA has been long and often frustrating. This was evident in the gestures and words that each provided when questioned about their experience as an Agriscience Education stakeholder. Great descriptions were provided that illustrated the challenges associated with recruitment into the program. While the participants experience with coursework that they attributed to being a part of the COE may not be totally accurate, it was certainly an emergent theme. And, the positive response to the questions concerning the implementation of a double major provides implications for future guidance in the program.

While it was no surprise that the anticipation of this type of move existed, it was striking as how prevalent this theme actually was among students. Each interview with students started with a brief introduction followed by showing the participants a copy of the proposal which contained their signature and simply asking them to "tell us about this." A very common response was "this is something I have been hoping for a long time". Some students had even started their degree program in hopes that they would graduate from the COA with an Agriscience Education degree. The pervasive nature of these responses obviously exhibits that this issue is something that most, if not all Agriscience Education students seriously consider on a regular basis. If this is something that is so common in their thoughts, it stands to reason that it is an issue that should be addressed.

However, the most concerning theme was that of the negative impact that the location of the program may be having on recruitment into the program. There is a definite shortage of well qualified agriculture teacher applicants in our state and Auburn University is the sole supplier of these teachers. Something must be done to close this gap through recruitment of more potential teachers into the Ag Ed program before drastic consequences are realized in the secondary agriscience education programs.

Participants' reactions concerning the COE coursework was also concerning. It seemed that there was simply some misunderstanding. We did pick up on an attitude that blamed all courses that the participants didn't find particularly useful on being housed in the COE. This is also an issue that should be addressed.

Finally, the creation of a double major appears to be a way of bringing these stakeholder groups together

on this issue. The creation of the double major may be exactly what is needed in this specific case. This will allow the students to be majors of both colleges which may fulfill their need for identity. We did not hear any participant refer to the need for the Agriscience Education faculty members to answer to an administrator in the COA. It seemed that the only concern was the students' perceptions of how they were received in their classes by COA peers and professors as well as their eligibility for agricultural scholarships.

The findings of this study are consistent with those found by Knebel (1977) nearly forty years ago. These students did identify closely with other students and their career aspirations from the college of agriculture. Many of them made the impression on me that they were agriculturalists who were interested in educating young people concerning this broad subject area. Not one participant indicated that they were a teacher whose subject happened to be agriculture. Our reflections are very similar to that of the students, we were first hooked by the exciting field of agriculture and later came to love and further appreciate our role as an educator. Further, Knebel (1977) noted a trend in decreased enrollment that he attributed to the location of the programs in the COE. The finding from this study related to the difficulties associated with recruitment of students due to the location of the program certainly echo his sentiments.

Based on the findings of this case study, it is recommended that the administrators in both colleges make every effort to bring this double major to fruition for the benefit of current and future students. This finding also supports earlier recommendations. Knebel (1977) expressly stated that the best option for agricultural education was to be delivered through a cooperative manner between the colleges when he said,

The reader should not interpret the arguments to imply teacher education in agriculture should be divorced from the college of education, nor should agricultural education be separated from any other viable coordinated teacher education administrative unit within the university. In fact, given the choice of alternatives, the writer would opt for a closely coordinated interdisciplinary affiliation with the college of agriculture, and its subject matter departments in agricultural sciences, and also closely associated with the college of education and its professional teacher education departments (p. 10).

Further, it is recommended that the administrators of the Agriscience Education program make it very clear that the wishes of the stakeholders have been heard and that action will follow to help improve this situation. It would also be beneficial for administrators of the program to explain the nature of the academic "core" as well as the state department of education standards that are presented in each of the courses delivered through the COE that would remain intact even if a move should take place.

This study should be followed up with examinations of other programs that may have experienced similar challenges and especially with those who have adopted a double major to evaluate the benefits or hurdles that have been encountered.

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A Conceptual Model for the Study of Student Readiness in the 21st Century¹

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Abstract

Preparing 21st century students to be college and career ready is complex and requires collaborative efforts among secondary schools, colleges and universities, policy makers and business and industry leaders. Students' developmental processes, motivation, interest, aspirations, socioeconomic status and support systems have been contributing factors that influence the direction they take to become college and career ready and ultimately life ready to be successful in the world. The identified list of employability skills and the conceptual model established by this review of literature provide a framework to assist in understanding the complex process of preparing students to be college and career ready in the 21st century. College teachers and university teacher preparation programs can benefit from this research as they work to incorporate 21st century knowledge, skills and dispositions into the undergraduate curriculum. Improved resources and support for educators, those ultimately responsible and held accountable for student achievement, will assist in creating solutions to better prepare students to be career ready in the 21st century.

Introduction

Although the times have changed and educational reform has become focused on accountability measures for both students and educators, the overall purpose of schooling has remained consistent. Academic, technical and employability skills have always been required of students to be successful as they graduate from high school and enter college or a career. Goodlad (1984) posited four purposes of school: academic development of intellectual skills and knowledge, vocational preparation for work, social preparation to be a citizen and personal knowledge to develop as an individual. During the 21st century, the role of education in preparing students has expanded beyond the local

community to the global economy. The global population has continued to rise and the challenge to feed over nine billion people by 2050 has become a critical priority for society (FAO, 2011). Future citizens and leaders will need to be equipped with the knowledge, skills and dispositions that are essential for successful entry into the 21st century workplace.

College and career readiness has not been well defined and there is little evidence to investigate and define what renders a student to be college and career ready (DiBenedetto, 2015). There has been some question with regard to who has been responsible for preparing students with the college and career readiness skills needed to be successful in the 21st century workplace. The general public has believed that high schools are responsible for preparing students to be college and career ready. The general public has also expected that students will enter college. However, over 50% of the students who have entered college have not succeeded nor earned a degree (Lynch, 2000). Lack of success in college has caused concern and industry leaders have indicated students are not prepared with the knowledge and skills required of them to be productive in the workforce as a decline in students' abilities to perform at the required level has been reported (Gardner and Liu, 1997; Hart, 2008). Many high school graduates have not been adequately equipped to meet the challenges they have faced in higher education or the 21st century workforce (Casner-Lotto and Barrington, 2006). Only one-third of the students who have graduated from high school have possessed the skills required for college (Green and Winters, 2005). In the post-secondary education system, teachers have reported the need for remedial training in over 37% of their students (MetLife, 2011). Employers and college students agree that graduates should acquire a broad range of both academic and technical knowledge and skills, which include opportuni-

¹This study did not involve human subjects and was deemed exempt by the University of Florida Institutional Review Board.

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ties to apply learning in order to achieve career success (Hart, 2015).

Information learned in the classroom must be taught using methods for students to transfer the knowledge gained into real world experiences. Changes in the American workforce have been occurring that require technical knowledge and skill. The emergence of technological information has required expert communication in complex situations in order for students to be career ready in the 21st century (Dede, 2010). Contextual learning experiences have provided opportunities for students to build a foundation around critical thinking and problem solving. Career-ready individuals have required essential academic, employability and technical skills that will prepare them to address the global economic challenges of the 21st century (ACT, 2010). Employers have indicated that students who complete some type of applied learning or project-based learning experience are more valuable job candidates than those who have not engaged in applied learning (Hart, 2015). The development of independent-minded individuals is an important aspect of the American public education system (Wardlow and Osborne, 2010).

Theoretical/Conceptual Framework

The complexity of the educational system has required educators, policy makers and industry leaders to work collaboratively to prepare students to be career ready for the challenges they have faced in the 21st century workplace. Several contributing factors have influenced student success. Student motivation, interest, aspirations, socioeconomic status, support systems and developmental processes have ultimately determined whether or not students have been prepared for a career that has ultimately made them life ready to become successful in the world in which they have lived.

The K-12 educational process is a systematic endeavor. Therefore, it has required a systems approach to prepare students to be both college and career ready. Figure 1 depicts the theoretical frameworks that collectively developed the Conceptual Model for the Study of Student Readiness in the 21st Century. This systems approach to preparing students to be college and career ready was adapted from the major tenets of Social Cognitive Theory (Bandura, 1986) and Bronfenbrenner's Bioecological Theory of Human Development (Bronfenbrenner, 1979; 2005).

Social Cognitive Theory

Social cognitive theory posited that individual's react to their beliefs about what they can do; conducting self-perceived judgements of themselves based on their self-efficacy (Bandura, 1986). Three interrelated factors referred to by Bandura (1986) as personal factors, behaviors and environment affect how people have learned from their social environments and how a person's sense of self-efficacy has been developed. For example, an educator demonstrates self-efficacy

through his or her belief in their personal competence to learn or perform behaviors (Schunk, 2012). Recommendations from the National Research Council (2009) suggested a need for instructional changes in undergraduate coursework in colleges of agriculture to improve 21st century skills, which included critical thinking, problem solving and communication. Estep et al. (2013) adapted Bandura's (1986) triadic reciprocity model of causality, aligning it with teacher effectiveness. In this model, effective classroom instruction represented the environmental variable, 21st century skills represented the behavior variable and cognitive processes of students represented the learner variable (Estep et al., 2013).

Bioecological Theory of Human Development

Process, person, context and time (PPCT) are the four factors emphasized in Bioecological Theory of Human Development (Bronfenbrenner, 1979; 2005). These factors represent the individual interactions within an individual's environment that affect the process of development (Tudge et al., 2009) and along with the tenets of social cognitive theory, guided the development of the Conceptual Model for the Study of Student Readiness in the 21st Century. In bioecological theory, process refers to the interaction between the person and the environment where development occurs (Bronfenbrenner, 1979; 2005). Within the context of the educational system the process can refer to the interaction of parent and student, teacher and parent, or teacher and student.

