

# A Multidimensional Needs Assessment of Social Emotional Learning Skill Areas

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## Abstract

*Social and Emotional Learning (SEL) has often been an umbrella term for a wide range of competencies, including emotional processes, social and interpersonal skills, and cognitive regulation (Jones, Bouffard, & Weissbourd, 2013). We used the Borich (1980) needs assessment model to assess the professional development needs of Texas agricultural education teachers in core SEL skill areas. Data were collected with three forms of a paper questionnaire to determine teachers' self-perceived levels of competence in core SEL skill areas. Twenty SEL indicators were assessed in four ways (Importance, Ability to Perform, Knowledge, and Ability to Teach), and then used to create three latent variables (Performance Competence, Knowledge Competence, and Consequence Competence), which served as dimensions of professional development needs. Agriculture teachers perceived the importance of all core SEL skill areas as having average or greater importance, their ability to model core SEL skill areas as average or greater, their knowledge of core SEL areas as average or greater, and possessing average or greater ability to teach core SEL skill areas. The findings of this study support the Collaborative for Academic, Social, and Emotional Learning (CASEL, 2003) report and emphasize the importance of SEL in agricultural education.*

**Keywords:** social and emotional learning, professional development, survey form invariance, Borich needs assessment, mean weighted discrepancy score

## Introduction

The need for talented individuals in the American workforce continues to exceed the supply of those graduating from secondary and post-secondary schools. Additionally, the unemployment rate may also be an indicator for the conclusion that skilled and/or trained workers are not able to secure or retain employment. The need for soft skills, including experience, team skills, communication skills, leadership skills, decision making/problem solving skills, self-management skills, and professionalism skills (Crawford, Lang, Fink, Dalton, & Fielitz, 2011), has been suggested as a reason for this issue. Career and Technical Education (CTE), including agricultural

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education, is not only responsible for providing a technically skilled supply of graduates for the workforce, it must also ensure graduates have the necessary soft skills to succeed in today's workforce.

Social and Emotional Learning (SEL) can be defined as “the process through which children enhance their ability to integrate thinking, feeling, and behaving to achieve important life tasks” (Zins, Bloodworth, Weissberg, & Walberg, 2007, p. 194). Competencies associated with SEL include being able to recognize and manage emotions, establish healthy relationships, set positive goals, make responsible and ethical decisions, and meet personal and social needs (Zins et al., 2007). Effective SEL programs work to develop five core social and emotional competencies in students based on a framework including a person-centered focus and an environmental focus. The CASEL (2003) identified these five core social and emotional skill competencies:

*Self-awareness*: Knowing what we are feeling in the moment; having a realistic assessment of our own abilities and a well-grounded sense of self-confidence.

*Social awareness*: Understanding what others are feeling; being able to take their perspective; appreciating and interacting positively with diverse groups.

*Self-management*: Handling our emotions so they facilitate rather than interfere with the task at hand; being conscientious and delaying gratification to pursue goals; persevering in the face of setbacks and frustrations.

*Relationship skills*: Handling emotions in relationships effectively; establishing and maintaining healthy and rewarding relationships based on cooperation, resistance to appropriate social pressure, negotiating solutions to conflict, and seeking help when needed.

*Responsible decision making*: Making decisions based on accurate consideration of all relevant factors and the likely consequences of alternative courses of action, respecting others, and taking responsibility for one's decisions. (p. 5)

Students need to be aware of themselves and others, make responsible decisions, be ethical and respectful toward others, manage their emotions, and have social skills which allow them to work effectively with others (Zins et al., 2007). The environmental focus of the framework includes factors such as classroom structures and rules, high performance expectations, school organizational climate, commitment to academic success of students, district policies, communication styles, and openness to parental and community involvement (Zins et al., 2007). Social and emotional skills “need to be developed in our children to be successful not only in school but in life; those who do not possess these skills are less likely to succeed” (Zins et al., 2007, p. 192).

The core competencies of SEL can be taught (CASEL, 2003) and have been found to be of importance in the attainment of students' academic and personal success (Elias et al., 1997). According to Wang, Haertel, and Walberg (1997), as cited in CASEL (2003), “a study estimating the relative influence of 30 categories of educational, psychological, and social variables on learning revealed that social and emotional variables exerted the most powerful influence on academic performance” (p. 7). The impact of teachers' SEL competencies and their influence on students should not be underestimated. Although not an exhaustive list, Jones, Bouffard, and Weissbourd (2013) identified three ways teachers' SEL competencies influence students: (1) the quality of teacher-student relationships, (2) teachers model, intentionally or not, SEL behaviors for students, and (3) teachers' classroom organization and management behaviors are a result of their

SEL abilities. According to Zins et al. (2007), SEL approaches that require teachers to acquire and use more effective teaching techniques are particularly effective at producing academic gains.

“There is a growing body of scientifically based research supporting the strong impact enhanced social and emotional behaviors can have on success in school and ultimately in life” (Zins et al., 2007, p. 208). Elias et al. (1997) noted businesses and employers support the development of socially and emotionally competent individuals because they have come to realize that such competence increases productivity in the workplace. “Increasingly, competence in recognizing and managing emotions and social relationships is seen as a key ability for success in the workplace and for effective leadership” (Elias et al., 1997, p. 7).

“SEL instruction can be provided in many different ways to promote, enhance, and support students’ academic performance” (Zins et al., 2007, p. 201). Zins, Bloodworth, Weissberg, and Walberg (2007) outlined seven SEL instructional approaches: (1) specific SEL curricula, (2) infusion of social-emotional skills into the regular academic curriculum, (3) development of a supportive learning environment, (4) alternating the instructional process to promote social-emotional skills and learning, (5) informal curriculum, such as the learning that takes place in extracurricular activities, (6) partnerships between parents and teachers, and (7) engaging students actively and experientially in the learning process. Arguably, CTE educators, including secondary agriculture teachers, use many of these approaches within their programs.

