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Student Perceptions of Soft Skills & Career Decision Self-Efficacy through Participation in SAE

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Abstract

This study sought to assess student perceptions of soft skills and career decision self-efficacy attained through participation in different types of Supervised Agriculture Experience programs within School Based Agricultural Education. There was no significant difference found in career decision self-efficacy or perceived soft skill attainment between those who participated in SAE and those who did not. This study identified a positive significant impact for career decision self-efficacy and perceived soft skill attainment between those who had placement and exploratory SAEs with the exception of the problem-solving construct. Findings suggest that students participating in programs that require greater investment of student time, skill, capital, and initiative develop greater perceived skill attainment and efficacy through the SAE program.

Keywords: Supervised Agricultural Experience, Soft-Skill Attainment, Career Decision Self-Efficacy, Problem Solving, SAE, Student Perceptions, SAE Participation

Introduction

Connecting classroom to industry is a constant cry in today's career and technical education environment. Alongside trade skills, basic soft skills dominate the needs of today's workplace including interpersonal and intrapersonal knowledge, ethics, organization, work habits, time management, teamwork, and communication among many other soft skills (McNamara, 2009; Caudron, 1999). With the targets of innovation and adaptation constantly changing, employers are asking for future ready workers from an education system that has not caught up to present industry needs (McNamara, 2009). Career and Technical Education (CTE) programs play critical roles in the growth and development of a future ready workforce (Hyslop, 2008). In School-Based Agricultural Education (SBAE) research, the findings of Dailey, et al. (2001), Robinson and Haynes (2011), and Ramsey and Edwards (2004) suggest Supervised Agricultural Experience (SAE), a "planned sequence of agricultural activities of educational value" (Phipps, Dyer, Osborne, & Ball, 2008), could be instrumental in developing the skills employers continually seek.

Within CTE, several programs exist which purport to provide students with the essential skills needed to thrive in the twenty-first century workplace. Within SBAE, SAE is purported to be the hallmark for practice and evaluation of career-readiness (Phipps, et al., 2008). The *SAE for All* teacher guide positions SAE as an experiential learning activity designed to tie to career planning and preparation with significant focus on employability and leadership skills (The Council, 2017). While Career Ready Practice outcome measures accompany evaluations for each experience type (The Council, 2017), little exists within the present body of literature in the way of an objective measure indicating such skill development. This, therefore, necessitates empirical justification to

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support SAE as an integral component in developing the skills today's employers seek in their candidates.

Despite significant benefits credited to SAE, Croom (2008) noted declines in student participation, lack of direction, and limited teacher time for implementation as factors leaving SAE a weak component of agricultural programming. As fewer students participate fully in the comprehensive agricultural education model, the affordance of experiential learning opportunities and broad development of career related skills is reduced (Retallick & Martin, 2008). Further, SAE programs struggle as the demographics of SBAE programs continue to shift from rural to more urban, bringing a different societal attitude about farming and work (Retallick, 2010). Consequently, a continued effort to revisit the model for student participation in SAE will need to evolve to demonstrate the value of the program. There is a need for additional context to describe more expansive student outcomes related to engagement in SAE, beyond financial gains and award accomplishments. Providing this context would allow SBAE programs to further purport tangible impacts of SAE involvement on a diverse student body. Therefore, what skills do students believe they gain through involvement in SAE?

Review of Literature

SAE Defined

To make instruction relevant and meaningful, Supervised Agricultural Experience (SAE) programs allow students to apply and further classroom skills through real-life activities (Phipps, et al., 2008). This can take the form of a program lasting the duration of the high school experience, or a project lasting less than a year. According to Phipps, et al., "SAE programs consist of planned, sequential agricultural activities of educational value conducted by students outside of class and laboratory instruction for which systematic instruction and supervision are provided (2008, p. 438)." Per the *SAE for All Guide* published by the National Council for Agricultural Education (2017), Supervised Agricultural Experience (SAE) programs consist of "student-led, instructor supervised, work-based learning experiences" underneath two main options: Foundational and Immersion (placement/internship, ownership/entrepreneurship, research, school-based enterprise, and service learning). The intent of the Foundational SAE as a required component of every SBAE course accounts for career exploration and planning, employability skills, financial planning and management, workplace safety, and agricultural literacy (The Council, 2017). SAEs of all varieties should align with career plans and be student-led, connected to agriculture, instructor supervised, and measurable experiences occurring through work-based learning (The Council, 2017). SAE projects in any area lead to SAE programs, and ideally future employment in a particular area of agriculture (Phipps, et al., 2008).

SAE Participation

One-hundred percent participation in Supervised Agriculture Experience appears to have eluded SBAE programs for many reasons. There is a significant and increasing gap (85% of Agricultural Education students had SAEs in 1991, compared to 55% in 2005) between the number of students enrolled in agricultural education courses and those who engage in the SAE component of the program (Retallick & Martin, 2008). Talbert and Balschweid (2004) also identified a trend of lower SAE participation among FFA members; 67% of FFA members and 40% of non-FFA members reported maintaining an SAE program. Robinson and Haynes (2011) found while SAE programs prepare students for potential careers and allow students to connect with industry, students may not choose to engage unless they realize the value of the program. According to Lewis, et al. (2012), available facilities, teacher encouragement, and frequency of help are essential

to students' perceptions of success through their SAE, but analysis of student SAE knowledge and perceptions would add to the scope of understanding regarding SAE participation.