Individual and personal characteristics, such as race, gender, age and previous experiences are referred to in the PPCT model as the person. Dissimilarities in attitudes, beliefs and expectations and the individual attributes brought into a social setting are included in this facet (Adamsons et al., 2007; Tudge et al., 2009).

Several indicators affect context. Bronfenbrenner (1979) identified four types of systems that influence an individual's development. The direct environment encircling the individual is considered to be the microsystem (Adamsons et al., 2007). The conceptual model depicts the microsystem as the classroom environment where students have learned academic, technical and employability skills to develop the dispositions, civic mindedness and independent mindedness required to become college and career ready, which ultimately leads to a life-ready individual. Interactions can occur in more than two microsystems, referred to as the mesosystem. Interactions between the student, the parent and the teacher are included in the conceptual model as the mesosystem. Some contexts do not directly involve the individual, but may still influence development. Bronfenbrenner (1979) referred to this context as the exosystem. The conceptual model depicts the exosystem as the community, the home, the school and the world. The final system, the macrosystem, involved in the context of the PPCT model refers to the social influences such as government policies, economic circumstances and cultural expectations (Adamsons et al., 2007).

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The final facet of the PPCT model is time (Bronfenbrenner, 2005). This facet represents the passing of time over the developmental stages of an individual. Time can also be represented by the chronological age of the individual or the developmental stage of the family where the individual resides (Adamsons et al., 2007). Constructs within the model align with the four purposes of the school as outlined by Goodlad (1984). Within the systems model, students will develop the academic, technical and employability skills needed to be ready for college and careers dependent upon the person, the process and the context within the overall environment throughout the course of their education (time).

Personal factors, behaviors and environment are the three interrelated sources that directly influence an individual's ability to learn (Bandura, 1986). The cultural environment consists of the community, the home, the school and the world in which a student lives. Bronfenbrenner's theory (1979) referred to this as the exosystem that influences individual development. Within that cultural environment, the mesosystem (Bronfenbrenner, 1979), parents and teachers play an active role in developing students for career success. An adolescents' cognitive and emotional development process has been reliant on adult relationships structured in a community, society or cultural environment (Conley, 2005; Stone and Lewis, 2012). Student interactions with teachers, parents and other adult role models represent the context of the microsystem where individuals develop (Bronfenbrenner, 1979).

Children possess five basic needs for positive development: 1) a personal relationship with a caring adult, 2) a safe place to live, 3) a healthy start toward their future, 4) a marketable skill to use after high school graduation and 5) an opportunity to contribute to their community (Lewis and Morris, 1998). Without proper support systems the modern family life can be unstable. This instability causes deficiencies in students when they go to school (Addison, 1992). Schools and teachers must be aware of their responsibility to provide stable support for students in a welcoming and nurturing environment (Henderson, 1995).

Learning Skills

Learning skills related to dispositions can be difficult to define. The role of the teacher has included that of an adviser to guide students (Trilling and Fadel, 2009). In addition to academic preparation, teachers have also provided social and emotional support during the adolescent developmental process (Stone and Lewis, 2012). Learning and thinking skills, include dispositions, such as positive thinking, clarity in communication, inquisitiveness, questioning and problem posing, innovation, motivation, perseverance/grit, self-esteem, flexibility, creative thinking, responsibility, self-direction and engagement in lifelong learning (Conley, 2014; Duckworth et al., 2007; Partnership for 21st Century Skills, 2009; Stone and Lewis, 2012).

Literacy and Civic Minded Individuals

Developing overall literacy and civic minded individuals is one of the four main purposes of school (Goodlad, 1984). Literacy has been an overarching theme within the education system. Students must be literate in the core and technical areas, but they must also have a sense of literacy as it relates to the world within which they live (Stone and Lewis, 2012). Several interdisciplinary literacy topics were identified from the literature for this research and are included in the literacy component of the conceptual model. A general understanding of agriculture, civics, communications, economics, environment, global awareness, health and technology are necessary for students to become career ready and competitive in the 21st century workplace (Huitt, 1999; NASDCTEc, 2012; NRC, 1988; Partnership for 21st Century Skills, 2009; SCANS, 1991; Stone and Lewis, 2012; Trilling and Fadel, 2009).

Of particular interest is the impending need for agricultural literacy (NRC, 1988). In 1986, the National FFA Organization reported an estimate of 4.5% of all high school students to be enrolled in an agriculture course. Today, nearly 1,000,000 students are enrolled in school-based agricultural education programs (NAAE, 2015). The idea of agricultural literacy became a focus when the National Research Council (1988) implied that agriculture should be taught to all students, not just the small number of students interested in an agriculturally related career.

Along with learning and thinking skills, students should be literate and equipped with the necessary skills to advance in the world as citizens (Hurtado and DeAngelo, 2012). Civic mindedness has referred to one's tendency to engage in activities to help their community (Merriam-Webster, n.d.). Conley (2005) referred to civic skills as habits of mind. Habits of mind have been referred to as behaviors that are associated with academic success and are foundational skills required for lifelong learning (Conley, 2005).

Academic and Technical Knowledge and Skills

Academic and technical knowledge and skills are acquired through core and career and technical education (CTE) courses. Teachers have educated students in core and career and technical education courses to impart the academic and technical knowledge and skills that have been important for college and career readiness. Basic knowledge and skills have been taught in high school core courses, which consist of English/language arts, mathematics, science, government/economics, humanities/arts, foreign languages and history/geography. CTE has provided students with core academic skills, employability skills and job-specific, technical skills related to a career pathway. CTE programs have been grouped within sixteen career clusters that focus on preparing students to be college and career ready (ACTE, n.d.). Research has indicated that student participation in CTE programs has decreased the high school drop-out rate when one CTE course has been

taken for every two academic classes (Plank et al., 2005). CTE courses have provided contextual “real world” learning experiences that have engaged students and exposed them to opportunities to transfer and apply those skills in occupational settings (Berns and Erickson, 2001; Stone and Alfeld, 2004).

Career and Life Skills

Throughout the educational process, important career and life skills have been gained as students learn to apply both academic and technical knowledge to transfer into the employability skills required to be career ready. Employability skills have typically been considered to be personal qualities or work habits an individual possesses (Stone and Lewis, 2012). A nationwide comparative analysis of soft skills conducted in 2011 identified employability skills as communication skills, decision making/problem solving skills, self-management skills, teamwork skills, professional skills, experiences and leadership skills (Crawford et al., 2011).

Life skills are identified as: accountability, adaptability, ethics, leadership, people skills, personal productivity, responsibility, self-direction and social responsibility. Although many effective teachers include life skills in their instruction, these skills are challenging to deliberately integrate into the curriculum (Partnership for 21st Century Skills, 2009).

Life Ready Individuals

With the global population on the rise there has been much concern for our world with regard to the impending challenge to feed 9 billion people by 2050 in a sustainable manner (FAO, 2011). As future leaders are being prepared to be college and career ready, they need to be equipped with the knowledge, skills and dispositions to be critical thinkers and problem solvers. They need to be able to transfer the information learned in the classroom into contextual, real world experiences (Carnevale et al., 2011; Schmidt et al., 2012). Developing independent-minded, lifelong learners that are prepared to meet the challenges of the 21st century workplace is the ultimate goal of the collaborative efforts described in the Conceptual Model for the Study of Student Readiness in the 21st Century.

The purpose of this research was to utilize the results of a literature review to develop a conceptual framework to study the development of college and career readiness for high school students. The objectives of this research were to identify 21st century employability skills currently used to determine career readiness for high school students and to design a conceptual framework to reveal a systems approach to college and career readiness based on the literature review from the first objective.

Materials and Methods

This theoretical research sought to create a conceptual model and determine a common framework for the knowledge, skills and dispositions that are required

of students to be college and career ready in the 21st century. A key word search was initiated throughout six professional journals: the Journal of Agricultural Education, the Journal of Career and Technical Education, the Journal of Career Development, the Journal of Teacher Education, the Journal of Technology Education and the North American Colleges and Teachers of Agriculture Journal. Key words included: soft skills, career decision making, college and career readiness, career and employability skills, 21st century employability skills, knowledge and dispositions. The search results were extremely limited.

As a result, an additional search beyond the six selected journals was explored. The expertise of the University of Florida librarian was utilized to assist in the exhaustive search through several data bases, which included ProQuest and EBSCOhost. Finally, a Google Scholar search was conducted using the same key words. Limited empirical evidence was found specific to the researchers’ objective of interest. It was concluded there was a gap in the literature with regard to research in the area of college and career readiness. This study sought to develop a conceptual model that can be used as a framework to assist educators to prepare students to be both college and career ready.