Since its inception in the early years of the 1900s, and later formalized under the Smith-Hughes Vocational Education Act of 1917, agricultural education has been an integral and inter-curricular component of middle and high schools in every state and three territories in the United States. Agricultural education students are provided with opportunities for leadership development, personal growth, and career success based on a three-component model, consisting of classroom and laboratory instruction (contextual learning), supervised agricultural experience programs (experiential/work-based learning), and student leadership organizations, including the National FFA Organization (The National Council for Agricultural Education, 2012).

Using the three-component model of agricultural education, secondary agriculture teachers seem to be well positioned to help students succeed academically, socially, and emotionally by helping students become socially and emotionally competent. Croom (2008) suggested experiential learning must exist in each aspect of the three-component model of agricultural education. The core of experiential learning is to engage in self-evaluation, which, therefore, connects social emotional learning (SEL). Further, Akers, Miller, Frazee, and Haygood (2004) studied the importance and inclusion of emotional intelligence competencies in the existing agricultural education curriculum. Akers et al. (2004) reported teachers believed emotional intelligence competencies were important and teachers believed they were incorporating the competencies in their curriculum. However, empirical evidence was not readily apparent to assess whether agriculture teachers actually possessed the ability to teach SEL competencies.

Developing students’ social and emotional intelligence abilities is important (Durlak, Domitrovich, Weissberg, & Gullotta, 2015). Reportedly, agricultural education curriculum includes elements that will contribute to increasing students’ emotional intelligence. The three-component model of agricultural education is, arguably, a good fit for providing students with experiences that will lead to students developing social and emotional intelligence. Further, secondary agriculture teachers reportedly believe they are incorporating emotional intelligence competencies in their curriculum. Despite the importance of developing social and emotional intelligence, and the likelihood of agricultural education providing opportunities for students to

develop emotional intelligence, there is little empirical evidence to support or refute whether agriculture teachers possess the competencies necessary to teach social and emotional intelligence.

**Contribution to goals noted in the National Research Agenda**

In Priority 5 of the *National Research Agenda* (Roberts, Harder, & Brashears, 2016), Thoron, Myers, and Barrick (2016) called for research to develop efficient and effective agricultural education programs. Dyer, Breja, and Wittler (2002) found enrollment in a high school agricultural education program to be one of the most influential factors in whether students completed a degree in a college of agriculture. Thoron et al., (2016) also suggested that research should be conducted to define effective methods, models and programs to communicate with diverse audiences.

In Priority 7 of the National Research Agenda (Roberts et al., 2016), Andenoro, Baker, Stedman, and Weeks. (2016) suggested research is needed to help address complex problems; one specific approach involves developing social change through self-awareness. According to Sowcik, Andenoro, McNutt, & Murphy (2015), self-awareness is the foundation for solving complex problems, which then allows students to become more socially aware, work in groups, and address issues. According to Razzouk and Shute (2012), teachers should develop innovative teaching strategies to help students address complex situations. However, Razzouk and Shute (2012) cautioned that teachers may need assistance in adopting these new strategies in education.

**Conceptual Framework**

The Borich (1980) needs assessment model was used to conceptualize the data collection procedures and analyses used in this study. Borich (1980) proposed his model as an alternative format for rating competencies that would provide a more refined evaluation of training needs. Consequently, researchers could purposefully prioritize teaching competencies, so teachers can receive training in the most needed area first. To prioritize competencies, Borich (1980) considered the importance of a competency in relation to a teacher’s knowledge of, ability to perform, and/or ability to teach the respective competency, which resulted in a discrepancy score. According to Borich (1980), the resulting discrepancy scores can be considered unique assessment dimensions, referred to as knowledge, performance, and consequence (see Table 1).

Table 1

*Borich (1980, p. 40) Needs Assessment Model Competencies Defined by Dimension*

Dimension	Definition
Knowledge Competence	Ability to accurately recall, paraphrase, or summarize the procedural mechanics of the behavior on a paper and pencil test
Performance Competence	Ability to accurately execute the behavior in a real or simulated environment in the presence of an observer
Consequence Competence	Ability to elicit learning from pupils by using the behavior in the classroom

**Method**

## Research Design

In this cross-sectional study, we assessed the professional development needs of 380 Texas agriculture teachers' in the core SEL skill areas. The Borich (1980) needs assessment model was appropriate for this study because of the way teachers' SEL competence has been noted to influence students which requires a multidimensional understanding of teachers' needs in SEL skill-area and content-area knowledge. Applying Borich's (1980) logic, the assumption that a teacher understands the principles associated with a topical area (knowledge competence), does not provide adequate reason to believe he or she can accurately demonstrate the application of the principles (performance competence) or, perhaps more importantly, teach the principles (consequence competence).

Many education-focused needs assessments investigate group professional development needs, based on a specific, per item or per-competency basis. However, after considering Borich's (1980) three-dimensional needs assessment model and the expansive nature of SEL, we decided to first assess agriculture teachers' professional development needs in the core SEL skill areas, rather than a specific, per-competency basis. To narrow the scope of the assessment, we used 20 unique core SEL skill areas noted by CASEL (2003) to serve as the base indicators in this study.

Determining which core SEL skill areas to address first, would enable us to conduct a second, per-competency-focused assessment in the areas of greatest need. Therefore, the aim of this study was to assess teachers' professional development needs in the core SEL skill areas, and was guided by two research questions:

RQ1. What were Texas agriculture teachers' self-perceived levels of competence in the core SEL skill areas?

