

Mismatch? The Alignment Between Local AFNR Labor Markets and California Central Valley  
SBAE Program Components

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### Introduction/Theoretical Framework

Agricultural education organizations and teachers alike perceive the purpose of School Based Agricultural Education (SBAE) to mold students into agriculturally literate, skillful citizens who are college and career-ready (National Council for Agricultural Education, n.d.). Career and Technical Education (CTE) had original intentions of fulfilling employer needs; however, the focus has shifted to maximizing labor market potential (Imperatore & Hyslop, 2017). The reauthorization of Perkins V has emphasized needs assessments and research regarding CTE program alignment with local in-demand jobs (Granovski, 2018). The lack of Agriculture, Food, and Natural Resources (AFNR) education research regarding its alignment to agricultural labor markets garners the need for this study.

Human Capital Theory informed the investigation of SBAE program alignment with agricultural labor markets. Becker (2009) posited that the increase in human capital outputs benefits for both communities and individual life quality. The economic return of investing in schooling positively corresponds with and the competence for performing vocational skills (Hout, 2012). Agricultural education programs are conducive to increasing the human capital of students by delivering relevant industry knowledge and skills through classroom instruction, SAE, and FFA.

### Methods

This study utilized a purposive sample of 172 SBAE program department chairs within California's Central Valley as provided by the Agricultural Experience Tracker. Purposive sampling allows for the deliberate choice of participants with traits of interest (Etikan et al., 2016), in this case, department chairs being the most informed about their SBAE programs. Readers should be cautious with this study's applicability to populations beyond those studied (Etikan et al., 2016). The initial invitation to participate was sent in April of 2022 with reminders sent every two weeks for two months. No differences were found when non-respondents were compared with respondents on program information obtained a priori (Miller & Smith, 1983).

The researcher-modified instrument consisted of the curriculum-congruence instrument developed by Moser and McKim (2021). Participants were presented with an AFNR pathway scale where the respondents indicated the presence of nine pathways within SBAE program components (i.e. Classroom, SAE, FFA). Pathway presence was rated from 0 (*Area is not present in my programmatic components*) to 100 (*Area encompasses all my programmatic components*). A panel of experts delivered feedback on instrument quality. The curriculum instrument was not reliable in the pilot test of business teachers in Michigan; however, it was kept as the target population differed from the pilot population (Moser & McKim, 2021). Secondary data collection consisted of categorizing agricultural industries listed within the 2022 North American Industry Classification System into the AFNR pathways according to that industry's specialization. County-level labor markets were then calculated using location quotients (LQ) provided by the U.S. Bureau of Labor Statistics. LQs are effective for studying the composition of jobs in an area relative to the geographic average, or identifying areas that

have high saturations of jobs in a certain industry (U.S. Bureau of Labor Statistics, 2011). For example, an LQ of 2.0 implies that the industry accounts for twice the share of employment in that area than it does nationally, while an LQ of 0.5 indicates the area’s occupational share of employment is half the national share. These data sets were used to calculate alignment, which is conceptualized as having a balance between the presence of a pathway and the concentration of local agricultural industries. For each of the pathways, presence and LQs were calculated. If the presence encompasses most of the pathways offered at a program while the county LQ is greater than 1.0, the program was considered “aligned.”

### Findings

Usable surveys were received from 59 of the 172 SBAE department chairs, a 34.40% response rate. Overall, 52.63% of SBAE classroom instruction, 56.53% of SAEs, and 52.82% of FFA activities were in alignment with AFNR labor markets. Table 1 depicts program mean scores of all components and pathways in addition to the percent of programs where LQs and component presence were aligned.

Table 1.  
*AFNR Pathway Location Quotients, Component Presence, and Alignment*

	LQ	Classroom		SAE		FFA	
		Presence	Aligned	Presence	Aligned	Presence	Aligned
AFNR Areas	<i>M</i>	<i>M</i>	%	<i>M</i>	%	<i>M</i>	%
Ag. Bus. Sys.	7.15	8.63	24.56	7.32	21.05	10.91	30.01
Animal Sys.	5.65	21.75	68.42	51.56	94.74	30.18	68.42
Biotech. Sys.	0.73	9.53	63.16	1.25	75.44	1.72	75.44
Enviro. Sys.	1.08	4.42	68.42	1.37	68.42	2.96	73.68
Food Sys.	4.60	3.72	29.82	3.56	29.82	4.95	28.07
Nat. Res. Sys.	0.90	3.58	64.91	1.21	68.42	5.54	56.14
Plant Sys.	12.60	20.26	75.44	19.60	57.89	13.46	43.86
Pwr. Tech. Sys.	1.45	25.39	38.60	13.39	49.12	13.53	49.12
Other	1.95	2.72	40.35	0.75	43.86	16.75	49.12
Overall	4.01	11.11	52.63	11.11	56.53	11.11	52.82

### Conclusion/Recommendations

Results indicated that most SBAE programs are in alignment with AFNR labor markets across all programmatic elements. Although the popularity of Plant and Animal System pathways in SBAE programs remains aligned with the centralization of those exact industries, the same does not apply to Agribusiness and Food Products System pathways, with less than a third of SBAE programs across all components being aligned. SBAE programs should evaluate what skills and knowledge their departments prioritize to remain relevant within their local communities, counties, and beyond with the assistance of program stakeholders and advisory committees. It is recommended that state and national level studies investigating the alignment of SBAE program priorities and industry specializations be conducted. Furthermore, a national roster of agricultural industries and companies categorized specifically within AFNR subject areas is needed to support the networking, program development, and research of SBAE programs.

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