Perceived Benefits of SAE

Teachers, parents, employers, and students recognize SAEs as beneficial to students. Teachers see SAE as an effective, impactful, and relevant foundational tool in aiding students' acquisition of life experience and skill sets (Robinson & Haynes, 2011). Additional skills recognized by teachers included accountability, connection to industry, critical thinking, development of work ethic, responsibility, and time management as skills attained through the SAE program (Robinson & Haynes, 2011). Teachers in Iowa saw community support, positive public relations, relationship building, and extending classroom opportunities as benefits to students (Retallick & Martin, 2005). Camp, Clarke, and Fallon (2000) identified teacher perception of SAE as encouraging greater student learning in agricultural coursework and instilling a sense of ownership and pride. In earlier work, teachers identified favorable work attitudes and habits, development of technical knowledge and skills, enhancement of classroom instruction, developing management skills, career preparation, character building, improving job related skills, and meeting the personal, educational, and occupational needs of students as student benefits (Dyer & Williams, 1997). Parents see work attitude, occupational development, and human relations as the main student benefits from SAE (Dyer & Williams, 1997). Employers also expect certain skill attainment through SAE (including dependability, self-motivation, determination, confidence, organization, and people skills) (Ramsey & Edwards, 2011). In addition, employers view SAEs as important preparation for education beyond high school, and identify earning money as a valuable outcome for students (Dyer & Williams, 1997).

The benefit of SAE perceived by students has received little attention in recent literature. Dyer and Williams (1997) synthesized a list of benefits perceived by students through their SAE programs. SAEs allow students to develop desirable occupational attitudes, develop an interest in farming, develop record keeping skills, practice independent learning, accept responsibility, and learn to appreciate work (Dyer & Williams, 1997). SAE also has a significant economic impact and benefits students as a source of income (Hanagriff, et al., 2010; Retallick & Martin, 2005). While the variety of SAE types encompasses a wide scope of engagement with agriculture, the greatest benefits identified are through Placement SAE programs. Through placement SAEs, students perceive benefits including knowledge gains of production agriculture, favorable attitudes toward work, and the enhancement of self-esteem (Dyer & Williams, 1997). Robinson and Haynes (2011) further note students with an SAE program are more successful in preparing for life if the program is student owned and managed. Students do not see as much value in SAE as their teachers see for them, but when students realize the benefit of their SAE program and the impact on their lives, they are more willing to participate (Robinson & Haynes, 2011). Thus, we seek to begin defining the ways in which teachers can aid students in recognizing their skill attainment through SAE to better aid in them in making connections beyond the classroom.

Notwithstanding the potential for SAE to connect classroom to industry, little literature exists regarding stakeholder perceptions of Supervised Agricultural Experience. Dyer and Williams noted significant benefits perceived by teachers, but fewer benefits perceived by other stakeholders (1997). Retallick and Martin (2005), and Hanagriff, et al. (2010) concluded substantial economic benefits from SAE in Iowa and Texas. Besides an apparent lack of research regarding perceived long-term, intangible, invaluable benefits outside of agricultural education, stakeholders have little to draw upon to validate student participation in SAEs. If teachers are to motivate students based on intrinsic value, outside of FFA awards, teachers (amongst all stakeholders) must have a better understanding of what the benefits SAEs entail to be better able to tailor a program to students'

value derivation (Bird, et al., 2013). Further, do students recognize their own skill levels and do they connect skill development to involvement in their own SAE projects/programs?

Theoretical Framework

We use Lent, Brown, and Hackett's (1994) social cognitive theory of career and academic interest, choice, and performance as the theoretical framework with which to examine soft skill attainment and career decision self-efficacy through Supervised Agricultural Experience. The model of personal, contextual, and experiential factors affecting career-related choice behavior (see Figure 1) defines the "learning experiences," "self-efficacy," and "outcome expectations."