RQ2. What were Texas agriculture teachers' professional development needs in the core SEL skill areas?

## Measures

To address research question one, 20 indicators of the core SEL skill areas were assessed four ways (Importance, Ability to Perform, Knowledge, and Ability to Teach) as outlined by McKim (2013), which were then used to calculate the latent variables used for research question two. Three types of latent variables (Performance Competence, Knowledge Competence, and Consequence Competence) served as dimensions of professional development need and to address research question two.

### Importance

Twenty indicators were used to assess the perceived level of importance of each of the core SEL skill areas. Assessing the importance of each of the core SEL skill areas was necessary because the importance of each of the core SEL skill areas were incorporated into the calculation of each of the latent variables. Incorporating the aspect of importance into each latent variable allowed teachers' needs for professional development in each SEL skill area to be relatively compared across dimensions. Additionally, teachers' responses to the 20 importance-related indicators were also summated to create the construct variable *Importance*, which was used as the dependent variable in a sample comparison, and is later described in this section.

### Ability to Perform, Knowledge, and Ability to Teach

Each teacher's self-perceived ability to accurately demonstrate, or in this case model, the concepts in the core SEL skill areas was assessed using the 20 CASEL (2003) indicators. To assess teachers' knowledge of each of the core SEL skill areas, teachers were asked about their self-perceived knowledge of the 20 CASEL (2003) indicators. Lastly, teachers' ability to teach (elicit learning from pupils) core SEL skill areas was also assessed using the 20 CASEL (2003) indicators.

### **Performance Competence, Knowledge Competence, and Consequence Competence**

Three types of latent variables were created using the variables Importance, Ability to Perform, Knowledge, and Ability to Teach for each of the 20 indicators of core SEL skill areas. A specific type of mean weighted discrepancy score (MWDS) was calculated for each type of competence in each of the 20 core SEL skill areas (methods of calculation are subsequently described): MWDS for Performance Competence were based on the variables Importance and Ability to Perform. MWDS for Knowledge Competence were based on the variables Importance and Knowledge. MWDS for Consequence Competence were based on the variables Importance and Ability to Teach.

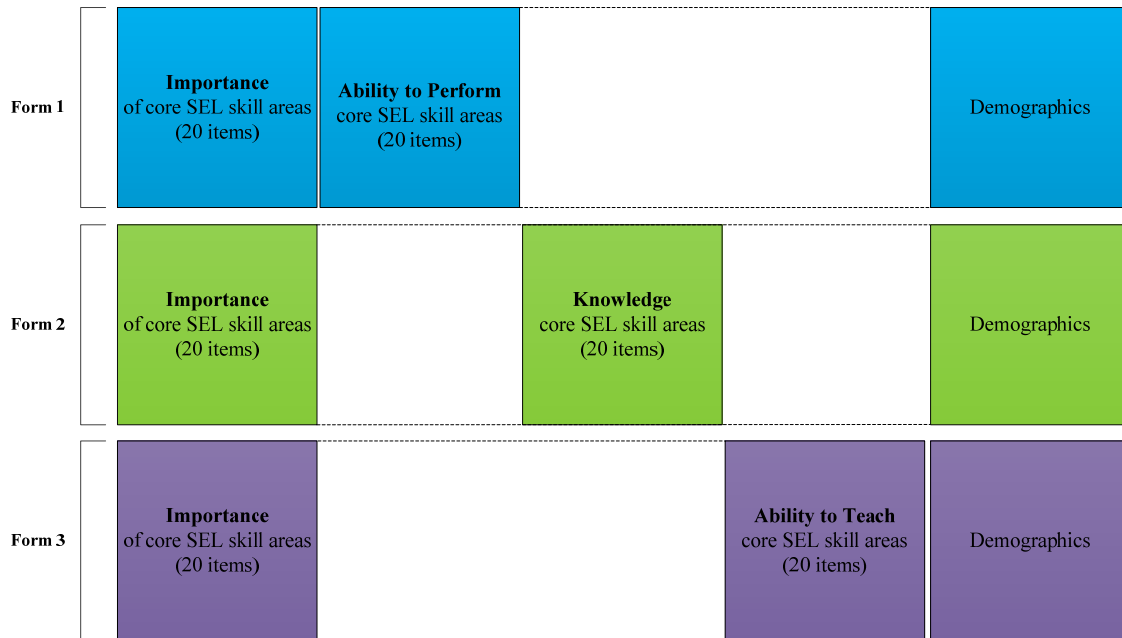
### **Sample Size, Power, and Precision**

Assessing core SEL skill competencies using the Borich (1980) needs assessment model (importance, ability to perform, knowledge, and ability to teach) would have required us to ask each participant to respond to each skill area in four ways (80 questions) which would have likely resulted in respondent fatigue and item non-response. Respondent fatigue occurs when respondents become disengaged in accurately responding to questions in a questionnaire—often due to boredom and a large number of questions (Dillman, Sinclair, & Clark, 1993; Hess, Hensher, & Daly, 2012). Although a consistent, specific number of questions causing respondent fatigue was not apparent in the literature, Bradley and Daly (1994) noted an effect of respondent fatigue; "...respondent 'fatigue' may cause people to make choices less carefully as the number of choices increases" (p. 171). Therefore, we developed three shorter forms of the survey in which all participants answered one section of identical questions (20 questions) and one section of unique questions (20 questions; see Figure 1), thereby, reducing the length of the questionnaire by 50%. Each form of the questionnaire (form 1, form 2, and form 3) was conceptually treated as independent replication of the basic survey (Lohr, 1999). We then used systematic sampling, as a proxy for simple random assignment (Lohr, 1999), to assign the forms (one form per person) to subsamples (group 1, group 2, and group 3).