Results and Discussion

Based on the exhaustive literature review that was conducted to identify 21st century employability skills relevant to career readiness for high school students, a total of nine seminal pieces of literature were identified and utilized as the focus for this research. Table 1 outlines the nine seminal pieces of literature providing the skill terminology and a list of the knowledge, skills and dispositions associated with each reference. Each list of skills from the nine identified resources was categorized and data were logged into a spreadsheet to determine commonalities among the identified list of skills. Constructs were then developed to incorporate groups of common skills into major categories. Nine constructs arose from the extensive literature review of 21st century employability skills. Those constructs were summarized as: learning skills, life skills, career skills, social skills, knowledge competencies, incidental learning skills, dispositions, experiences and interdisciplinary topics. Each construct included five to ten skills to represent the general categories of knowledge, skills and dispositions required of students to be career ready in the 21st century. Table 2 provides a summary of the nine constructs and related skills. The majority of the knowledge, skills and dispositions identified from the literature review were rated moderately or highly important by Florida secondary teachers (n = 191) from core and career and technical education disciplines (DiBenedetto, 2015).

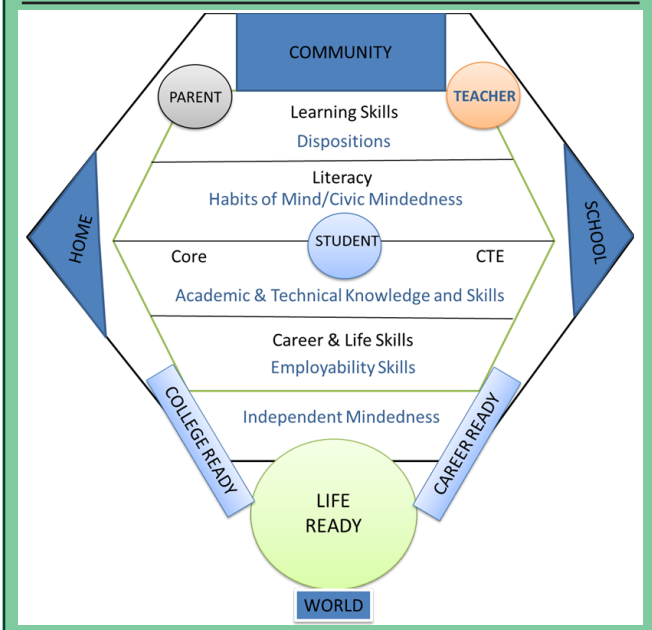
The Conceptual Model for the Study of Student Readiness in the 21st Century was developed to provide an accurate systems-approach to prepare students to be both college and career ready. As students develop within this model they become independent minded, life

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Table 1. Summary of Literature Identifying 21st Century Career Readiness Skills

Reference	Skill Terminology	List of Knowledge, Skills and Dispositions
Stone and Lewis, 2012.	SCANS-based, 21st century interdisciplinary themes	critical thinking, creative thinking, problem solving, responsibility, proficiency, self-management, integrity/honesty, learning and innovation, life and career, information, media, technology, global awareness, financial, economic, business, and entrepreneurial literacy, health, civic, and environmental literacy
Crawford, Lang, Fink, Dalton, and Fielitz, 2011.	Skill Clusters	problem solving, collaboration, grit, work habits/ethic, time management, technology, self-management, leadership, teamwork, innovation, creative thinking, engagement in life-long learning, self-direction, related work or internship, teamwork, project management, cross disciplinary, community engagement, international engagement
Partnership for 21st Century Skills, 2009.	21st Century Learning Model	critical thinking skills, problem solving, collaboration, contextual learning, reasoning: inductive and deductive, time management, people skills/social responsibility, communication, technology, health, leadership, responsibility, innovation, adaptability, creativity, personal productivity, self-direction
Conley, 2014.	College and Career Readiness	critical thinking, collaboration, contextual learning, grit, time management, goal management, organizational skills, social responsibility, integrity, technology, economic, civic, self-management, proficiency, motivation, adaptability, creativity, engagement in life-long learning, self-direction, confidence
CTE Technical Assistance Center of New York, 2013.	Career Readiness and Career and Technical Education	critical thinking, problem solving, collaboration, contextual learning, self-direction, responsibility, self-management
NASDCTEc, 2012.	Career Ready Practices	critical thinking, problem solving, employ research strategies, career decision making, social responsibility, diversity, integrity, self-management, communication, technology, health, environmental, economic, civic, global competence, cross-cultural awareness, leadership, teamwork, social awareness, perseverance, creativity, engagement in life-long learning
ACT, 2010.	Work Readiness Standards and Benchmarks	collaboration, integrity, communication, adaptability
Soland, Hamilton, and Stecher, 2013.	21st Century Competencies	critical thinking, collaboration, grit, communication, global competence, leadership, motivation, creativity, engagement in life-long learning, self-direction
SCANS, 1991.	Work Place Know-how	problem solving, reasoning, employ research strategies, career decision making, time management, people skills, social responsibility, ethical responsibility, integrity, communication, technology, economic, global competence, diversity, systems thinking, self-management, leadership, teamwork, responsibility, self-esteem, creativity, engagement in life-long learning, self-direction

Figure 1. Conceptual model for the study of student readiness in the 21st century



ready individuals that are prepared to be responsible citizens in the world in which they live. See Figure 1.

Teachers need support to prepare students to be career ready. Research-based pedagogical approaches must continually be incorporated into teaching practices (Partnership for 21st Century Skills, 2009). Students learn career skills in an environment that is built to support their needs. Opportunities and experiences for students to engage in learning skills, academic and technical knowledge and skills and employability skills are provided within a system that includes the home and the parent, the school and the teacher. In this

environment both academic and career and technical education courses are included in the curriculum. In addition, support from the community and industry provides opportunities for civic engagement.

Recommendations

To support the need to address the problem of determining a common definition of college and career readiness, it is recommended that the conceptual model designed by this research along with the nine constructs identified to prepare students to be college and career ready in the 21st century, be utilized as a common framework by post-secondary teachers/educators, business and industry and in high school and post-secondary curriculum to better prepare students for the challenges they will face when they graduate from high school and enter college or a career. In addition, discussions between industry leaders, school administrators, teacher educators and teachers/educators (secondary and post-secondary) need to occur to determine who is responsible for teaching career readiness to high school students. The Conceptual Model for the study of Student Readiness in the 21st Century indicates a systems approach is needed to prepare students to be both college and career ready and ultimately life ready. No single individual can be solely responsible to prepare students for the challenges they will face as they enter post-secondary education or a career. The system includes a variety of individuals (student, teachers, parents, community leaders and industry support) and a curriculum that is defined by the knowledge, skills and dispositions identified in the nine constructs that emerged from this research. Further research should seek to explore the perceptions

Table 2. Knowledge, skills, and dispositions required of high school students to be career ready in the 21st century

Constructs	
Learning Skills	Knowledge, Skills, and Dispositions Contextual Learning Critical thinking Initiative Perseverance/Grit Problem Solving Reasoning Self-direction
Life Skills	Accountability Goal management Organizational skills Problem solving Social/cross-cultural skills Time management
Career Skills	Career decision making Job search skills Productivity Responsibility Work habits/ethics
Social Skills	Understanding diversity Ethical responsibility Honesty Integrity Social responsibility
Knowledge Competencies	Decision making Innovation Proficiency Personal productivity Teamwork
Incidental Learning Skills	Adaptability Confidence Decision making Flexibility Leadership People skills Productivity Proficiency Initiative/self-direction Teamwork
Dispositions	Creativity/creative thinking Engagement in life-long learning Flexibility Innovation Motivation Perseverance/grit Personal productivity Responsibility Self-direction/self-discipline Self-esteem
Experiences	Career related work experience/internship Community engagement Cross disciplinary connections International engagement Leadership Project management Teamwork
Interdisciplinary Topics	Agriculture Civics Communications Economics Environment Global awareness Health Technology

of post-secondary teachers/educators, high school administrators, curriculum developers, business and industry leaders and parents with regard to importance and responsibility to teach career readiness skills to students. Findings gleaned from additional research can potentially assist in creating opportunities for discussion, which will provide better understanding for assigning responsibility to those individuals that will serve the best interest of high school students as they are prepared to graduate from high school and enter college or a career.

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Career Skills: Perceptions of Importance and High Impact Learning Activities for Skill Development in Agricultural Economics and Agribusiness Programs¹

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Abstract

Most agricultural economics departments offer a plethora of so-called “high-impact learning activities,” in-class and out-of-class experiences that make students’ education more meaningful. While these practices are resource-intensive and require great effort from students, they also help them develop the skills necessary to compete in tomorrow’s workforce. From a survey of and conversations with employers, we identify skills sought by employers. We combine this with a survey of current undergraduate students and undergraduate alumni from the Food and Resource Economics program at the University of Florida to examine students’ perceptions of these critical skills and the effectiveness of high impact learning activities for the development of these skills. The analysis indicates that critical thinking, oral communication skills and time management are top priorities for employers and seen as most important by undergraduate alumni. Participation in innovative classroom activities and two industry-oriented undergraduate clubs are perceived as the most effective activities to develop these skills.

Key words and phrases: perceptions, high impact learning, career skills, career-ready, undergraduate, graduate, employment, economics, food, resource, agribusiness, student, industry-ready

Introduction

Contemporary agricultural and natural resource economics departments have evolved in support of the land-grant mission and stressed the importance of rel-

evant curricula matching the needs of a fast-changing world of agriculture and agribusiness. In the recent past, there has been an emphasis on high-impact learning activities (HILA) and practices to prepare students for careers. These are the types of experiences, both in and out of the classroom, that make students’ education more meaningful (Kuh 2008).