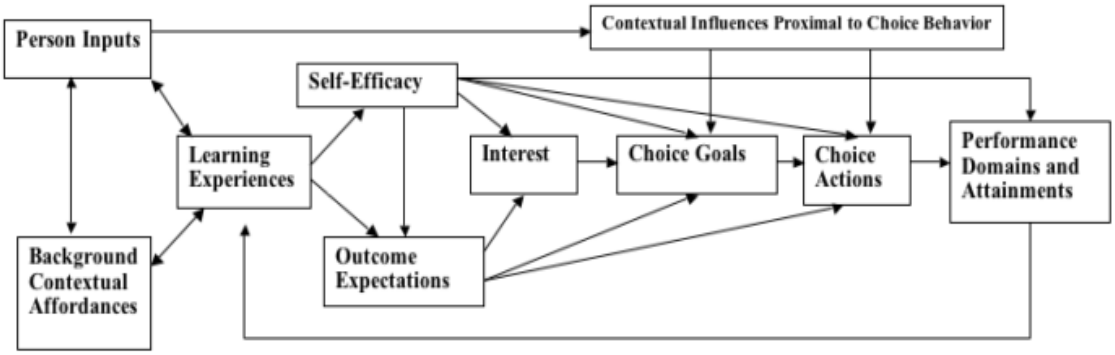

Figure 1. Model of Personal, Contextual, and Experiential Factors Affecting Career-Related Choice Behavior (Lent, Brown, and Hackett, 1994)

The "Learning Experiences" for this study are student Supervised Agricultural Experience. SAE type and scope are the "Person Inputs" as affected by "Background Contextual Affordances." We seek to define "Self-Efficacy" as it relates to "Outcome Expectations" based on the "Learning Experiences" across different SAE types.

Career Decision Self-Efficacy & Soft Skill Attainment

Self-efficacy expectations are beliefs about one's own ability to perform a given behavior successfully (Lent & Hackett, 1987). Greater perception of soft skill attainment, therefore, may lead to greater self-efficacy. Lent and Hackett (1987) note such efficacy is attained through four major routes, one of which is enactive attainment (performance accomplishments) such as those acquired through Supervised Agricultural Experience. Self-efficacy has also been significantly implicated in career indecision (Lent & Hackett, 1987), indicating a need to develop self-efficacy through student experience. Lent and Hackett (1987) concluded acquisition of career skills could lead to greater self-efficacy, gained through enactive attainment (performance accomplishments). Acquisition of such performance accomplishments could occur through Supervised Agricultural Experience.

According to Heckman and Kautz, "soft skills predict success in life…produce that success, and programs that enhance soft skills have an important place in an effective portfolio" (2012, p. 451). We use Supervised Agricultural Experience as the learning experience meant to drive self-efficacy and outcome expectations (student performance and attainment). We propose that the soft-skills and self-efficacy attained will not only shape future Supervised Agricultural Experiences, but enhance the ability of youth of make career decisions, drive student attainment, and refine soft-skill development.

Purpose and Objectives

Given a need to examine SAE in light of the plethora of skills SAE anecdotally offers, we seek to quantify the career decision self-efficacy and soft skill attainment perceived by individuals participating in SAE programs. The research objectives are as follows:

1. Describe the career decision self-efficacy of students enrolled at eight high schools in Minnesota
2. Describe students' perceptions of soft skill development through SAE programs at eight high schools in Minnesota.
3. Describe the influence of different types of SAE involvement on career decision self-efficacy at eight high schools in Minnesota.
4. Describe the influence of different types of SAE involvement on student perceptions of soft skill development at eight high schools in Minnesota.

Methodology

Our descriptive relational study utilized student responses regarding their perceptions of soft skill attainment and career decision self-efficacy through self-reported participation in their own SAE. We used quantitative methods in the form of a survey utilizing closed ended questionnaire items on a Likert-type matrix.

Population and Sample

Eight high schools, affiliated with the Minnesota FFA Association, had the opportunity to elect into this study. Each program that had the opportunity to participate elected to do so. Purposeful selection of agriculture programs at these schools arose based on geographical proximity to the researcher, perceived quality of agricultural education program, and representation of the eight regions of the Minnesota FFA Association. Given the convenience sample, results of this study apply only to this sample. Further efforts are necessary to broaden generalizability to a greater population. That said, any generalizability discussed or implied herein is tentative.

Collectively, 300 surveys were distributed and 220 instruments returned for our study. Six questionnaires were excluded from the results of the study as those students completed less than half the instrument or completed the instrument twice (n = 214). Our sample population consisted of 138 males (65%) and 75 females (35%). The sample consisted mostly of juniors (48%, n=102). Mean FFA membership was two years; approximately one third of respondents (n= 70, 33%) had never participated in FFA, while 67% (n= 142) reported membership of at least one year. Of the 214 students sampled, 49% (n=108) reported having a Supervised Agricultural Experience. The SAE area reported most commonly was placement (21%, n=44). Approximately one quarter of students participating were enrolled in work-based learning programs (27%, n=57). Work-based learning programs in Minnesota are collaborative efforts between students, parents, a business, and the school to engage students in supervised work experience. A majority of the population sampled reported plans to attend a post-secondary institution (72%, n=155).

Instrumentation

Eleventh and twelfth grade high school students completed a questionnaire rating their perceptions of their present level of soft skills acquired. Soft-skill instrument item construction used competencies formulated from those outlined by Devadason, Subramaniam, and Daniel (2010) in the skill areas of communication, critical thinking and problem solving, teamwork,

lifelong learning and information management, entrepreneurial, moral and professional ethics, and leadership with levels defined on a five-point scale. Students also completed the twenty-five question short form of the Career Decision Self-Efficacy (CDSE-SF) assessment (Betz et al., 2006).

