Examining the Teacher Pipeline

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Introduction

In California, secondary agriculture programs showcase a demographic spread of 52% Male, 47% Female, 30% White, and 53% Hispanic (AET, 2023). However, the demographics of the current agricultural teacher population contrast sharply, with figures revealing 64% Female, 78% White, and only 18% Hispanic (Foster et al., 2023). Of note is the composition of program completers, who are predominantly 75% Female and 81% White, especially when they fill 85% of new teaching positions. This study aims to descriptively compare the demographic "pipeline" across California's three major agricultural teacher preparation public universities. Collectively, these institutions account for over 85% of the state's program completers. While each adheres to the same state credentialing standards and situates their agricultural education in a college of agriculture, variations exist in their sizes, entry requirements, and campus types. Our primary focus is to present a clear picture of the demographic journey from student enrollment to program completion.

Conceptual Framework

The scarcity of research on demographic disparity in the secondary agriculture teacher pipeline necessitates our study, which is grounded on key existing literature. Cherng and Halpin (2016) advocate for teacher diversity, finding that students across all groups had more favorable perceptions of minority teachers, implying the need for diversity in the teacher pipeline. Egalite, Kisida, and Winters (2015) found benefits, especially in low-performing students, from having a race-congruent teacher. Nonetheless, obstacles persist for underrepresented students. Bullock, Morgan, and Warner (2021) noted challenges like financial burden and feelings of isolation. Creighton (2007) emphasized non-academic factors influencing student attrition, such as community integration and financial support. Walpole (2003) outlined the uphill battle for students from low socioeconomic status (SES) backgrounds to achieve a comparable social or economic standing to high SES peers. These studies offer a lens to scrutinize the need for more diversity within the secondary agriculture teacher pipeline. Our study intends to investigate the current disparity between program enrollment and program completion in underrepresented groups.

Methodology

This study uses a descriptive comparative design to evaluate the demographic composition of agricultural education majors, program completers, and students in secondary agricultural education programs across three key public universities in California. The intent is to examine the teacher pipeline and contrast institutional demographics with state averages.

Institutional data was extracted from a system-wide dashboard (CSU, 2023). Program completer data was extracted from the AAAE National Supply and Demand Study (Foster et al., 2023). Secondary student data was extracted from the Agricultural Experience Tracker (2023). Statewide data was extracted from the National Center for Educational Statistics (NCES) for grades 9-12 (NCES, 2023). Data analysis was conducted in Microsoft Excel, focusing on descriptive statistics and demographic frequency distributions.

Results

Secondary programs continue to become more diverse, and the agriculture programs follow this trend but lag in numbers (Table 1). While the study's focus was race, gender parity is also important. In broad terms, women are overrepresented in all the colleges and preparatory majors (Table 2). The pipeline becomes more female as it moves toward program completers.

At two of the three universities and colleges, Hispanic students exceed White students (Table 3). White students in the majors exceed the number of Hispanic students in two of the three institutions. In all cases, program completers are overwhelmingly White. Significant differences exist between the institutions at all levels along the pipeline until the program completer group.

Table 1 – Secondary Agricultural Programs

	Gender		Race	
	F	M	White	Hispanic
Secondary Ag Programs	44%	49%	26%	46%
Statewide (grades 9-12)	49%	51%	22%	56%

Table 2 – Gender

	Cal Poly SLO		Chico State		Fresno State	
	Female	Male	Female	Male	Female	Male
Ag Ed Major	56%	44%	73%	27%	76%	24%
Program Completers	70%	30%	85%	15%	71%	29%

Table 3 – Race

	Cal Poly SLO		Chico State		Fresno State	
	White	Hispanic	White	Hispanic	White	Hispanic
Ag Ed Major	49%	37%	52%	36%	41%	49%
Program Completers	85%	10%	88%	4%	83%	17%

* Only White and Hispanic are reported for brevity. These are the two largest groups.

Conclusions

Our study illuminates demographic disparities in the secondary agricultural teacher pipeline across three major public universities in California. While secondary agriculture programs and teacher preparation are slowly diversifying, race and gender equity is far from optimal. Program completers are predominantly White and female. Concurrently, Hispanic students show strong enrollments, yet their presence markedly declines among program completers. The data underscore the necessity for a more diversified secondary agricultural teacher pipeline, particularly as current figures indicate disparities in accessibility and representation.

Implications

Enhancing Equity: The prominent representation of female and White program completers contrasted against the underrepresentation of Hispanic and male students indicates potential barriers in their academic journey. These institutional, financial, or socio-cultural barriers need identification and mitigation. Effective interventions may encompass financial aid, community integration, and academic support. Recruitment and Role Models: As suggested by Cherng and Halpin (2016), a diverse educator cohort can foster positive learning environments by providing varied perspectives, serving as inclusive role models, and enriching the learning environment. Strategic Initiatives: Universities and California policymakers must devise strategies promoting equity in enrollment and completion rates. Addressing these challenges ensures that agricultural education becomes more inclusive, representative, and equitable, fostering a richer learning environment for all students.

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