Combining and analyzing data from three forms raises concern of form invariance. However, researchers (e.g., Dimitrov, 2006; Mackinnon, Jorm, Christensen, Korten, Jacomb, & Rodgers, 1999; Mullen, 1995) have noted the utility of comparing construct variables as a mechanism for testing for an effect of form invariance. Teachers were asked to indicate their perceived level of importance of each of the core SEL skill areas in each form, and importance was included in calculating each of the latent variables (Performance Competence, Knowledge Competence, and Consequence Competence). Therefore, we used a summated importance mean of the 20 importance items as the dependent variable in testing for an effect of form invariance; groups was used as the independent variable.

An estimated minimum sample of 319 useable responses was necessary to achieve a power of .80 and detect a small effect (Keppel & Wickens, 2004). Using SPSS® version 23.0, a one-way ANOVA was used to compare importance mean scores of each form. No significant differences existed between sample mean scores ( $F(2,361) = 1.146, p = .319$ ). Therefore, it was reasonable to combine results from each questionnaire form into one dataset because there was no significant

effect of form invariance on the mean scores for each group (Dimitrov, 2006; Mackinnon et al., 1999).



*Figure 1.* Three paper questionnaires (forms) were developed to measure teachers' perceived level of competency in core SEL skill areas. Twenty items to measure the importance of core SEL skill areas were consistent in each form of the questionnaire. Each form of the questionnaire also contained an additional twenty questions to measure teachers' ability to perform core SEL skills (Form 1), knowledge of core SEL skills (Form 2), and ability to teach core SEL skills (Form 3).

### Instrumentation

The first section of each form was exactly the same; participants were instructed to indicate the importance of teaching each of the 20 core SEL skill areas, using a five-point rating scale of *importance*; i.e., 1 = no importance to 5 = utmost importance. The second section of each form differed: In form one, teachers were asked to indicate their *ability to perform* each SEL skill area (1 = no ability to 5 = exceptional ability). In form two, teachers were asked to indicate their *level of knowledge* for each SEL skill area (1 = no knowledge to 5 = exceptional knowledge). In form three, teachers were asked to indicate their *ability to teach* each SEL skill area (1 = no ability to 5 = exceptional ability). The third section of each form was exactly the same (forms 1, 2, and 3); teachers were asked to respond to nine demographic questions, including the population of the town in which his or her school was located, and the number of years he or she had been an agriculture teacher.

### Validity and Reliability

The content of the questionnaire was considered valid because the items included in each scale (Importance, Ability to Perform, Knowledge, and Ability to Teach) were drawn from the 2003 CASEL report that noted performance measures of SEL program effectiveness. Once draft forms of the questionnaire were completed, we assessed face validity by asking a panel of teachers

(not included in this study) to review the questionnaire and provided feedback regarding clarity of the items, instructions, and layout. Reliability of the questionnaire was estimated by conducting a pilot test, which included a sample of 24 pre-service agriculture teachers. The resulting data were used to estimate reliability of the instrument, which yielded Cronbach's alpha coefficients that ranged from .82 to .89.

### Data Collection Procedures

Self-administered questionnaires were distributed to teachers as they entered a general session of Texas teachers' conference. No incentives were offered to participate in the survey. Research team members were positioned at each entry point to the general session. Each teacher was asked to complete the questionnaire as he or she entered the general session. Questionnaires were collated (form 1, form 2, and form 3) and distributed in order; the forms designated the assignment to each teacher's respective group. When a teacher refused to participate in the survey, the next teacher entering the general session was offered the same form of the questionnaire, which ensured equivalent sizes of subsamples and power of analysis.

### Data Analyses

Data were entered into Microsoft Excel and then imported into SPSS® version 23.0 to calculate means and standard deviations for each of the objectives associated with research question one. An Excel-based MWDS calculator (McKim & Saucier, 2011; McKim, 2015, version 1.4) was used to calculate MWDSs for each of the objectives associated with research question two. MWDSs values are indicators of professional development needs in each core SEL skill area; greater MWDSs values indicate a greater need for professional development; whereas, lesser MWDSs values indicate lesser need for professional development.

### Participant Characteristics

The 363 teachers described in this study ranged in experience from first year teachers to teachers with 46 years of teaching experience ( $M = 12.01$ ;  $SD = 10.29$ ). More than 60% ( $n = 212$ ; 60.2%) of the teachers in the sample were from communities with a population less than 10,000 people. Thirty-one percent ( $n = 109$ ) of the teachers in the sample were from communities with populations greater than 10,000 but less than 250,000 people. Nearly nine percent (8.8%;  $n = 31$ ) were from communities with populations greater than 250,000 people.

Participants were systematically divided into three subsamples by form type, resulting in subsamples of 122 individuals in Group 1 (form 1), 120 individuals in Group 2 (form 2), and 121 individuals in Group 3 (form 3). A summary of the participants' teaching experience is noted in Table 2, and a description of the population of the participants' communities is noted in Table 3.

Table 2

*A summary of Agriculture Teachers' Years of Experience Teaching, by Sample*

Form	n	min	max	M	SD
1	122	0	40	12.30	10.36
2	120	0	41	11.02	9.92
3	121	0	46	12.70	10.78

Table 3

*A summary of the Population of the Community in which Agriculture Teachers' Schools were Located, by Sample.*

Form	<i>n</i>	< 10k	10k – 24k	25k – 49k	50k – 99k	100k to 250k	> 250k
1	122	81	7	8	8	7	10
2	120	65	11	12	10	12	10
3	121	71	11	5	9	11	11

*Note.* < 10k = less than 10,000; 10k – 24k = 10,000 - 24,999; 25k – 49k = 25,000 - 49,999; 50k – 99k = 50,000 - 99,999; 100k to 250k = 100,000 to 250,000; > 250k = More than 250,000.