Career Decision Self Efficacy-Short Form

Betz and Taylor (2006) created the Career Decision Self-Efficacy (CDSE) Short Form. The validity and reliability of the Career Decision Self-Efficacy Short Form is established. This scale measures the degree of belief with which an individual feels they can take the necessary actions to make career decisions based on five subscales including: "1) accurate self-appraisal; 2) gathering occupational information; 3) goal selection; 4) making plans for the future; and 5) problem solving" (Betz & Taylor, 2006). The CDSE is highly reliable with an internal consistency coefficient of 0.97 (Betz & Taylor, 2006). The CDSE uses a continuous Likert-type scale ranging from 1 (no confidence at all), 2 (very little confidence), 3 (moderate confidence), 4 (much confidence), and 5 (complete confidence). The short form abbreviates each of the five initial subscales to five questions rather than ten.

Soft Skill Assessment

Our Soft Skill Assessment was developed using indicators established by the Malaysian Ministry of Higher Education (MOHE) as utilized by Devadason, et al. (2010). Competencies identified by MOHE are a guideline for education professionals to evaluate the embedding of soft-skill instruction within undergraduate curriculum (Devadason, 2010). The original competencies list was comprised of 34 items organized into seven constructs. Instrument development expanded double-barreled items, which yielded 44 items in five constructs. Development of soft skill attainment statements used existing indicators to form "I can" statements and assessed student perception on a five point Likert-type matrix. The Likert-type scale included 1 (strongly disagree), 2 (disagree), 3 (neither agree nor disagree), 4 (agree), and 5 (strongly agree). For the purposes of this study, scores of two through four received consideration at a moderate skill level. "High skill level" included values above four. Internal reliability for the five constructs identified was determined via Cronbach's alpha (α) and is reported in Appendix A. Inter-item correlation was moderate. Item total statistics were high; thus, retention of all items occurred. Instrument constructs include Communication (n=10; α=0.90), Problem Solving (n=7; α=0.88), Lifelong Learning (n=5; α=0.87), Professional Ethics (n=10; α=0.91), and Leadership (n=12; α=0.94). No total soft skill score was determined as the instrument measures individual constructs rather than a composite score for soft skill development.

Limitations

Our study was limited in its ability to identify skill attainment as it related specifically to Supervised Agricultural Experience. Due to the selection of the sample, only Agricultural Education students participated, and no measure existed within the study to identify skills gained through Agricultural Education differently from those gained specifically through Supervised Agricultural Experience. Interpretation is limited to the sample from the eight participating school districts. Further research necessitates the examination of a larger population regarding perceived soft-skill attainment and career decision self-efficacy through the total agricultural education model.

Data Collection

Student survey took place from May 10-27, 2016. While the entire sample was comprised of students in agricultural education, there was no FFA requirement enforced for participation in the study as students could have been required to complete SAE hours as part of their coursework. Surveys were available in paper format, and administered by the researcher or agriculture instructors at each respective high school. Complete written instructions and scripts aided high school agriculture instructors in consistent survey administration. Convenience sampling comprised the selection of students for the sample based on the opt-in of their advisor and willingness to participate based on student assent.

Data Analysis

The dependent variables for our study are students' perceived Career Decision Self-Efficacy and Soft Skill Attainment. The independent variables for our study were SAE involvement and SAE type. At the time of data collection, SAE types included exploratory, placement, entrepreneurship, and research. Evaluation and categorization of student surveys occurred through the nominal data provided by demographic questions. The student demographic section asked students to denote their participation in SAE programs to give a comparative sample of SAE participants vs non-SAE participants. This determined program type and SAE involvement to allow comparative analysis across degrees of participation. Descriptive statistics analyzed Career Decision Self-Efficacy, Soft Skill Attainment, and student demographic items. Data analysis used the Statistical Package for Social Sciences (SPSS Version 21). Our data analysis included descriptive measures for each variable at each level of measurement. Given the approximately normal distribution of the sample and the continuous nature of the data (Cohen, 1988, Vaske, 2008), employment of Analysis of Variance (ANOVA) between 1) SAE and each Soft Skills Attainment construct, 2) SAE, Career Decision Self-Efficacy, and Soft Skill Attainment, and 3) SAE and Career Decision Self-Efficacy yielded final analyses of influence. Individually, the variables of SAE participation and type defined SAE program involvement for the purposes of our study. Construct means for each soft skill area and the CDSE instrument were incorporated into the ANOVA models. Prior to inferential analysis, we reviewed frequency distributions for assurance of normality as recommended by Field (2009) and Kirk (2013). We affirmed normality of the data with a slight positive skew. Further, Kirk (2013) reports sample sizes greater than 12 assist with the interpretation of a robust *F* statistic. Each of these criteria were met for the present sample and data set.

