

An Examination of School-Based Agricultural Education Teacher Job Demand in Texas

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Introduction/Theoretical Framework

According to the latest national agricultural education supply and demand study, the number of school-based agricultural education (SBAE) teachers is increasing nationally, as is the number of positions that go unfilled each year (Foster et al., 2020). The SBAE teacher shortage has been documented since the 1960s and continues today (Eck & Edwards, 2019). On the supply side of the teacher shortage issue, studies have examined why teachers leave the field and why they fail to enter the field after college graduation (Doss et al., 2020). On the demand side of the issue, sparse research has been conducted on what is driving the increase in demand for SBAE teachers. This leads to the need for this study and directly addresses Research Priority 3: Sufficient Scientific and Professional Workforce That Addresses the Challenges of the 21st Century (Roberts et al., 2016). To prepare a workforce to meet the demand of SBAE teachers in Texas, an examination of current SBAE teacher vacancies is needed.

This study is grounded in the building teacher human capital framework proposed by the U.S. Department of Education (2017). Within the framework, four systems were outlined to achieve a stronger teacher workforce: acquire, develop, sustain, and evaluate (Myung et al., 2013). This study focuses on the acquire system in that schools need to hire educators with appropriate skill sets. To accomplish this, teacher preparation programs need to know what the needed skill sets are in order to more efficiently produce a supply of teachers to meet the demand. Previous studies have examined professional development needs and self-efficacy of early career SBAE teachers after they are already in the field (Langley et al., 2014). However, little work has been done to determine what skills current job openings are requiring. Recently in Texas, the legislature passed a reform on school finance expanding CTE funding from grades 9-12 to now include grades 7-8, increasing the possibility for schools to add agricultural education programs to middle schools (Career and Technical Association of Texas, 2019). New CTE programs of study were also updated for the Agriculture, Food, and Natural Resources CTE pathway, creating additional opportunities for new jobs (Texas Education Agency, 2020). Given the recent changes to agricultural education and the need to identify the current demand, the purpose of this study was to determine programs of study required for posted SBAE teaching job positions and grade levels for those positions.

Methods

To accomplish the purpose of this study, a quantitative content analysis was conducted for all SBAE teacher job positions posted to the Agriculture Teachers Association of Texas website from April 1, 2020 through August 30, 2020 (Ary et al., 2014). This data source was chosen because it is used most frequently by school districts in the state seeking a SBAE teacher. For each job posting, potential courses that would be taught are listed on the website. Courses were categorized under the corresponding program of study and recorded by the principal researcher, along with the grade levels to be taught. Two other researchers at Texas Tech University randomly checked information from 20 job postings to confirm reliability of the information originally recorded by the principal researcher (Potter & Levine-Donnerstein, 1999). All frequencies and percentages were calculated in Microsoft Excel for this data set.

Findings

There were 192 job vacancies posted to the website for the dates studied. Of those posted, 14 positions were for middle school only, five positions were shared between middle and high school, and 172 were for high school only. Introductory courses such as Principles of AFNR were listed most frequently ($f = 77$, 40.10%) in job postings, followed by animal science courses ($f = 75$, 39.06%) and applied agricultural engineering ($f = 61$, 31.77%). Courses outside of the agriculture pathway were also listed as part of the job responsibilities in the pathways of construction ($f = 14$, 7.29%) and manufacturing ($f = 8$, 4.17%). Table 1 breaks down the number of postings listing courses to be taught in each program of study.

Table 1

Programs of Study Listed to be Taught in Texas SBAE Teacher Job Postings (N = 192)

Pathway	<i>f</i>	%
Introductory Courses	77	40.10
Animal Science	75	39.06
Applied Agricultural Engineering	61	31.77
Plant Science	55	28.65
None Reported	34	17.71
Environmental and Natural Resources	19	9.90
Construction ^a	14	7.29
Manufacturing ^a	8	4.17
Agribusiness	7	3.65
Food Science and Technology	2	1.04

Note. Percentages expressed as a proportion of the total number of job postings where courses in multiple programs of study can be listed. ^aCourses are not in the agriculture pathway.

Conclusions/Implications/Recommendations

From the data collected in this study, it can be concluded that the demand for SBAE teachers is expanding beyond high school programs into middle schools in Texas. Job openings most commonly needed a teacher to teach introductory courses, animal science courses, applied agricultural engineering courses, and plant science courses. There are also several positions requiring the SBAE teacher to teach courses outside of agricultural education in construction and manufacturing. For school districts to build human teacher capital, they must acquire teachers with skills in the areas found in this study (Myung et al., 2013). An implication of this is that teacher preparation programs in Texas will need to expand their curriculum to include instruction at the middle school level. We recommend teacher preparation programs examine courses in their degree plan and adjust them to provide students with courses that will prepare them to teach introductory, animal science, applied agricultural engineering, and plant science courses. In order to supply a workforce to meet the demand for teachers of applied engineering that often has shared responsibilities in construction and manufacturing, courses in this area should be expanded at the college or university level. Additional research should be conducted to determine the success of newly hired college graduates in the areas of middle school SBAE programs and in specific programs of study to assess current teacher preparation programs.

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