### Results

The aim of this study was to assess Texas agriculture teachers' professional development needs in the core SEL skill areas. Our inquiry was guided by two research questions. To address research question one, teachers' perceived importance of core SEL skill areas, ability to model core SEL skill areas, knowledge of core SEL skill areas, and ability to teach core SEL skill areas are presented. To address research question two, teachers' professional development needs in the areas of performance competence, knowledge competence, and consequence competence were summarized and ranked by MWDS for each area of competence.

Texas agriculture teachers perceived each of the core SEL skill areas as having average or greater importance. Teachers perceived 12 of the SEL skill areas as above average importance (see Table 4).

Table 4

*Item Means for Teachers' Perceived Importance of Core SEL skill Areas*

Core SEL skill Area	<i>n</i>	<i>M</i>	<i>SD</i>
Respect for others	356	4.68	.574
Personal, moral, and ethical responsibility	358	4.63	.603
Self-motivation and discipline	357	4.46	.659
Problem solving	356	4.44	.650
Working cooperatively	359	4.36	.723
Goal setting and organizational skills	359	4.34	.690
Recognizing strengths, needs, and values	358	4.32	.676
Problem identification and situation analysis	358	4.26	.693
Communication, social engagement, and building relationships	359	4.25	.730
Impulse control and stress management	359	4.14	.729
Negotiation, refusal, and conflict management	359	4.09	.681
Evaluation and reflection	358	4.03	.717
Appreciating diversity	359	3.99	.819
Help seeking and providing	359	3.97	.804
Self-efficacy	352	3.94	.736
Accurate self-perception	361	3.91	.744
Spirituality	359	3.81	.993
Identifying and recognizing emotions	363	3.79	.761
Perspective taking	358	3.73	.682
Empathy	357	3.70	.798

*Note.* Scale: 1 = no importance; 2 = below average importance; 3 = average importance; 4 = above average importance, 5 = utmost importance

On average, Texas agriculture teachers' believed they possessed average or better ability to model (perform) each of the core SEL skill areas. Teachers believed they possessed above average ability to model four of the 20 SEL skill areas (see Table 5). However, relatively high *SD* values for all of the items is an indication that the performance mean scores may not be indicative of all teachers—four (20%) of the individual items had an associated *SD* value exceeding .80.

Table 5

*Item Means for Teachers' Perceived Ability to Perform Core SEL skill Areas*

Core SEL skill Area	<i>n</i>	<i>M</i>	<i>SD</i>
Respect for others	115	4.39	.658
Personal, moral, and ethical responsibility	116	4.26	.759
Working cooperatively	116	4.03	.774
Problem solving	115	4.03	.681
Problem identification and situation analysis	114	3.95	.751
Self-motivation and discipline	115	3.95	.747
Goal setting and organizational skills	114	3.90	.798
Recognizing strengths, needs, and values	115	3.87	.695
Communication, social engagement, and building relationships	115	3.82	.884
Evaluation and reflection	116	3.81	.791
Appreciating diversity	115	3.73	.820
Spirituality	117	3.70	.912
Impulse control and stress management	116	3.64	.869
Help seeking and providing	116	3.63	.786
Negotiation, refusal, and conflict management	115	3.60	.770
Identifying and recognizing emotions	119	3.60	.705
Self-efficacy	114	3.57	.728
Accurate self-perception	117	3.57	.723
Empathy	114	3.55	.742
Perspective taking	116	3.44	.738

*Note.* Scale: 1 = no ability; 2 = below average ability; 3 = average ability; 4 = above average ability, 5 = exceptional ability

On average, Texas agriculture teachers' believed they possessed average or greater knowledge of each of the core SEL skill areas. Teachers believed they possessed above average knowledge of four of the 20 SEL skill areas (see Table 6). Nearly one-half ( $n = 9$ , 45%) of the 20 individual SEL knowledge items had an associated *SD* value exceeding .80.

Table 6

*Item Means for Teachers' Perceived Knowledge of Core SEL skill Areas*

Core SEL skill Area	<i>n</i>	<i>M</i>	<i>SD</i>
Respect for others	116	4.26	.736
Personal, moral, and ethical responsibility	118	4.25	.739
Problem solving	118	4.06	.695
Working cooperatively	117	4.05	.786
Problem identification and situation analysis	118	3.93	.736
Self-motivation and discipline	118	3.92	.818
Appreciating diversity	118	3.89	.875
Communication, social engagement, and building relationships	118	3.89	.814
Goal setting and organizational skills	117	3.82	.822
Recognizing strengths, needs, and values	116	3.80	.760
Impulse control and stress management	118	3.75	.859
Evaluation and reflection	117	3.74	.733
Help seeking and providing	118	3.70	.799
Spirituality	117	3.69	.895
Negotiation, refusal, and conflict management	118	3.66	.819
Accurate self-perception	118	3.62	.771
Self-efficacy	115	3.60	.822
Identifying and recognizing emotions	118	3.58	.778
Empathy	117	3.53	.794
Perspective taking	118	3.46	.802

*Note.* Scale: 1 = no knowledge; 2 = below average knowledge; 3 = average knowledge; 4 = above average knowledge, 5 = exceptional knowledge

On average, Texas agriculture teachers' believed they possessed average or better ability to teach (produce student learning) each of the core SEL skill areas. Unlike the dimensions of ability to perform and knowledge of the SEL skill areas, teachers believed they possessed above average ability to teach one of the 20 SEL skill areas (see Table 7). Similar to the dimensions of knowledge of the SEL skill areas, however, many ( $n = 9$ , 45%) of the *SD* values exceeded .80.