Findings

Research objective one was to describe the career decision self-efficacy of high school agricultural education students. Table 1 lists student career decision self-efficacy scores. Students reported a perception of moderate confidence ($M = 3.64$). Within each construct of career decision self-efficacy, students reported mean scores as follows: Self-Appraisal, 3.80; Problem Solving, 3.47; Planning, 3.52; Occupational Information, 3.75; and Goal Selection, 3.67.

Table 1

Student Perceptions of Career Decision Self-Efficacy[1]

	n	M	SD
Career Decision Self-Efficacy	208	3.34	.71
Self-Appraisal		3.80	.75
Problem Solving		3.47	.77
Planning		3.52	.78
Occupational Information		3.75	.80
Goal Selection		3.67	.82

[1] Mean CDSE scores reported on a one to five scale (1 "no confidence at all," 5 "complete confidence")

Describing high school students' perceptions of soft skill development was research objective two. Table 2 lists soft skill development scores. Reporting of soft skill scores occurs by construct, as the instrument design does not provide a total soft skill score. Students reported a moderately high confidence level across constructs, with leadership abilities reported at the highest confidence level. Within each construct of soft-skill development, students reported construct means as follows: Communication, *M*=3.67; Problem Solving, *M*=3.79; Lifelong Learning, *M*=3.84; Professional Ethics, *M*=3.77; and Leadership, *M*=4.05.

Table 2

Student Perceptions of Soft-Skill Development[1]

	n	*M*	*SD*
Soft Skill Development	213		
Communication	213	3.67	.74
Problem Solving	214	3.79	.72
Lifelong Learning	214	3.84	.77
Professional Ethics	214	3.77	.75
Leadership	214	4.05	.71

[1] Mean soft skill scores reported on a one to five scale (1 "strongly disagree," 5 "strongly agree")

Research objective three sought to describe the influence of SAE involvement on career decision self-efficacy for high school agricultural education students. Student data was interpreted using an Analysis of Variance (ANOVA) model (n = 214) for CDSE among students with and without SAE. A significant ANOVA model ($p < .01$) was rendered for CDSE and the SAE types. Upon analysis of the post hoc multiple comparison tests, the Mean Difference (MD = .62) between Exploratory SAE and Placement SAE was the sole contributor to the significant model ($p < .01$). No other independent variables for SAE type contributed significantly ($p<.05$) to the overall ANOVA model for CDSE. Further, the model revealed no difference between those who reported having and not having an SAE within the sample. The significant contribution to the model came from within those who reported having an SAE (see Table 3).

Table 3

The impact of SAE Involvement on Career Decision Self-Efficacy

Construct	SS_x		F^1	MS	p	MD^2
Career Decision Self-Efficacy	Between	6.97	3.06	1.43	0.01*	.62*
	Within	90.59				

Note: *Significance measured at p<.05. [1] F-statistic degrees of freedom (df = 5, 204) [2] Mean Difference between Exploratory and Placement SAE types.

Students who reported a placement Supervised Agricultural Experience showed a positive significant impact on their CDSE (*M*=3.92, *SD*=0.58) compared to those who identified with the exploratory SAE category (*M*=3.30, *SD*=0.89). Table 4 outlines student CDSE perceptions by SAE type.

Table 4

Mean CDSE by SAE Type[1]

	No SAE	Exploratory	Research	Placement	Entrep.	Combined
	M (*SD*)	*M* (*SD*)	*M* (*SD*)	*M* (*SD*)	*M* (*SD*)	*M* (*SD*)
CDSE	3.60 (.66)	3.30 (.89)	3.52 (.83)	3.92 (.58)	3.80 (.51)	3.83 (.87)

[1] Mean CDSE scores reported on a one to five scale (1 "no confidence at all," 5 "complete confidence")

Objective four sought to describe the influence of SAE involvement on perceptions of soft skill development for high school agricultural education students. Student data was interpreted using an Analysis of Variance (ANOVA) model (n = 214) for soft skills among students with and without SAE (see Table 5). A significant ANOVA model ($p < .05$) was rendered for all Soft Skill Constructs and the SAE types, excluding Critical Thinking/Problem Solving ($p = 0.14$). Similar to Objective 3, analysis of the post hoc multiple comparison tests revealed the Mean Difference between Exploratory SAE and Placement SAE was the sole contributor to the significant model. No other independent variables for SAE type contributed significantly ($p<.05$) to the overall ANOVA model for soft skill acquisition. Further, the model revealed there was no difference between those who reported having and not having an SAE within the sample. The significant contribution to the model came from within those who reported having an SAE.

Table 6 outlines the mean and standard deviation among student SAE types and reported perceptions of soft-skill constructs. The most notable differences are between exploratory and placement SAE types in the areas of communication, lifelong learning, professional ethics, and leadership. The distinct exception to this pattern is the problem solving construct, which shows no significant difference in the means and standard deviations between exploratory and placement.

