

**Relationship Between Student Self-Efficacy in Completing Animal Science Industry Skills
and the Number of Years with an SAE Project**

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Introduction

Since the early 1900s, scholars have claimed supervised agricultural experiences (SAEs) provide students the opportunity to apply concepts learned in the classroom to real-life situations (Stimson, 1919; Talbert et al., 2007; Smith & Rayfield, 2016). Researchers have also stated agricultural education offers experiences that allow for the development of workplace skills (Dailey et al., 2001). However, there is little empirical data to suggest SAEs provide students with the skills needed to be successful in the workplace. This lack of data has been highlighted by Ramsey and Edwards (2011) when they questioned if SAEs are providing students with skills that are relevant to careers in agriculture. Furthermore, Retallick (2010) found Agricultural Science teachers do not recognize industry skill attainment as a reason for implementing SAEs into their program. This leads to the question, does participation in livestock SAE projects help students further develop the industry skills they are learning in their high school animal science courses?

Theoretical Framework

This study designed using Bandura's Social Cognitive Theory. According to Bandura (1997), there are four primary sources of self-efficacy, which include mastery experiences, vicarious experiences, social persuasions, and psychological. Mastery experiences are experiences that allow the student to practice the skill they are learning; these experiences are said to have the greatest impact on an individual's self-efficacy (Bandura, 1997). This claim has been supported using empirical data by many researchers (Byars-Winston et al., 2017; Phan & Ngu, 2016; Usher & Pajares, 2008). If students have had mastery experiences through their SAE project, they should have a higher level of self-efficacy when completing animal science industry skills. By looking at this study through the lens of Bandura's theory, we can assume that if the years a student participates in livestock SAE projects correlates to their self-efficacy, SAEs are giving students the opportunity to practice the skills necessary to be successful in future careers.

Methods

This study was conducted using data collected from a pilot test for a future study. The population of the study was all students enrolled in an animal science course at a nearby high school ($N = 70$). The survey used was researcher-developed, reviewed by a panel of experts for face and content validity, and reliability was determined post hoc with a Cronbach's coefficient of .98. A Likert-type scale was utilized to determine the student confidence levels from 1 to 5 (1 = Not Confident to 5 = Very Confident) in completing animal science industry skills identified by Ramsey and Edwards (2011). Surveys were provided to the teachers and distributed to the students to complete and return. Parental consent and student assent were obtained prior to the student completing the survey. The data were analyzed using Statistical Package for the Social Sciences (SPSS). A Pearson product-moment correlation was utilized to determine if there was a significant relationship between the years participating in livestock SAE projects and the students perceived self-efficacy. The alpha level was set a priori at .05.

Findings

The objective of the study was to determine if there was a significant correlation between the number of years a student has participated in livestock SAE projects and their confidence level in performing animal science industry skills. Table 1 describes the relationship between the number of years a student has had a livestock SAE project and their confidence in identifying species of livestock, giving vaccinations, evaluating livestock, performing basic veterinary applications, and evaluating marketplace sale trends. All relationships were described according to Davis (1971). The relationship between years with a livestock SAE project and performing basic veterinary applications was moderate ($r = .44, p < .01$). The relationships between years with livestock SAE project and identifying species of livestock ($r = .51, p < .01$), evaluating marketplace sale trends ($r = .57, p < .01$), and giving vaccinations ($r = .64, p < .01$) were all substantial. The relationship between years with a livestock SAE project and evaluating livestock was very high ($r = .70, p < .01$).

Table 1

Correlation between years with livestock SAE and perceived self-efficacy in completing skills.
($N = 70$)

Variable	Years with Livestock SAE (r)
Evaluating livestock	.70
Giving vaccinations	.64
Evaluating marketplace sale trends	.57
Identifying species of livestock	.51
Basic veterinary applications	.44

Note. All variables were significant at the .01 level.

Conclusions, Implications, and Recommendations

From the findings of the study, it can be concluded there is a relationship between the number of years a student participates in livestock SAE projects and their perceived self-efficacy in identifying species of livestock, giving vaccinations, evaluating livestock, performing basic veterinary applications, and evaluating marketplace sale trends. This conclusion supports Bandura's Self-efficacy theory (1996), which suggests mastery experiences can lead to a higher level of self-efficacy. This conclusion means that participation in livestock SAE projects could help a student gain and practice some of the skills necessary to be successful in their future career fields. For practice, we recommend to continue encouraging students to find and participate in SAE projects that align with their career interests to assist in developing a more knowledgeable and prepared workforce. The profession should also ensure all agricultural science teachers are leaving their university programs with the necessary skills and knowledge to supervise student SAE projects of all types. Further research should be conducted to make the study generalizable to a larger population to determine if years with an SAE project correlates to confidence in completing industry skills for students from all regions of the nation. Furthermore, research should be conducted with a wider variety of industry skills in animal science, as well as other courses to determine if all SAE projects are providing students the same opportunities.

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