Table 7

*Item Means for Teachers' Perceived Ability to Produce Student Learning in Core SEL skill Areas*

Core SEL skill Area	<i>n</i>	<i>M</i>	<i>SD</i>
Respect for others	123	4.23	.798
Personal, moral, and ethical responsibility	123	3.97	.839
Problem solving	120	3.90	.793
Working cooperatively	123	3.88	.795
Self-motivation and discipline	123	3.82	.820
Problem identification and situation analysis	123	3.78	.784
Goal setting and organizational skills	123	3.77	.876
Communication, social engagement, and building relationships	122	3.70	.779
Recognizing strengths, needs, and values	122	3.69	.717
Appreciating diversity	124	3.65	.807
Evaluation and reflection	123	3.63	.760
Negotiation, refusal, and conflict management	122	3.57	.856
Impulse control and stress management	123	3.55	.889
Help seeking and providing	123	3.54	.842
Self-efficacy	121	3.54	.786
Empathy	123	3.51	.813
Accurate self-perception	124	3.48	.727
Perspective taking	124	3.48	.680
Spirituality	124	3.44	.939
Identifying and recognizing emotions	125	3.41	.684

*Note.* Scale: 1 = no ability; 2 = below average ability; 3 = average ability; 4 = above average ability, 5 = exceptional ability

To address research question two, teachers' professional development needs in the core SEL skill areas for each dimension of competence (performance competence [PC], knowledge competence [KC], and consequence competence [CC]) were summarized and ranked by MWDS.

MWDS indicators of teachers' performance competencies ranged from 0.49 to 2.12 (see Table 8), teachers' knowledge competencies ranged from 0.42 to 2.79 (see Table 9), and teachers' consequence competencies ranged from 0.60 to 2.75 (see Table 10).

Table 8

*Summary of MWDS for Core SEL Skill Area Competencies by Performance*

Core SEL skill Area	<i>n</i>	<i>MWDS</i>
Self-motivation and discipline	115	2.12
Recognizing strengths, needs, and values	115	2.08
Impulse control and stress management	116	2.07
Negotiation, refusal, and conflict management	115	2.07
Goal setting and organizational skills	114	2.03
Communication, social engagement, and building relationships	115	1.89
Personal, moral, and ethical responsibility	116	1.76
Respect for others	115	1.65
Problem solving	115	1.56
Self-efficacy	113	1.47
Problem identification and situation analysis	114	1.43
Help seeking and providing	116	1.37
Accurate self-perception	117	1.30
Working cooperatively	116	1.23
Perspective taking	116	1.13
Evaluation and reflection	116	0.98
Appreciating diversity	114	0.83
Identifying and recognizing emotions	118	0.81
Empathy	114	0.62
Spirituality	117	0.49

*Note.* Greater MWDSs indicate a greater need for professional development.

Table 9

*Summary of MWDS for Core SEL Skill Area Competencies by Knowledge*

Core SEL skill Area	<i>n</i>	<i>MWDS</i>
Recognizing strengths, needs, and values	116	2.79
Self-motivation and discipline	118	2.77
Goal setting and organizational skills	117	2.39
Problem solving	118	2.11
Personal, moral, and ethical responsibility	117	2.00
Negotiation, refusal, and conflict management	118	2.00
Impulse control and stress management	118	1.92
Respect for others	115	1.87
Communication, social engagement, and building relationships	118	1.79
Self-efficacy	114	1.77
Accurate self-perception	118	1.45
Problem identification and situation analysis	118	1.45
Working cooperatively	117	1.38
Evaluation and reflection	117	1.25
Perspective taking	117	1.16
Help seeking and providing	118	0.97
Appreciating diversity	118	0.91
Identifying and recognizing emotions	118	0.84
Empathy	116	0.71
Spirituality	117	0.42

*Note.* Greater MWDSs indicate a greater need for professional development.

Table 10

*Summary of MWDS for Core SEL Skill Area Competencies by Consequence*

Core SEL skill Area	<i>n</i>	<i>MWDS</i>
Personal, moral, and ethical responsibility	123	2.75
Self-motivation and discipline	122	2.60
Working cooperatively	123	2.41
Problem solving	120	2.28
Goal setting and organizational skills	123	2.27
Impulse control and stress management	123	2.23
Recognizing strengths, needs, and values	120	2.06
Communication, social engagement, and building relationships	122	2.03
Problem identification and situation analysis	123	1.97
Respect for others	123	1.92
Negotiation, refusal, and conflict management	122	1.88
Help seeking and providing	123	1.78
Evaluation and reflection	123	1.50
Accurate self-perception	124	1.40
Identifying and recognizing emotions	125	1.36
Spirituality	123	1.36
Self-efficacy	120	1.12
Appreciating diversity	124	1.11
Perspective taking	123	0.81
Empathy	123	0.60

*Note.* Greater MWDSs indicate a greater need for professional development.

A summary of core SEL skill area rankings, based on MWDS, are listed in Table 11 by competency type. Two of the 20 core SEL skill areas were ranked within the five greatest areas of need (ranked between 1 and 5) across the dimensions: self-motivation and discipline (PC = 1, KC = 2, CC = 2) and goal setting and organizational skills (PC = 5, KC = 3, CC = 5). If professional

development in the core SEL skill areas were determined to be necessary, these skill areas would be the most reasonable areas to address first, given the consistent needs across dimensions. Conversely, four core SEL skill areas were ranked within the five lowest ranked areas of need (ranked between 15 and 20) across the dimensions: empathy (PC = 19, KC = 19, CC = 20), appreciating diversity (PC = 17, KC = 17, CC = 18), identifying and recognizing emotions (PC = 18, KC = 18, CC = 15), and spirituality (PC = 20, KC = 20, CC = 15). These four core SEL skill areas should be the lowest priority for professional development, based on the consistently low rankings across the dimensions.

