# A Longitudinal Investigation of Soft Skill Development of Agricultural Education Students

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## Introduction

The 2016-2020 National Research Agenda identified the need for additional soft skill development for agricultural students. In Research Priority 3: Sufficient Scientific and Professional Workforce That Addresses the Challenges of the 21st Century, soft skills are identified as necessary for the modern workplace by the National Research Council, 2011. To address this need, numerous research studies have analyzed soft skills development and its relationship with experiential learning and agricultural education. As stated in Rayfield, Murphy, Briers, & Lewis (2012), "Agricultural education has always relied heavily on hands-on experiential learning as a method of instruction" (p. 48). Pat Crawford and Robert Dalton (2012) stated, "The importance of soft skills are being extolled internationally - from government reports to university research studies. Employers, students, and faculty are aware of the need to complement professional and technical skills with soft skills" (p. 2). Current research indicates that soft skill development is even more critical. With the outbreak of the COVID-19, the world is undergoing tremendous change and it has been argued that coping and succeeding in the changing reality of the 21st century globally requires a wider set of skills than before, many of which are soft, social-emotional skills" (Naamati et al, 2020).

This longitudinal research study sought to determine changes in soft skills development by high school students enrolled in Secondary Agricultural Education Programs over a four-year period from 2016 to 2020. This study also analyzed the difference in soft skill development between students who were at varying grade levels 9th – 12th. Soft skills were measured using the Life Effectiveness Questionnaire-H (LEQ-H). The LEQ-H was developed in 1997 and was originally used to measure changes associated with experiential learning programs (McLeod & Craig, 2004, p. 4). The reliability of the LEQ-H was established by the researchers utilizing the Tuker-Lewis index (TLI) and relative noncentrality index (RNI), resulting in coefficients of .945 and .959, respectively (Neil, Marsh and Richards, 1997).

## Theoretical Framework

The theoretical framework implemented in this research project was Kolb's Experiential Learning Model, which includes four stages, 1) concrete experiences, 2) reflection and observations, 3) abstract conceptualizations, and 4) active experimentation (Kolb, 1984). Grady Robert's manuscript sought to summarize what is known about experiential learning theory; experiential learning begins with an initial focus of the learner, followed by an experience, then the learner reflects on their observation, formulates a generalization, and then tests the generalization with experimentation. Once completed, the circle starts over in a spiral-like pattern (Roberts, 2006, p.22).

## Methodology

The research design employed a descriptive study of how FFA members' soft skills changed over a four-year period. As part of the 2016 research study titled, *An Investigation of Soft Skills Development of Agricultural Education Students Participating in an FFA Career Development Event*, agriculture teachers administered the LEQ-H Questionnaire to students from five high schools. Students volunteered to complete the LEQ-H in mid-August, 2016. Four years later, researchers began to collect the second round of survey data in the Fall of 2020. Without

warning, the researchers faced a major setback. In March of 2020, students were sent home from school due to the COVID-19 pandemic. In his article, Naamati explained that this situation forced teachers to adapt quickly to digital teaching methods and the use of various platforms for distance learning, creating very challenging times (p. 122). After failed attempts to reach students through their teachers, the LEQ-H was administered online using Qualtrics. The survey consisted of 24 questions asking students to rank the following soft skills on a scale of one (lowest) to eight (highest): time management, social competence, achievement motivation, intellectual flexibility, task leadership, emotional control, active initiative, and self-confidence (Kechagias, 2011). Of the 164 FFA members who participated in the 2016 survey, eight (5%) FFA members completed the 2020 survey. The survey participants range in grade level 9 - 12. By analyzing individual scores and group level data, researchers determined changes in soft skills development over the four-year period.

## Results/Findings

Individual results identified an overall mean score increase in soft skills of 5.73 (3.8%), indicating that students enrolled in secondary agriculture courses from 2016 to 2020 did improve their soft skills development. The largest changes occurred in Achievement Motivation (12.67%), Social Competence (11.19%), and Active Initiative (9.02%). In analyzing group level data, researchers determined that the 10$^{th}$ grade (n=1) experienced greater changes in overall mean scores (16.94%). The 9$^{th}$ grade (n=4) scored second highest (13.88%). Their largest improvements included Time Management (14%), Social Competence (25.45%), Achievement Motivation (16.18%), Intellectual Flexibility (34.62%), Active Initiative (25.93%), and Self Confidence (10.92%). The 11$^{th}$ grade (n=1) and 12$^{th}$ grade (n=2) experienced decreased soft skill improvement of the past four years, juniors (-4.46%), and seniors (-.98%). Junior and senior level students graduated from high school early in 2016-2017, therefore spending less time in secondary agricultural programs during the term of this study.

## Conclusions

Secondary Agricultural Education Programs could benefit from highlighting the need for ‘soft’ skills, as well as ‘hard’ or technical skills. Students could improve their soft skills development through continued enrollment in agricultural education courses. Continued involvement in FFA activities and periodic soft skill assessments to track students’ soft skill development could better prepare students to meet the challenges of the 21$^{st}$ Century.

## Implications/Recommendations/Impact on Profession

Agricultural teachers are encouraged to include the following items in their Agricultural Department Program Plan: soft skills curriculum, annual evaluation of students’ soft skills development, and ongoing experiential learning activities to better prepare students to enter careers in the agricultural industry. Additional longitudinal research studies are needed to determine the long-term effects on soft skills development for agricultural education students. Finally, the development of a Soft Skills Certificate Program to assist students in documenting their experiential learning activities as proof to employers of their career readiness skills is highly recommended.

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