Table 5

The Impact of SAE Involvement on Student Soft Skill Perceptions

Construct	SS_x		F^1	*MS*	*p*	MD^2
Communication	Between	6.23	2.59	1.33	.030*	.60*
	Within	101.39				
Critical Thinking/Problem Solving	Between	4.14	1.70	0.82	.140	.39
	Within	96.98				
Lifelong Learning/Info Management	Between	11.10	4.20	2.22	.001*	.68*
	Within	105.42				
Professional/Ethical Decision-Making	Between	9.37	3.69	1.87	.003*	.70*
	Within	101.18				
Team and Leadership Skills Leadership Skills	Between	8.03	3.62	1.61	.004*	.66*
	Within	88.40				

Note: *Significance measured at $p<.05$. [1] *F*-statistic degrees of freedom ($df = 5, 204$), [2] Mean Difference between Exploratory and Placement SAE types

Table 6

Comparison of Student SAE type and Reported Perceived Soft Skill Constructs[1]

		Comm. Skills	Problem Solving	Lifelong Learning	Professional Ethics	Leadership
	n	*M* (*SD*)	*M* (*SD*)	*M* (*SD*)	*M* (*SD*)	*M* (*SD*)
No SAE	106	3.67 (.69)	3.77 (.67)	3.81 (.73)	3.77 (.73)	4.03 (.63)
Exploratory	20	3.35 (.94)	3.58 (.74)	3.45 (.96)	3.33 (.11)	3.68 (.92)
Research	10	3.34 (.76)	3.50 (.83)	3.33 (.70)	3.48 (.82)	3.73 (.76)
Placement	44	3.95 (.61)	3.98 (.79)	4.13 (.69)	4.04 (.52)	4.33 (.65)
Entrepreneurship	16	3.65 (.64)	3.93 (.47)	4.00 (.52)	3.98 (.39)	4.22 (.53)
Combined	10	3.79 (.94)	4.03 (.61)	4.20 (.59)	4.08 (.63)	4.21 (.53)

[1] Mean soft skill scores reported on a one to five scale (1 “strongly disagree,” 5 “strongly agree”)

Conclusions

Our study seeks to quantify the career decision self-efficacy and soft skill attainment perceived by individuals participating in SAE programs. Overall, students perceived moderately high confidence in both career decision self-efficacy and soft-skill attainment across constructs, though no direct impact from SAE could be determined. Research objective one was to describe the career decision self-efficacy of students enrolled in high school agricultural education programming. Students reported a perception of moderate confidence ($M = 3.64$) toward career decision self-efficacy. By individual construct, students reported the highest confidence in self-

appraisal (M = 3.80) and the lowest confidence in problem solving (M = 3.47). Self-appraisal is the metacognitive ability of students to identify their ability to make career decisions (Betz, 2009). Moderately high confidence over the whole sample in career decision self-efficacy could suggest that students are gaining career decision skills through participation in another or multiple components of an agricultural education, as suggested by Dailey, et al., (2001).

Objective two sought to describe high school agricultural education students' perceptions of soft skill development. Students reported a moderately high perception of soft-skill development across constructs (Communication: 3.67, Problem Solving: 3.79, Lifelong Learning: 3.84, Professional Ethics: 3.77, Leadership: 4.05). The entire sample was comprised of students participating in agricultural education programming, thus moderately high confidence over the whole sample in soft skill development constructs may be a result of other SBAE experiences and not purely a function of maintaining an SAE (Dailey, et al., 2001).

Objective three sought to describe the influence of SAE involvement on career decision self-efficacy for high school agricultural education students. We found no significant effect on CDSE (p = 0.43) between students who identified as having an SAE and those who did not. This could indicate an integrated program; meaning that one component (classroom, FFA, SAE) does not stand out significantly from the other in terms of developing CDSE. This may also be an indication that students are receiving greater levels of CDSE through other components of the agricultural education program or elsewhere in their lives and education. A significant impact on CDSE (p < 0.01) was noted across constructs, with the exception of problem solving, between students who identified as having an exploratory SAE compared to those having a placement SAE. The significant impact between exploratory SAE and placement SAE could suggest a higher level of student input is associated with greater levels of career decision self-efficacy attained by students participating in programs at higher, more involved levels (Dyer & Williams, 1997; Robinson & Haynes, 2011). Further research may seek to analyze a difference in perception of career decision self-efficacy relative to a non-agricultural education or non-career and technical education population. Additional consideration of student input relative to career decision self-efficacy gained may provide insight regarding the types of SAEs providing the greatest impact.

Objective four sought to describe the influence of SAE involvement on perceptions of soft skill development in high school agricultural education students. We found no significant difference identified in perceived soft skills among students who had an SAE and those who did not. This would suggest that students have opportunities in addition to those afforded by Supervised Agriculture Experience programming that allow for the development of communication, problem solving, lifelong learning, professional ethics, and leadership.

We noted a significant impact on soft skills, with the exception of problem solving (as also reported by Dyer & Williams, 1997), across constructs among students who identified as having a placement SAE compared to those with an exploratory SAE. The gap in formalized commitment, purposeful reflection, and responsibility between these two SAE types could contribute to the significant difference in perceived soft skill abilities. This corroborates suggestions by Dailey, et al. (2001), Robinson and Haynes (2011), and Ramsey and Edwards (2004) regarding SAEs role in the development of the soft-skills sought by employers in today's marketplace. Further research may seek to analyze a difference in the perception of soft skills relative to a non-agricultural education or a non-career and technical education population to aid in determining the other activities from which students perceive to develop in their soft skills. Additional consideration of student input relative to soft skill attainment gained may provide insight regarding the types of SAEs providing the greatest impact.