Table 11

*Summary of MWDS Ranking for Core SEL skill Area by Performance, Knowledge, and Consequence*

Core SEL Skill Area	Rank of Skill Area		
	PC	KC	CC
Identifying and recognizing emotions	18	18	15
Accurate self-perception	13	11	14
Recognizing strengths, needs, and values	2	1	7
Self-efficacy	10	10	17
Spirituality	20	20	15
Perspective taking	15	15	19
Empathy	19	19	20
Appreciating diversity	17	17	18
Respect for others	8	8	10
Problem identification and situation analysis	11	11	9
Problem solving	9	4	4
Evaluation and reflection	16	14	13
Personal, moral, and ethical responsibility	7	5	1
Impulse control and stress management	3	7	6
Self-motivation and discipline	1	2	2
Goal setting and organizational skills	5	3	5
Communication, social engagement, and building relationships	6	9	8
Working cooperatively	14	13	3
Negotiation, refusal, and conflict management	3	5	11
Help seeking and providing	12	16	12

*Note.* PC = Performance; KC = Knowledge; CC = Consequence; 1 = greatest need, 20 = least need.

## Discussion

We used a non-probabilistic sample of agriculture teachers from one state, which prevented us from calculating coverage error, sampling error, or nonresponse error. Therefore, our results cannot be inferred beyond the participants described in this study. This study does offer some insight into how agriculture teachers in Texas perceive their professional development needs in the core SEL skill areas and a method for identifying these needs.

Teachers perceived the importance of all core SEL skill areas as having average importance or greater, their ability to model core SEL skill areas as average ability or greater, their knowledge of core SEL skill areas as average knowledge or greater, and having average ability or greater to teach core SEL skill areas. Additionally, based on rankings of MWDSs, teachers' professional development needs were consistently high across the three dimensions for two core SEL skill areas (self-motivation and discipline; goal setting and organizational skills). Although these two core SEL skill areas were ranked high based on MWDS scores, teachers still indicated average or above average ability in teaching, performing, and knowledge of these SEL skill areas might not be enough data to support the need for professional development in these two areas. Researchers could use this preliminary data to further investigate the professional needs of agriculture teachers and, perhaps, focus in greater detail on these areas as a starting point for investigation.

The results of this study were aligned with the results noted in the CASEL (2003) report regarding the importance of SEL skills in the attainment of students' academic and personal success. Agriculture teachers in this study perceived all core SEL skill area as having average or above average importance. Moreover, the results of this study support that agriculture teachers possess the ability to teach SEL competencies that will enable students to succeed academically, socially, and emotionally competent.

Although teachers believed all of the core SEL skill areas were of average importance or greater, they also believed they were average or greater in knowledge, ability to model, and ability to teach the skill areas. Therefore, it is difficult to justify that teachers who were included in this study required professional development in any of the core SEL skill areas. Arguably, as academics, we sometimes believe we need to identify areas of need to address by providing professional development. An in-depth case analysis of individuals who varied greatly (positively and negatively) from reported competency means may provide a deeper understanding of teachers' responses. Tangentially, teachers may be receiving pre-service preparation that enable them to succeed in practice without the need for professional development in core SEL skill areas. Studying curriculum related to SEL in teacher preparation programs may provide greater insight to the scores of early-career teachers.

Although we approached this study with the intent of conducting a second, more finite (per-competency) needs assessment in the areas of greatest need, in hindsight, we may have been too broad in describing the core SEL skill areas. Did teachers have an adequate understanding of the skills included in each area or were they unsure? Therefore, further development of the metrics used to assess the core SEL skill areas is necessary.

Simply assessing needs from an importance and ability dimension (performance competence) was not adequate to holistically understand teachers professional development needs. Borich's (1980) conceptual approach to assessing performance, knowledge, and consequence competence enabled us to identify the five greatest areas of need across the dimensions. Therefore, researchers should consider multiple dimensions when assessing teachers' professional development needs. Further, researchers and educators may find prioritizing more dimensions of

fewer competencies to be a useful alternative to improving teachers' competence. However, further research is necessary to determine if designing professional development sessions with more dimensions of fewer competencies is more effective than a single dimension approach.

Using a multiple dimension approach to assessing professional development needs will increase the number of items included in a questionnaire. In this study, a multi-dimensional assessment of 20 competencies required 80 questions. As the number of items in a questionnaire increases, the likelihood of respondent fatigue also increases (Bradley & Daly, 1994). Therefore, it is important to minimize the number of questions included in a questionnaire. We attempted to minimize the number of questions asked to each respondent by creating three shorter forms of a questionnaire. Each form of the questionnaire included an identical section of 20 scale-type questions, which were used to compute a summated comparison variable and test for form invariance. Because there were no significant effects of form invariance, we were able to collapse data from each form into one dataset; thereby, reducing the number of items each participant had to answer from 80 to 40 items. Therefore, researchers should consider using short-form questionnaires with common comparison variables to reduce potential survey fatigue and increase the practicality of multi-dimensional needs assessment. To further test form invariance effects associated with short-form questionnaires with common comparison variables, researchers should consider integrating short-form questionnaire design elements into future studies.