The different types of curricular and extracurricular opportunities and enrichment activities offered help students acquire the skills and experiences that are highly sought after by potential employers, reinforcing the goal of the land grant system’s undergraduate teaching programs. However, these types of experiences can be expensive and resource-intensive. Given that departmental budgets are increasingly dwindling and faculty time is in high demand, it is more imperative than ever that departments are utilizing their resources wisely. Economics is ultimately about the allocation of scarce resources or how to most effectively distribute resources across competing means. In this spirit, department chairs and administrators must decide how best to allocate resources, financial and otherwise, among academic programs, extracurricular activities and other type of enrichment opportunities. With a more complete information set about the effectiveness of these programs, better allocation decisions can be made.

This paper provides a preliminary analysis of the different types of high-impact learning activities offered at a typical land-grant agricultural economics department, in this case, the University of Florida (UF).

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To determine the effectiveness of each activity, we analyze student perceptions of the importance of specific skills for their future careers. We also survey industry representatives that have recently hired our Food and Resource Economics (FRE) graduates and/or admitted our students to their internship programs to determine which skills are most important to employers.

We then assess the effectiveness, as perceived by students, of curricular and extracurricular activities offered through the FRE program at UF for the development of the most important skills. In essence, we begin to assess the benefits (both perceived and actual) and effectiveness of activities. While this analysis is specific to our department, the methods could be undertaken across a broad range of departments, universities and geographical areas. The outcome of this study can, therefore, assist administrators in allocating aforementioned scarce resources in a manner that is most productive and conducive to student learning and the development of critical skills sought by employers. Consequently, our study is not only a timely inquiry, but is also a necessary exercise.

This paper proceeds as follows. In the next section, we provide a brief discussion on high-impact learning activities and their general role in agricultural economics programs. In the following section, we discuss our survey design, method and our different study populations. We proceed with presenting our results and the last section concludes and discusses future work.

High-Impact Learning and Context of Study

In his now seminal work, Kuh (2008) extensively discusses the general importance and characteristics of high-impact learning. In particular, he shows that HILA include first year seminars and experiences; common intellectual experiences (i.e., core curricula across disciplines); learning communities (i.e., the pairing of courses for a cross-disciplinary immersive student experience); writing intensive courses; collaborative assignments and projects (i.e., problem solving in groups); undergraduate research (i.e., thesis and honors courses); diversity and global learning (i.e., study-abroad opportunities and internationally themed coursework); service learning (i.e., the application of classroom knowledge to outside situations, such as competition teams, real world learning, etc.); internships; and capstone experiences.

Kuh (2008) also discusses the required building blocks of HILA. In particular, 1) they are effortful (students are required to devote considerable time and effort); 2) they help students build substantial relationships with both faculty and peers; 3) they expose students to diversity, as they have to interact with people who may be from different backgrounds or living different lifestyles than themselves; 4) they provide students with frequent and thorough feedback; 5) they help students apply what they have learned academically in new settings and situations; and 6) they provide students

opportunities to reflect on the person they are becoming through sometimes life-changing experiences and how they fit as a global citizen in the broader reality in which they live.

Evidence from HILA have illustrated direct benefits for college students through the development of job-readiness skills and by providing students with opportunities for critical/strategic thinking and leadership experience. Recent literature assessing the role of high-impact learning for student outcomes and student success in a general higher education setting find that HILA contribute to student success and learning, e.g., Fernald and Goldstein (2013), Kilgo et al. (2015) and Seifert et al. (2014). Specifically relating the importance of HILA in agricultural disciplines, recent work by Leggette et al. (2013), McKim et al. (2013) and Odom et al. (2014) highlight the significant role field experiences can have for undergraduate students. However, there seems to be a gap in the literature when it comes to considering the broad range of high-impact learning opportunities in agricultural sciences in general and agricultural economics in particular. This paper will begin to fill this gap.

Furthermore, when it comes to agricultural economics, previous studies have voiced concern over the future of agricultural programs if they do not take note of industry needs and adjust to new environments (Coorts, 1987; Slocombe and Baugher, 1988; Scanlon et al., 1996; Graham, 2001). Institutions of higher education have been challenged to improve academic quality more broadly and provide a more integrated experience for students (Dill, 2003). As a result, over the last two decades many colleges have revisited their curricula, philosophy and mission to develop metrics to assess student learning and learning outcomes.

Studies focused on identifying industry-ready skills and level of preparation of recent graduates have offered insight into how well employers assess the preparation of recent graduates ready to pursue careers in agriculture (Blezek and Dillon, 1991; Andelt et al., 1997; Graham, 2001 and Williams et al., 2014). Learned skills and abilities that were reported as important emphasize well-developed interpersonal skills, leadership ability, problem solving, teamwork (Andelt et al., 1997; Williams et al., 2014), communication skills (Williams et al., 2014) and proficient computer skills (Williams et al., 2014). Employers recognize the benefits of students' pursuing internship and research opportunities in the transfer of these skills and abilities. Additionally, desirable character attributes include integrity, ethical judgment, interest in global trends, knowledge of more than one language (Kuh, 2008; Williams et al., 2014) and the ability to quickly adapt to a changing environment (Williams et al., 2014). Recent findings from the Hart Research Associates (2015), on behalf of the Association of American Colleges and Universities, reported that employers perceive lower levels of preparedness of graduates regarding their learned skills and abilities relative to students' self-reported perceptions.

Career Skills: Perceptions of

Most agricultural economics departments offer a plethora of activities and practices that would be considered high-impact. We have identified five main categories of HILA offered through the academic programs in FRE at UF which may contribute opportunities for meaningful student development of professional/career skills, including: 1) student research; 2) student leadership and group work; 3) in-classroom active learning approaches; 4) student competitions; and 5) marketing-oriented professional development. Let us now consider these in further detail.

In FRE, students may participate in either of two different research opportunities. Students can participate in the UF Scholars program, a competitive, university-wide program designed for a broad student audience encompassing multiple levels of student skills and abilities. The experience entails working with a research mentor for an entire academic year. Participants are required to present their research at the UF Undergraduate Research Symposium and are also required to submit a manuscript for peer-review at a professional journal. Additionally, the College of Agricultural and Life Sciences Honors Program is a college-level program that augments the traditional major with two components: a mentored and administratively-reviewed senior thesis and the supplementation of existing courses with additional projects and learning experiences.

The second category of HILA explores leadership opportunities and group work and includes the Agricultural Economics Club (Ag Econ Club). Any UF student can participate actively as a committee member or assume a leadership role in either an elected officer or committee chair or co-chair position within the Ag Econ Club. The leadership and group work component includes planning meeting agendas, inviting guest speakers and project-planning for volunteer, service and social events; professional development and education; and fundraising efforts.

Throughout the FRE curriculum, students are engaged in numerous active-learning experiences in the classroom designed to complement traditional lecturing. For instance, students participate in case studies and simulation games in several of their agribusiness courses where they act as if they were advising for or managing their own agribusiness enterprises. In multiple courses, specifically designed activities are used to reinforce theoretical concepts in a flipped-classroom environment where the students engage in activities during class time instead of learning through the traditional lecture format. One such example is an activity where students produce paper airplanes with various inputs and costs associated with inputs. Through repeated rounds, varying the amount of capital available, the students end up illustrating all cost functions that would traditionally be presented in lecture format.

The fourth category includes student competitions that may include college credit earned for their participation. FRE students may elect to participate in

Academic Bowl (colloquially referred to as “Quiz Bowl”) at competitions on both the regional and national levels as organized by the Southern and American associations in our field. At these events, students compete against and with other undergraduate student teams representing other land-grant universities to showcase their knowledge of the agricultural economics curriculum in a double-elimination jeopardy-style tournament.

Finally, FRE students may elect to participate in two marketing-oriented groups. First, students can participate in the National Agri-Marketing Association (NAMA) student marketing competition which entails preparing a marketing plan for a product marketed by or to farmers and culminates in the submission of an executive summary and student team presentation at the national conference. The NAMA student chapter allows students to network with professionals, develop their marketing and communication skills and develop leadership and team-building skills (Wachenheim, 2007). In addition to applying their classroom knowledge, students also learn how to work in teams, engage in strategic decision-making and problem solving and perform under pressure in a competitive environment. In a non-competitive setting, the Produce Marketing Association Foundation Career Pathways Program (PMA) provides students across both domestic and international universities with conventions to attend yearly. FRE maintains a faculty advisor to coordinate student participation in PMA events. This provides students with networking opportunities and a chance to engage with industry professionals.

Materials and Methods

An online survey was administered, following the methods used by Dillman (1978). Current students were invited to participate via an email sent to the entire undergraduate student list serve. At the time of the emails, FRE had 304 undergraduate students enrolled. To contact alumni, we utilized an alumni list compiled by the FRE undergraduate advisor. The list included 117 alumni who graduated within the last 5 years. We estimate that this represents approximately 25% of all alumni for those years.

The student and alumni surveys were divided into 5 main parts. Part I collected background information pertaining to graduation dates, employment status and employment fields. The second section asked them to rate ten skills (discussed further below) on a scale of 1 (not important) to 5 (extremely important) in terms of their importance to the respondent's career. Next, respondents were asked about their participation in the specific HILA described above while at UF. Using their participation responses, they were then asked follow-up questions rating each specific activity's contribution, on a scale of 1 (did not contribute) to 4 (contributed a lot), to the development of the ten skills. Finally, the survey contained questions pertaining to demographic information such as gender, race and age.