Recommendations

Further analysis should aid teachers in gauging the progress of their students' career readiness development (soft skill perception and career decision self-efficacy) within an integrated SBAE program. Identifying the relationship between the soft skill perception and career decision self-efficacy may better allow practitioners to plan intentional and directed SAE programming, thus providing students with opportunities to receive the highest potential for perceived benefits. Additionally, understanding the relationship between soft-skill attainment and career decision self-efficacy within the SAE program model will better allow supervisors (teachers, parents, and employers) to prepare students for being employable communicators, problem solvers, learners, leaders, planners, self-evaluators, occupational researchers, and goal setters. Further consideration should propose development of these factors in relationship to teacher time and relevance to all students in a school based agricultural education program.

Within the confines of this instrument and study, further examination may be necessary to explain the low significance of critical thinking/problem solving construct relative to career decision self-efficacy and soft skill attainment within the SAE program model. Additional work could also identify the areas in which programs may benefit from further development within this construct. By nature of the experience, a student in a placement SAE necessarily makes decisions regarding their daily duties. However, students perceive low confidence in problem solving in both soft-skill attainment and CDSE. If students are not making the connection between their daily work and the perception of attainment in the problem solving area, additional consideration is necessary regarding advisors' implementation and evaluation of SAEs including SAE requirements, structure, and activities. Consideration to address the soft skills perceived more highly in those with placement, entrepreneurship, or combined SAE programs is necessary. Regarding the facilitation of SAE programs, additional attention may be necessary to address the shortcomings in the perceived outcomes of exploratory and research SAEs.

It is interesting and important to recognize that critical thinking and problem solving showed the lowest significance in career decision self-efficacy and soft skill attainment related to SAE. This may be indicative of the reflective process in which students are engaging. Students and mentors engaging in appropriate reflective processes will aid in the recognition of skill development within the critical thinking and problem solving constructs (Dyer & Williams, 1997). Are we asking enough of our students with regard to project analysis and program development? If not, by what measure do we gauge students in their program progress? If agricultural education is to continue to purport anecdotally high student attainment in the areas of critical thinking and problem solving, a much stronger measure needs to be in place for these constructs. Low significance does not necessarily imply that students are not receiving these skills, but our data indicates students do not perceive critical thinking and problem solving attainment at confident levels.

Teachers offer the pathway to student development and awareness of skill development for individual SAE programming. Additional research to identify teacher perceptions regarding their programs may give indications regarding program quality and direction regarding skill attainment. According to Lewis, et al. (2012), available facilities, teacher encouragement, and frequency of help are essential to students' perceptions of success through their SAE, but analysis of student SAE knowledge and perceptions would add to the scope of understanding regarding SAE participation. This holds valid in our study as well. The frequency of visits, teacher encouragement, and parental involvement play a key role in whether or not a student perceives success in a given area of their project. The lower perception of attainment in the area of problem solving ability could be as much a result of teacher and parent involvement as it is a difference in SAE area.

Regarding the integrated agricultural education program, soft skill attainment, and career decision self-efficacy, the following recommendations provide direction for the practicing agriculture instructor. First, intrinsic motivators are a driving factor for success in agricultural education programming (Bird, et al., 2013). While intrinsic motivators are likely available throughout SBAE programming, no measure exists to give name or evidence to the career-readiness (soft skills) gained by students through engagement with the full Agricultural Education model. Thus, the validation of a soft skills instrument for use in the classroom, FFA programming, and Supervised Agricultural Experience would allow practitioners to evaluate the strengths of their own programs to work toward an integrated program model. Additionally, students would have an instrument by which to gauge their skills and abilities relative to workforce demands. Teachers would be able to utilize this instrument as a base to aid students in setting goals and creating action plans for their individual programs. Finally, this would allow practicing agricultural educators intentionality with their implementation of classroom or school-based SAEs to allow students to derive the greatest perceived benefit.

Practicing agriculture instructors can also work with students to develop Supervised Agriculture Experience programming focusing on the rigor and student input required in entrepreneurship and placement programs and transferring such rigor to other SAE types (The Council, 2017). These programs require a greater investment from both the student and teacher, but also result in a greater gain, and provide opportunities for supplemental projects (research, school-based enterprise, and service learning). Structuring requirements in such a way as to provide the greatest possible opportunity for students to plan, execute, and reflect on their experience is necessary. SAE must be a shown as a valued component of a program's agricultural education model, rather than a mark in the gradebook or an award application.