### References

- Akers, C., Miller, K., Frazee, S. D., & Haygood, J. D. (2004). A tri-state needs assessment of emotional intelligence in agricultural education. *Journal of Agricultural Education*, 45(1), 86-94. doi: 10.5032/jae.2004.01086
- Andenoro, A. C., Baker, M., Stedman, N. L. P., & Weeks, P. P. (2016). Research priority 7: Addressing complex problems. In T. G. Roberts, A. Harder, & M. T. Brashears (Eds.), *American Association for Agricultural Education national research agenda: 2016-2020* (pp. 57-66). Gainesville, FL: Department of Agricultural Education and Communication.
- Borich, G. D. (1977). *The appraisal of teaching: Concepts and process*. Reading, MA: Addison-Wesley.
- Borich, G. D. (1980). A needs assessment model for conducting follow-up studies. *The Journal of Teacher Education*, 31(3), 39-42. doi: 10.1177/002248718003100310
- Bradley, M., & Daly, A. (1994). Use of the logit scaling approach to test for rank-order and fatigue effects in stated preference data. *Transportation*, 21(2), 167-184.
- Collaborative for Academic, Social, and Emotional Learning (CASEL). (2003). *Safe and sound: An educational leader's guide to evidence-based social and emotional learning (SEL) programs*. Chicago, IL: Author.
- Crawford, P., Lang, S., Fink, W., Dalton, R., & Fielitz, L. (2011). *Comparative analysis of soft skills: What is important for new graduates?* Washington, DC: Association of Public and Land-grant Universities.
- Croom, D. B. (2008). The development of the integrated three-component model of agricultural education. *Journal of Agricultural Education*, 49(1), 110-120. doi: 10.5032/jae.2008.01110

- Dillman, D. A., Sinclair, M. D., & Clark, J. R. (1993). Effects of questionnaire length, respondent-friendly design, and a difficult question on response rates for occupant-addressed census mail surveys. *Public Opinion Quarterly*, 57(3).
- Dimitrov, D. M. (2006). Comparing groups on latent variables: A structural equation modeling approach. *Work*, 26(4), 429-436.
- Durlak, J. A., Domitrovich, C. E., Weissberg, R. P., & Gullotta, T. P. (2015). *Handbook of social and emotional learning: Research and practice*. New York, NY: The Guilford Press.
- Dyer, J. E., Breja, L. M., & Wittler, P. S. (2002). *Predictors of student retention in colleges of agriculture*. Proceedings of the 27th Annual National Agricultural Education Research Conference, 490-501.
- Elias, M. J., Zins, J. E., Weissberg, R. P., Frey, K. S., Greenberg, M. T., Haynes, N. M., Shriver, T. P. (1997). *Promoting social and emotional learning: Guidelines for educators*. Alexandria, VA: Association for Supervision and Curriculum Development.
- Hess, S., Hensher, D. A., & Daly, A. (2012). Not bored yet – Revisiting respondent fatigue in stated choice experiments. *Transportation Research Part A: Policy and Practice*, 46(3), 626-644. doi: 10.1016/j.tra.2011.11.008.
- Jones, S. M., Bouffard, S. M., & Weissbourd, R. (2013). Educators' social and emotional skills vital to learning. *Phi Delta Kappan*, 94(8), 62-65.
- Mackinnon, A., Jorm, A. F., Christensen, H., Korten, A. E., Jacomb, P. A., & Rodgers, B. (1999). A short form of the positive and negative affect schedule: Evaluation of factorial validity and invariance across demographic variables in a community sample. *Personality and Individual Differences*, 27(3), 405-416.
- McKim, B. R., & Saucier, P. R. (2011). An Excel-based mean weighted discrepancy score calculator. *Journal of Extension*, 49(2).
- McKim, B. R. (2013). *Assessing knowledge, performance, and consequence competence with the Borich needs assessment model*. College Station, TX: Texas A&M University, Digital Media Research and Development Laboratory. Retrieved from <http://tx.ag/excelmwd>
- McKim, B. R. (2015). *A Microsoft Excel calculator for mean weighted discrepancy scores*. (Version 1.4) [Computer software]. College Station, TX: Texas A&M University, Digital Media Research and Development Laboratory.
- Thoron, A. C., Myers, B. E., & Barrick, R. K. (2016). Research priority 5: Efficient and effective agricultural education programs. In T. G. Roberts, A. Harder, & M. T. Brashears (Eds.), *American Association for Agricultural Education National Research Agenda: 2016-2020* (pp. 41-48). Gainesville, FL: Department of Agricultural Education and Communication.
- Mullen, M. R. (1995). Diagnosing measurement equivalence in cross-national research. *Journal of International Business Studies*, 26(3), 573-596.
- Razzouk, R., & Shute, V. (2012). What is design thinking and why is it important? *Review of Educational Research*, 82(3), 330-348

- Roberts, T. G., Harder, A., & Brashears, M. T. (Eds.). (2016). *American Association for Agricultural Education national research agenda: 2016-2020*. Gainesville, FL: Department of Agricultural Education and Communication.
- Sowcik, M. J., Andenoro, A. C., McNutt, M., & Murphy, S. (2015). *Leadership 2050: Contextualizing global leadership processes for the future*. College Park, MD: International Leadership Association.
- The National Council for Agricultural Education. (2012). *About agricultural education*. Retrieved from <https://www.ffa.org/thecouncil/Pages/ageducation.html>
- Thoron, A. C., Myers, B. E., & Barrick, R. K. (2016). Research priority 5: Efficient and effective agricultural education programs. In T. G. Roberts, A. Harder, & M. T. Brashears (Eds.), *American Association for Agricultural Education National Research Agenda: 2016-2020* (pp. 41–48). Gainesville, FL: Department of Agricultural Education and Communication.
- Zins, J. E., Bloodworth, M. R., Weissberg, R. P., & Walberg, H. J. (2007). The scientific base linking social and emotional learning to school success. *Journal of Educational and Psychological Consultation*, *17*(2-3), 191-210.