In addition to surveying current and past undergraduates, we contacted 27 employers in the field of retail/consumer goods, agricultural lending, crop protection chemicals and agricultural production who had previously employed FRE graduates. Unfortunately, the initial number of employers surveyed was low and there was significant attrition throughout the survey, limiting the quantitative analysis possible on the industry side.

The University of Florida's Institutional Review Board approved the study protocol and all participants electronically agreed to consent prior to continuing on to the online survey. Participants answered questions at their discretion and could decide to stop the questionnaire at any time.

Results and Discussion

About 39% of contacted alumni and 11% of current undergraduates participated in the survey.

One might question whether participants are representative of our current and past students. The alumni for which we have contact information are likely to be the ones who were most connected to FRE through their involvement in HILA and similarly, the undergraduate students who responded are also more likely to be active members of FRE. While this means that our respondents are not necessarily representative of the department as a whole, they are likely to be representative of students who participate in HILA. Thus, our results should be applicable to current and future participants of HILA.

Table 1 presents summary statistics of respondents from the current undergraduate and undergraduate alumni survey. The majority of current and past students are white males. About half of the alumni respondents pursued graduate education upon graduation while more than half of current students plan to pursue employment upon graduation. This discrepancy may result from past economic conditions that limited employment opportunities for undergraduate students. With a recovering economy, more undergraduates will likely enter the workforce immediately after graduation, making career skill development a higher priority now.

Table 2 presents HILA participation rates of current and past undergraduate students and we test for statistically significant

differences in participation rates across the two groups. Among current students Ag Econ Club (33.3%) and Quiz Bowl (27.3%) are the most common HILA, while under alumni, in-classroom activities (58.7%) and Ag Econ Club (43.5%) are the top activities.

To assess student perceptions of the importance of skills for their future careers, we undertake two forms of analysis. First, we compare perceptions across current and past undergraduates by testing for difference in means of the rating (on a scale of 1 to 5) of each skill (Table 3). We find no statistically significant difference across current and past students for any skills. It should be noted that Table 3 reports skills as defined in the survey. For some skills, such as critical/analytical thinking, students may have different definitions of the skills. This added noise may impede finding statistically significant differences in opinions.

Table 1. Summary Statistics of Respondent Characteristics

	Undergraduate Alumni			Current Undergraduates		
	N	Proportion	Std. Dev.	N	Proportion	Std. Dev.
Female	41	0.317	0.471	23	0.217	0.422
Race						
White	46	0.761	0.431	33	0.576	0.502
Black	46	0.022	0.147	33	0.030	0.174
Hispanic	46	0.043	0.206	33	0.030	0.174
Asian	46	0.022	0.147	33	0.061	0.242
Other	46	0.043	0.206	33	0.030	0.174
Age Range (years)						
Less than 21	46	0.000	0.000	33	0.182	0.392
21 - 24	46	0.239	0.431	33	0.364	0.489
25 - 29	46	0.543	0.504	33	0.061	0.242
30+	46	0.130	0.341	33	0.091	0.292
Post-Graduation Plans						
Ag Econ Grad Program	46	0.196	0.401	33	0.212	0.415
Other Grad Program	46	0.087	0.285	33	0.242	0.435
Ag Industry Employment	46	0.152	0.363	33	0.182	0.392
Natural Resources Empl.	46	0.043	0.206	33	0.030	0.174
Other Employment	46	0.500	0.506	33	0.091	0.292

Table 2. Participation Rates of High Impact Learning Activities

	Undergraduate Alumni			Current Undergraduates			Test for Difference in Means t-Statistic (Current - Alumni)
	N	Mean	Std. Dev.	N	Mean	Std. Dev.	
Quiz Bowl	46	0.087	0.285	33	0.273	0.452	2.24**
NAMA/PMA	46	0.261	0.444	33	0.152	0.364	-1.16
Ag Econ Club	46	0.435	0.501	33	0.333	0.479	-0.90
Honors Program/ Undergraduate Research	46	0.152	0.363	33	0.182	0.392	0.35
Classroom Activities	46	0.587	0.498	33	0.121	0.331	-4.68***
None	46	0.130	0.341	33	0.242	0.435	1.28

Note: *, **, and *** indicate significance at the 10%, 5%, and 1% level respectively.

Table 3. Perceived Importance of Skills for Future Employment. (On Scale of 1 to 5 with 1: Not Important, 5: Extremely Important)

	Undergraduate Alumni			Current Undergraduates			Test for Difference in Means t-Statistic (Current - Alumni)
	N	Mean	Std. Dev.	N	Mean	Std. Dev.	
Evaluation Information	42	4.29	0.83	25	4.040	1.098	-1.034
Effective Oral Communication	42	4.64	0.73	25	4.360	1.036	-1.311
Professional Written Communication	42	4.31	0.84	24	4.292	0.859	-0.082
Critical/Analytical Thinking	42	4.67	0.65	25	4.440	0.712	-1.332
Solving Complex Problems	42	4.26	0.86	24	4.208	0.932	-0.237
Applying Knowledge to the Real World	42	4.43	0.80	23	4.609	0.583	0.949
Ability to Work in Teams	42	4.12	0.99	23	4.261	0.864	0.576
Ability to Use Quantitative Skills	42	4.24	0.96	23	4.130	0.757	-0.465
Time Management, Planning, and Prioritizing Work	42	4.64	0.62	23	4.565	0.590	-0.492
Proficiency with Computer Technology	42	4.36	0.76	23	4.087	0.900	-1.284

Note: *, **, and *** indicate significance at the 10%, 5%, and 1% level respectively.

Table 4. Difference in Mean Importance Rating of Each Skill for Alumni and Current Students. Skills Listed in Order of Average Importance with the Significance of Pair-Wise t-tests for Difference in Means (Row skill - Column Skill) Reported with Asterisks

Alumni Ranking of Skills	Crit. Think.	Oral Comm	Time Man.	Apply Know.	Computers	Writ. Comm	Eval Info	Compl Probs	Quant. Skills	Teams
Critical/Analytical Thinking		0.02	0.02	0.24	0.31*	0.36*	0.38*	0.40**	0.43**	0.55**
Effective Oral Communication			0.00	0.21	0.29*	0.33*	0.36*	0.38*	0.40*	0.52**
Time Management, Planning				0.21	0.29*	0.33*	0.36*	0.38*	0.40*	0.52**
Applying Knowledge to the Real World					0.07	0.12	0.14	0.17	0.19	0.31
Proficiency with Computer Technology						0.05	0.07	0.10	0.12	0.24
Professional Written Communication							0.02	0.05	0.07	0.19
Evaluation Information								0.02	0.05	0.17
Solving Complex Problems									0.02	0.14
Ability to Use Quantitative Skills										0.12
Ability to Work in Teams										
Current Student Ranking of Skills	Apply Know.	Time Man.	Crit. Think	Oral Comm	Writ. Comm	Teams	Compl Probs	Quant Skills	Computers	Eval Info
Applying Knowledge to the Real World		0.04	0.17	0.25	0.32	0.35	0.40*	0.48*	0.53*	0.56*
Time Management, Planning			0.13	0.21	0.28	0.30	0.36	0.43*	0.48*	0.53*
Critical/Analytical Thinking				0.08	0.15	0.18	0.23	0.31	0.35	0.40
Effective Oral Communication					0.07	0.10	0.15	0.23	0.27	0.32
Professional Written Communication						0.03	0.08	0.16	0.20	0.25
Ability to Work in Teams							0.05	0.13	0.17	0.22
Solving Complex Problems								0.08	0.12	0.17
Ability to Use Quantitative Skills									0.04	0.09
Proficiency with Computer Technology										0.05
Evaluation Information										

Note: *, **, and *** indicate significance at the 5%, 1%, and 0.1% level respectively.

However, when we test for differences in rating across skills within student groups, a different picture emerges (Table 4). For alumni, critical/analytical thinking, effective oral communication and time management were rated, on average, higher than all other skills. The differences in rating are statistically significant for all pair-wise tests except for the tests of these three top skills with applying knowledge to the real world. For current undergraduate students, applying knowledge to the real world and time management emerge as top skills, but they are only statistically significantly greater than complex problem solving, quantitative skills, computer skills and evaluating information.

Among the 27 surveyed employers, about 9 reached the importance of skills section (Table 5). Interestingly, when we rank skills by average importance reported by employers, we find that the top three skills match the top three skills rated by alumni. Due to small sample size, we do not find any statistically significant differences in average ratings by employers. Open-ended questions in the survey reiterated the need for good communication (including listening), planning and execution ability and being personable. Current undergraduate students rated applying knowledge to the real world most highly, but among employers, this skill had the second lowest rating.

Employers were familiar with new hire/intern HILA activities including (number of affirmative responses in parentheses): community service projects (6), internships (4), Honors/Undergraduate research programs (3) and “other” responses including: study abroad, Ag Econ Club and learning experiences other than traditional lecturing style. These participants reported FRE students’ abilities as better (3), the same (5), or below (1) graduates from other majors, colleges, or universities.

Given the emergence of critical/analytical thinking, effective oral communication and time management as the most highly rated skills by students and employers, we will focus on these skills to evaluate HILA. Students rated each activity in which they participate(d) on a scale of 1 to 4 in terms of the activity’s contribution to the development of each skill. Since only respondents who participated in a given activity were asked to rate the activities for skill development, we combine current and past undergraduates to create more meaningful sample sizes. The activities have not changed substantially in the last five years, allowing for this combination. Table 6 reports the average ratings for the top three skills. Table 7 reports the differences in average ratings across HILA and reports significance of pairwise t-tests for a difference in mean ratings.