Considering what makes an SAE experience valuable is a necessary step in determining what additional requirements or changes may be necessary for the current SAE model. According to our data, exploratory SAE and no SAE derive the same value for agricultural education students. If this is the case, agricultural education is failing both the students who are not partaking at all in this necessary component of agricultural education, but also those who are participating in attempts to implement exploratory SAEs without providing the necessary context and reflection.

Should Supervised Agricultural Experience be a required component of the agricultural education model? That depends on the outcome expectation of the teacher, student, parents, and community. If SAE integration meets a requirement, it is obvious that it is going to provide as little benefit as having no SAE implementation. However, if SAE implementation incorporates goal setting, program planning, skill evaluation, and reflection with the help of all stakeholders (teachers, parents, employers, and students) it will continue to hold a necessary and vital role in school based agricultural education programs across the country.

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Appendix A: Soft-Skill Instrument Reliability by Construct & Item

Table 1

Reliability Analyses for Soft-Skill Instrument Based on MOHE Competencies

Construct and competency	Mean (M)[1]	Std. dev. (SD)[1]	Item total correlation	Alpha (α) if deleted	Cronbach alpha (α)
Communication					.90
I can convey my thoughts with clarify and confidence in written form	3.53	.97	.58	.89	
I can convey my thoughts with clarity and confidence orally	3.70	.92	.58	.89	
I can be an active listener	4.05	.90	.62	.89	
I can provide the necessary response when listening to someone	3.95	.86	.71	.88	
I can give presentations with clarity and confidence	3.45	1.10	.70	.88	
I can make presentations with the aid of technology	3.97	1.07	.67	.88	
I can negotiate and arrive at decisions	3.78	.90	.71	.88	
I can communicate with others from different cultures	3.16	1.23	.53	.90	
I can develop personal communication skills	3.84	.99	.74	.88	
I can engage in oral communication	3.47	1.20	.64	.89	
Problem Solving					.88
I can identify and analyze problems in complex situations	3.61	1.01	.67	.87	
I can identify and analyze problems in unclear situations	3.54	.93	.65	.87	
I can make justifiable evaluations of problems in various situations	3.63	.92	.76	.86	
I can expand and improve thinking skills to expain, analyze, and evaluate discussions	3.70	.89	.73	.86	
I can provide ideas and alternative solutions	3.87	.92	.72	.86	
I can think outside the box	4.07	.91	.54	.88	
I can make decisions based on concrete evidence	3.92	.96	.64	.87	
Life Long Learning					.87
I can give full attention to the responsibilities given to me	3.97	.92	.68	.84	

Table 1 (continued)

Reliability Analyses for Soft-Skill Instrument Based on MOHE Competencies

Construct and competency	Mean (M)[1]	Std. dev. (SD)[1]	Item total correlation	Alpha (α) if deleted	Cronbach alpha (α)
I can understand and adapt to new working environments	4.02	.90	.70	.84	
I can search for and manage relevant information from various sources	3.79	.88	.70	.84	
I can receive new ideas and engage in independent learning	3.92	.87	.70	.84	
I can look for answers rather than memorize a set of rules	3.83	.95	.67	.85	
Professional Ethics					.91
I can identify business opportunities	3.65	.93	.73	.90	
I can prepare a business plan	3.26	1.06	.49	.91	
I can build, explore, and take business opportunities	3.65	.95	.68	.90	
I can work independently	4.30	.84	.65	.90	
I can apply economic principles in practical situations	3.48	1.02	.68	.90	
I can aid in creating a positive work environment	4.01	.89	.74	.90	
I can connect with people with different thoughts, feelings, and behaviors from my own in the workplace	3.97	.95	.66	.90	
I can analyze and arrive at decisions in matters concerning the beliefs of myself or others	3.84	.87	.73	.90	
I can make decisions based on moral principles	3.96	.92	.75	.90	
I can find opportunities to serve my community	3.93	.91	.66	.90	
Leadership					.94
I can build working relationships with others	4.22	.84	.71	.94	
I can interact with others in a work setting	4.21	.92	.75	.94	
I can work effectively with peers to achieve common goals	4.17	.87	.72	.94	
I can easily switch between the roles of leader and follower	3.85	1.03	.73	.94	

Table 1 (continued)

Reliability Analyses for Soft-Skill Instrument Based on MOHE Competencies

Construct and competency	Mean (M)[1]	Std. dev. (SD)[1]	Item total correlation	Alpha (α) if deleted	Cronbach alpha (α)
I understand the role of a leader	4.16	.93	.82	.93	
I understand the role of a group member	4.17	.81	.73	.94	
I appreciate and respect other's attitudes, behaviors, and beliefs	4.14	.84	.64	.94	
I can contribute to planning and coordinating group efforts in group work settings	4.00	.86	.75	.94	
I can take responsibility for the group's action in group work settings	3.97	.89	.67	.94	
I am knowledgeable on basic leadership theories	3.91	.91	.72	.94	
I can take the lead on projects	4.00	1.00	.76	.93	
I can supervise team members	4.06	.96	.77	.93	

[1] Variables measured on a 5-point scale of 1 "strongly disagree" to 5 "strongly agree."