For critical and analytical thinking, classroom activities, research, Quiz Bowl and NAMA/PMA were all rated more highly than Ag Econ Club. However,

Table 5. Employer Perceptions of the Importance of Skills for Employees (On Scale of 1 to 5 with 1: Not Important, 5: Extremely Important)

Ranking of Skills	N	Mean	Standard Deviation
Critical/Analytical Thinking	7	4.86	0.90
Effective Oral Communication	8	4.75	0.89
Time Management, Planning, and Prioritizing Work	7	4.71	0.95
Proficiency with Computer Technology	7	4.71	0.95
Solving Complex Problems	6	4.50	1.22
Ability to Work in Teams	9	4.44	1.13
Ability to Use Quantitative Skills	9	4.44	1.13
Applying Knowledge to the Real World	7	4.43	1.13
Professional Written Communication	9	4.00	1.32

Table 6. The Contribution of HILA to the Development of Critical Thinking, Oral Communication, and Time Management (on a scale of 1: Did Not Contribute to 4: Contributed a Lot)

	Critical Thinking	Oral Communication	Time Management	N
Ag Econ Club	2.30	2.68	2.68	32
Classroom Activities	3.52	3.23	3.45	32
NAMA/PMA	3.29	3.61	3.60	16
Quiz Bowl	3.36	3.00	3.10	11
Research	3.44	2.22	3.22	10

among the top four activities, there was no statistically significant difference in ratings. For oral communication skills, NAMA/PMA was rated more highly than Quiz Bowl, Ag Econ Club and Research; classroom activities were rated more highly than Ag Econ Club and Research; and Quiz Bowl was rated more highly than Research. Finally, for time management skills, NAMA/PMA and classroom activities were rated statistically significantly more highly than Ag Econ Club. From this analysis, NAMA/PMA, classroom activities and Quiz Bowl appear to contribute more effectively to the development of critical and analytical thinking, oral communication and time management skills than Research and Ag Econ Club. This does not imply that Research and Ag Econ Club have no value to students, but they may be less valuable in terms of developing these three sought-after skills.

This research has important implications for the recruitment of students to HILA. Among current undergraduates, only Quiz Bowl has a higher participation rate than Research and Ag Econ Club. If students are made aware that NAMA/PMA develops sought-after skills, more students may participate. Participation in classroom activities, however, is dependent on the instructor's inclusion of activities in his or her course. Our results suggest that broader inclusion of activities in courses could better prepare graduates for employment.

Summary

We find a strong alignment of alumni and employers with regards to the importance of specific skills. Current undergraduates, while aligned with regards to some skills, appear to undervalue skills like oral communication. While not statistically significant, conversations with industry members also suggest that certain computer skills are being undervalued by undergraduates, who may take technology skills for granted.

Non-traditional classroom activities were consistently an important HILA for the development of sought-after skills. In an environment of limited resources, this suggests that encouraging more active learning strategies in the classroom could have a large benefit at minimal additional cost in terms of time, travel costs, etc. NAMA/PMA were also important contributors to the development of career skills. While these activities require an investment in time outside of the classroom and travel expenses, this investment may be more beneficial than investments in other extracurricular activities.

As mentioned earlier, while we believe our sample is representative of students who participate in HILA, the effectiveness of HILA may differ for the broader student population. Further research should consider effectiveness of HILA if we were able to induce increased participation from students less likely to participate.

Table 7. Difference in Mean Contribution Rating of Each Activity for the Development of Critical Thinking, Oral Communication, and Time Management Skills. Activities Listed in Order of Average Contribution with the Significant of Pair-Wise t-tests for Difference in Means (Row Activity - Column Activity) Reported with Asterisks

Development of Critical Thinking	Classroom	Research	Quiz Bowl	NAMA/PMA	Ag Econ
Classroom Activities		0.07	0.15	0.23	1.22***
Research			0.08	0.16	1.14**
Quiz Bowl				0.08	1.06**
NAMA/PMA					0.99***
Ag Econ Club					
Developing of Oral Communication	NAMA/PMA	Classroom	Quiz Bowl	Ag Econ	Research
NAMA/PMA		0.38	0.61*	0.93**	1.38***
Classroom Activities			0.23	0.55*	1.00**
Quiz Bowl				0.32	0.78*
Ag Econ Club					0.46
Research					
Development of Time Management	NAMA/PMA	Classroom	Research	Quiz Bowl	Ag Econ
NAMA/PMA		0.15	0.38	0.50	0.92**
Classroom Activities			0.23	0.35	0.78***
Research				0.12	0.54
Quiz Bowl					0.42
Ag Econ Club					

Note: *, **, and *** indicate significance at the 5%, 1%, and 0.1% level respectively.

It should be noted that significant differences may exist across industries and job responsibilities; our limited employer sample size prohibits further analysis along these lines. Additional data collection may allow for identification of industry-specific needs, which could be communicated to students early in their academic careers. It would also allow for tailored HILA activities, depending on the students' future career plans.

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Analysis of Leadership Perceptions, Skills and Traits as Perceived by Agribusiness and Industry Professionals

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Abstract

Leadership continues to be an important topic in both the agricultural industry and agricultural education discipline. This study focused on identifying to what degree individual leadership perceptions, skills and traits should be emphasized when preparing college graduates for the agribusiness profession. Participants included employers at University of Minnesota and Iowa State University agriculture career fairs and members of the Minnesota Teacher Induction Program business network. Participants agreed that effective leaders are open to change ($M=3.48$), effective listeners ($M=3.49$), knowledgeable about their technical field ($M=3.23$), can be trusted ($M=3.18$) and are team players ($M=3.17$). According these agribusiness professionals, the five most important leadership skills are being accountable ($M=3.78$), taking responsibility ($M=3.75$), communicating ($M=3.73$), learning ($M=3.58$) and adapting to change ($M=3.61$); and the five most influential leadership traits are honesty ($M=3.71$), positive attitude ($M=3.71$), trustworthiness ($M=3.66$), self-confidence ($M=3.60$) and dependability ($M=3.60$). These findings, like previous studies, confirmed that leadership qualities continue to be invaluable as businesses and organizations develop in a complex global economy and these qualities are equally important in agribusiness. An ongoing connection and exchange of leadership knowledge and resources among colleges of agriculture and agribusiness professionals ensures that future agricultural leaders leave college well prepared for leadership challenges and opportunities in the workplace.

Keywords: Leadership, Leadership Skills, Leadership Traits

Introduction/Theoretical Framework

Agribusiness helps support worldwide demand for food, fiber, fuel and natural resources. As agricultural research and technology accelerates, so do new career opportunities that require new knowledge and skills. Success in these new opportunities also requires leadership and developing students' leadership qualities continues to be an important topic in both the agricultural industry and agricultural education discipline. Various leadership writers (Bolt, 1996; Gardner, 1990) believe we approached the 21st century with a dramatic deficit in leaders. However, Bolt emphasized the deficit was really in leadership development and not leadership itself. Similarly, 75% of respondents in the IBM Global Human Capital Study (IBM, 2007) reported that the inability to develop future leaders is a critical issue for organizations. Kouzes and Posner (2007) also suggested the world is facing problems that need strong leadership to guide society towards a better future.

The preparation of future generations of leaders will not end anytime soon. It has been well noted that leadership competencies are integral for navigating a path through rapidly escalating global complexity (IBM, 2010). There is an ongoing need to describe and understand the importance of leadership around the world today. Lenhardt et al. (2011) emphasized that employers who hire for agriculture-related careers desire to hire college graduates who possess effective leadership skills. Higher education has been entrusted with the role of developing leaders for a global society (Astin et al., 2000). Many higher education institutions are working to address the problem by providing high quality leadership activities and programs to students (Riggio et al., 2003).

Analysis of Leadership Perceptions

Many studies have been conducted on leadership and its connection to industry. Rosenberg et al. (2012) concluded that ongoing communication is vital to the connections between educational institutions and industry. When employers communicate their needs and educational institutions modify their curricula in a timely manner, current and engaging learning experiences can result. An ongoing exchange of information, knowledge and resources between colleges of agriculture and agribusiness/industry regarding leadership and employability skill requirements can improve the content and context of new leadership development curricula.

Also, there appears to be an increasing effort in higher education to stay attuned to agribusiness/industry's leadership needs through the development of new leadership training programs in colleges of agriculture around the country. Brungardt (2011) found that graduate students who had exposure to several leadership courses had a significantly higher level of skill development than students who had no leadership courses. Rosenberg et al. (2012) described a series of seven studies dating back to the 1980s that laid the foundation for research in the area of employability skills needed in business. In their study, a sample of 97 human resource managers who recruited at a California university identified leadership skills as the second most important dimension among eight dimensions of employability valued in college graduates. The managers mentioned responsibility, self-esteem, integrity and honesty as characteristics that define leadership.

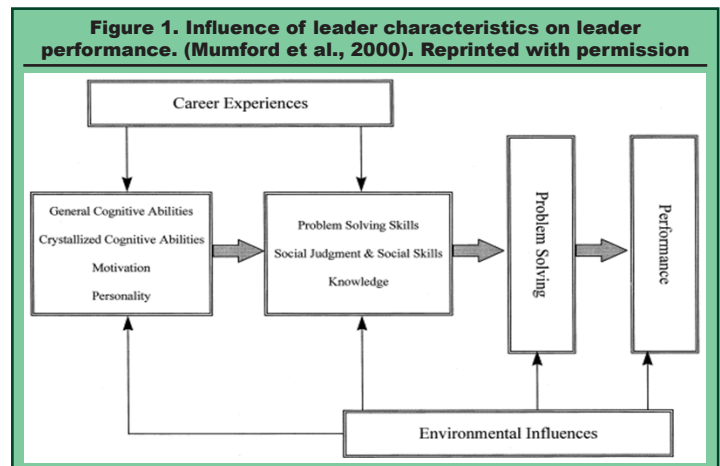
Dormody and Seevers (1994) believed youth develop leadership skills by public speaking, holding an office and participating in meetings. Sawi and Smith (1997) defined leadership skills as leadership, teamwork, decision-making, problem solving, reasoning and communication as well as personal qualities such as responsibilities, self-esteem and integrity. Other leadership skills are organization and delegation, problem solving, sharing leadership, communication, futuristic thinking, decision-making, time management, divergent thinking, conflict resolution, goals setting and group dynamics. Hustedde and Woodward (1996) identified 14 communication-related skills that often need to be developed in leadership training programs: active listening, facilitation, imagination, interviewing, collaboration, conflict resolution, deliberation, evaluation, negotiation, power analysis, strategic planning, team building, vigilance and volunteer management. In a study conducted by Smalley (2005), communication skills was identified as the most important skill.

Effective leadership skills have been judged as necessary for success in the complex and rapidly changing agricultural industry (McKinley et al., 1993). Many agricultural employers have reported characteristics and skills that leaders need to have in order to meet business goals and objectives. Exposure to a variety of forms of leadership through involvement outside of the classroom offers experiences and background knowledge that students can draw on as they integrate

leadership theories and skills (Bolt, 1996; Kouzes and Posner, 1990; Wren, 1994). Kelley Bishop (2004), executive director of Michigan State University career services and placement, identified 12 competencies employers seek in college graduates: working in a diverse environment, managing time and priorities, acquiring knowledge, thinking critically, communicating effectively, solving problems, contributing to a team, navigating across boundaries, performing with integrity, developing professional competencies, balancing work and life and embracing change.

There is some debate as to whether leadership is a skill or trait. Trait and skill theory both date back to the early 20th century, but provide different perspectives on leadership development. In trait theory, traits were identified as "innate qualities" with which individuals were born. Stogdill (1948), the first to challenge the notion that leadership traits were universal to all situations, included the traits of intelligence, alertness, insight, responsibility, initiative, persistence, self-confidence and sociability in the very first leadership study. In subsequent surveys, Stogdill (1974) included items such as drive and risk-taking as leadership traits. A unique characteristic of trait theory is that it focuses solely on the leader and not the leader's followers. Trait theory gained credibility as a leadership description, in part because it has been used to describe historical icons including Lincoln, Ghandi, Catherine the Great, Napoleon Bonaparte and many other powerful leaders (Northouse, 2010). In contrast, skill theory focuses on characteristics, or abilities, that can be learned and developed. Skill theory dates back to Katz (1955), who published a Harvard Business Review article titled "Skills of an Effective Administrator." Katz used a three-skill approach that measured technical, human and conceptual skills. This theory helped validate the importance of leaders having all three skills, depending on the level they were at within their organization. This theory also espouses that some skills are more important than others depending on the dynamics and level of a profession.

The skills model of leadership (Figure 1) Mumford et al., 2000) provides the framework for this study. This model illustrates the movement from individual attributes (i.e., cognitive abilities, motivation, personality) to



competencies and then to leadership outcomes in the form of effective problem solving and performance. As leaders develop, external influences (i.e., career experience and environment) also shape and form their leadership perceptions, skills and traits—and ultimately how they achieve leadership outcomes.

The skills model of leadership suggests a need for ongoing research in an effort to further leadership development and education (Mumford et al., 2000). In the agricultural industry, there is a need to identify how agribusiness professionals who hire college graduates perceive leadership, the importance of leadership skills and the traits that influence leadership development. Because common traits are not considered universal to all leadership situations (Northouse, 2010), there is a need to study leadership traits in addition to leadership beliefs and skills.

Purpose/Objectives

The purpose of this study was to identify to what degree individual leadership perceptions, skills and traits should be emphasized when preparing college graduates for an agribusiness profession. The study had the following objectives:

- Identify to what extent agricultural employers agree with leadership perception statements.
- Determine the level of importance of selected leadership skills and knowledge statements—as perceived by agricultural employers.
- Determine the extent to which selected traits influence leadership development in the agricultural industry—as perceived by agricultural employers.

Methods/Procedures

The population for this descriptive survey study consisted of all participants of three groups: University of Minnesota College of Agriculture career fair participants (UMF CFANS), Iowa State University College of

Agriculture and Life Science (ISU CALS) career fair participants and the Minnesota Teacher Induction Program (MN TIP Net.) business network (a group of business professionals). The response rate at the University of Minnesota career fair was 32.07% (*n* = 34). The response rate at the Iowa State University career fair was 17.82% (*n* = 90). The response rate for the Minnesota Teacher Induction Program was 84.61% (*n* = 44). This population was selected as a purposive sample of convenience to better understand to what degree individual leadership perceptions, skills and traits should be emphasized when preparing college graduates for an agribusiness profession. A larger response rate may have been seen in the Minnesota Teacher Induction Program due to the researchers having a connection to the participants.

We used Smalley’s (2005) survey instrument as a way to identify how perceptions, skills and traits have changed since the original study. The original instrument was constructed through a Delphi process to identify the perceptions, skills and traits deemed most appropriate by graduating undergraduate students. This instrument was broken down into three sections. In section one, participants used a Likert-type scale (1 = strongly disagree, 2 = disagree, 3 = agree, 4 = strongly agree) to indicate the extent to which they agreed or disagreed with select leadership perception statements. A perception was defined for participants as a belief people have about leadership.

In section two, participants used a Likert-type scale (1 = not important, 2 = somewhat important, 3 = important, 4 = very important) to indicate the extent to which select leadership skills are important for new agricultural employees to possess. Traits were defined as distinguished qualities of individuals that may be possessed by leaders. In section three, participants used a Likert-type scale (1 = no influence, 2 = some influence, 3 = moderate influence, 4 = high influence)

Table 1. Ranked Leadership Perception Statements by Group

Perception statements	MN TIP Net. (<i>n</i> = 44)			UMF CFANS (<i>n</i> = 34)			ISU CALS (<i>n</i> = 90)		
	Rank	M	SD	Rank	M	SD	Rank	M	SD
Leaders are effective listeners.	1	3.57	.553	2	3.42	.579	2	3.48	.726
Leaders are open to change.	2	3.45	.709	1	3.50	.521	1	3.51	.710
Leaders can be trusted.	3	3.25	.657	5	3.09	.609	5	3.21	.609
Leaders aspire to possess high positions in their organization.	4	3.20	.600	7	2.97	.551	8	2.97	.640
Effective leaders are knowledgeable about their field.	5	3.18	.680	3	3.21	.641	3	3.31	.556
Leaders are team players.	6	3.11	.680	4	3.12	.753	4	3.28	.571
Leaders understand themselves.	7	3.09	.583	6	3.00	.538	6	3.08	.691
To be promoted in one’s career you must be a strong leader.	8	2.91	.650	11	2.71	.657	9	2.97	.640
Only those who recognize the needs of others are leaders.	9	2.91	.654	15	2.47	.600	13	2.69	.622
Those who respect others are leaders.	10	2.91	.668	10	2.74	.561	7	3.08	.691
Those who take charge are leaders.	11	2.86	.713	13	2.56	.606	14	2.66	.621
Students highly involved in organizations are leaders.	12	2.84	.772	12	2.59	.696	12	2.79	.622
Students highly involved in community are leaders.	13	2.84	.576	8	2.79	.551	10	2.87	.690
Those who understand challenges are leaders.	14	2.75	.613	9	2.76	.640	11	2.83	.616
Leaders are in charge.	15	2.64	.569	14	2.50	.508	17	2.34	.604
Students who are actively involved in athletics are leaders.	16	2.41	.501	16	2.38	.502	15	2.50	.652
People who are easy to talk with are leaders.	17	2.36	.589	17	2.38	.508	16	2.47	.640
Once you are a leader you are always a leader.	18	2.34	.741	18	2.15	.563	18	2.19	.681
Leaders go along with others.	19	1.95	.686	19	2.06	.621	19	2.16	.695
High academic success ensures strong leadership.	20	1.79	.741	20	1.91	.618	20	2.06	.706

Note. Item mean is shown in boldface. Scale: 1 = strongly disagree, 2 = disagree, 3 = agree, 4 = strongly agree

Analysis of Leadership Perceptions

to indicate the extent to which select leadership traits influence leadership development. Skills were defined as the abilities that are acquired or developed. Each item was placed by construct into the web-based software package Qualtrics.

A panel of experts consisting of industry professionals and agricultural teacher educators with an expertise in leadership education and survey development reviewed the instrument and deemed it face valid. Reliability coefficients ranged from $\alpha = 0.70$ to $\alpha = 0.86$ and were considered acceptable to good according to George and Mallery's (2003) conventions. Contacts with the participants followed Dillman et al. (2009) tailored design method. Contacts were made with participants by sending an initial invitation to participate in the study and follow up contacts to the three groups of participants. In an effort to control for nonresponse error, we compared early and late respondents as recommended by Lindner et al. (2001) and found no statistically significant differences. Data were analyzed using descriptive statistics (Gall et al., 2005).

Results/Findings

Respondents were asked to indicate the extent to which they agreed with select leadership perception statements. From the twenty perception statements, the top five selected perception statements among the three groups included: leaders are open to change, leaders are effective listeners, effective leaders are knowledgeable about their technical field, leaders can be trusted and leaders are team players. All three groups most disagreed with the statement that high academic success ensures strong leadership (Table 1).

Participants identified the importance of select leadership skills. From the twenty leadership skills participants were able to select from the five skill items respondents ranked most important among the three groups included: being accountable, taking responsibility, communicating, learning and adapting to change. Two of the three groups ranked the skill of global dynamics as least important and the third group ranked it 19th out of 20 skills (Table 2).

Respondents were asked to identify the extent to which select leadership traits influence leadership in the agricultural industry. The five most influential leadership traits among the three groups included: honesty, positive attitude, trustworthiness, self-confidence and dependability. All three groups identified citizenship as the least influential trait (Table 3).

Table 2. Ranked Leadership Skill Importance by Group

Skill	MN TIP Net. (n = 44)			UMF CFANS (n = 34)			ISU CALS (n = 90)		
	Rank	M	SD	Rank	M	SD	Rank	M	SD
Being accountable	1	3.88	.438	1	3.71	.474	1	3.77	.425
Taking responsibility	2	3.86	.479	2	3.71	.563	3	3.70	.602
Decision making	3	3.77	.697	4	3.47	.660	7	3.52	.522
Communicating (visual, electronic)	4	3.75	.513	3	3.68	.560	2	3.77	.545
Learning	5	3.70	.650	7	3.44	.563	5	3.60	.543
Adaptive to change	6	3.70	.650	6	3.45	.686	4	3.70	.493
Problem solving	7	3.68	.561	5	3.47	.543	6	3.56	.632
Inspiring	8	3.47	.695	16	3.03	.640	15	3.08	.729
Cooperating	9	3.45	.692	8	3.42	.753	9	3.44	.784
Supporting	10	3.42	.587	10	3.24	.781	12	3.27	.782
Coaching	11	3.41	.674	15	3.06	.750	16	3.06	.668
Visioning	12	3.41	.702	12	3.21	.758	13	3.16	.712
Understanding group dynamics	13	3.41	.644	14	3.12	.729	11	3.32	.744
Working in teams	14	3.36	.692	11	3.21	.758	10	3.40	.599
Productivity	15	3.35	.669	9	3.35	.886	8	3.44	.711
Influencing	16	3.33	.497	13	3.18	.683	14	3.14	.748
Delegating	17	3.32	.462	18	3.97	.463	17	2.91	.602
Directing	18	3.07	.354	19	2.91	.463	20	2.79	.668
Negotiating	19	2.93	.324	17	3.00	.506	18	2.91	.425
Global dynamics	20	2.84	.776	20	2.71	.676	19	2.91	.668

Note. Item mean is shown in boldface. Scale: 1 = not important, 2 = somewhat important, 3 = important, 4 = very important.

Table 3. Ranked Leadership Trait Influence by Group

Traits	MN TIP Net. (n = 44)			UMF CFANS (n = 34)			ISU CALS (n = 90)		
	Rank	M	SD	Rank	M	SD	Rank	M	SD
Honesty	1	3.81	.626	2	3.65	.591	3	3.69	.674
Positive attitude	2	3.80	.691	4	3.58	.561	1	3.78	.529
Trustworthy	3	3.77	.539	6	3.55	.743	4	3.68	.469
Dependability	4	3.66	.509	5	3.56	.500	6	3.60	.882
Self-confidence	5	3.59	.542	3	3.59	.619	5	3.63	.507
Competent	6	3.59	.820	7	3.50	.561	7	3.47	.557
Drive	7	3.58	.526	1	3.65	.544	2	3.70	.741
Decisive	8	3.33	.500	9	3.35	.615	9	3.39	.640
Enthusiasm	9	3.32	.542	8	3.38	.597	8	3.44	.612
Achievement	10	3.26	.676	10	3.15	.694	11	3.28	.557
Courageous	11	3.25	.608	19	2.88	.765	16	3.11	.638
Curiosity	12	3.18	.662	20	2.88	.506	20	3.03	.493
Loyalty	13	3.16	.651	15	3.03	.797	12	3.26	.710
Unselfish	14	3.14	.647	14	3.03	.717	13	3.19	.726
Fair-minded	15	3.12	.632	16	3.03	.660	10	3.29	.713
Courteous	16	3.05	.674	11	3.09	.570	17	3.10	.555
Imaginative	17	3.00	.566	13	3.03	.781	14	3.13	.706
Intelligent	18	2.95	.713	12	3.09	.674	15	3.12	.806
Creativity	19	2.95	.746	18	2.91	.717	18	3.09	.728
Futuristic	20	2.91	.476	17	2.94	.646	19	3.06	.671
Citizenship	21	2.55	.722	21	2.41	.631	21	2.91	.705

Note. Item mean is shown in boldface. Scale: 1 = no influence, 2 = some influence, 3 = moderate influence, 4 = high influence.

Conclusions/Implications/ Recommendations

This study shed light on the leadership perceptions, skills and traits that agribusiness professionals look for when hiring college graduates and addressed the communication gap among the trio of university, industry and graduated employment seekers as stressed by Rosenberg et al. (2012). In so doing, this study identified the skills and traits that, according to Bolt (1996), need to be a part of college-level leadership development. Overall, the level of respondents' agreement on perception statements provides insight into perceptions that should and should not be reinforced as part of leadership development. The three groups most strongly agreed with statements related to internal, personal attributes. In fact, effective listening and openness to change were the

two most agreed upon statements for all three groups. Rounding out the top six statements were trust, aspire to possess high positions, knowledge about their field and team player. All three groups disagreed with statements that involved authority, the relationship between athletic involvement and leadership, academic success of leaders and easiness to relate and communicate. As in Smalley's (2005) study, "high academic success ensures strong leadership" remains at the bottom of the perceptions scale.

Respondents deemed all 20 leadership skills provided in the instrument either important or very important. In a notable departure from the other two groups, the University of Minnesota group did not include decision-making in the top five. The three groups unanimously agreed that being accountable was the most important item on the skills scale. In the Smalley (2005) study, communication was the most important skill. The University of Minnesota group ranked the skill of directing as least important, whereas the other two groups placed global dynamics at the bottom of the scale. Therefore, we recommend that all 20 of these leadership skills be incorporated into university leadership development programs.

Respondents' reported that personal attributes like honesty, positive attitude, trustworthiness, dependability and drive had the most influence. However, there was a little variation in the rankings scale among the three participant groups. The University of Minnesota and Iowa State University career fair participants ranked drive first and second, respectively. However, drive was not in the top five for Minnesota Teacher Induction Program respondents. As in Smalley's (2005) study and Kouzes and Pozner's (1990) series of studies dating back to the 1980s, respondents identified honesty as the most influential leadership characteristic.

With this study, we attempted to achieve more powerful results by simultaneously gathering like data from three separate groups that are complementary to one another demographically. An analysis using three simultaneous sets of results on the scales of leadership perceptions, skills and traits provided an opportunity to confirm the rankings within the theoretical constructs in this study. Moreover, an analysis of multiple populations provides for a more stratified and reliable analysis of leadership and more confidence in the conclusions we draw from the data. This study also provided confirmation that across three separate agricultural employer groups there are more similarities than differences in the importance of leadership skills and the influence of leadership traits. This is contrary to Mumford et al. (2007), who suggested that leadership skill requirements can differ not only among separate organizations, but also among separate levels within the same organization.

The global IBM studies conducted in 2007 and 2010 confirmed that leadership qualities continue to be invaluable as businesses and organizations develop in a complex global economy. These qualities—as well

as the ability to acquire new knowledge and skills—are equally important in agribusiness, as reinforced by these findings. Excellent agricultural education and leadership training can help college students develop these essential qualities. Twenty-four years ago, the newly founded Association of Leadership Educators (ALE) recognized the need for information sharing regarding leadership research, teaching and practice. The ALE Annual Conference was held in conjunction with the National Agricultural Leadership Summit to further explore higher education research opportunities related to leadership development and education. An ongoing connection and exchange of leadership knowledge and resources among colleges of agriculture and agribusiness professionals ensures that future agricultural leaders leave college well prepared for leadership challenges and opportunities in the workplace. Change, whether from external pressure or internal planning, is a reality for all organizations. "*Leadership must create an environment in which people accept the need for change and commit physical and psychological energy to it*" (Cummings and Worley, 2008, p. 15).

Faculty in colleges of agriculture who offer leadership courses can consider the results of this study when deciding which skills and traits to emphasize in undergraduate curriculum. Future research needs to take place to determine (a) if leadership perceptions, skills and traits vary depending on the type of agribusinesses and (b) which of these skills and traits are taught within agricultural leadership programs. Additional follow up is needed with the three groups of participants to identify how the perceptions, skills and desired traits change over a period of five or ten years. Finally, little is known about how graduates' leadership perceptions, skills and traits translate (or don't) to long-term success in their business or organization.

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