AN INQUIRY INTO THE NEEDS OF FEMALE TEACHER CANDIDATES

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Need for Innovation

The National Study of the Supply and Demand for Teachers of Agricultural Education (2010) found that females (54%) represented the majority of newly qualified agriculture teachers (*n* = 394) and males (46%, *n* = 338). However, male agriculture teachers continue to substantially outnumber females with 4,611males (54%) compared to 1,860 (22%) females employed (Kantrovich, 2010). This alludes to a possible question, what causes a larger segment of potential professionals not to enter or persist in their intended career path?

The emergence of women as agriculture teachers over the past 50 years has opened opportunities while revealing issues females still face in agriculture (Enns & Martin, 2015). Foster (2003) stated that the top three barriers women perceived were acceptance by peers (other male teachers), balancing career and family acceptance, and acceptance by administrators. Among those identified female teachers, 39.6% taught agricultural mechanics. In a study by Wakefield, Brandenburg, Pense, and Talbert (2010) agricultural mechanization, considered a male dominated area, caused difficulty when related to competence (32%) by female respondents. It has been further reported that agricultural mechanization was the highest competency that women strongly agreed as being challenging to teach (Wakefield et. al., 2010).

While women are under represented in the agricultural education industry (Kelsey, 2006), exploring women's perceptions on agricultural mechanization and preparatory programs may provide a clearer understanding of why men dominate the agricultural education teaching industry. The knowledge of female's perceptions can guide post-secondary teacher education programs, as well as, close the gap of gender dominance in the agricultural education industry. As purported through the National Research Agenda for Agricultural Education, creating meaningful learning environments is essential to educating future generation (Edgar, 2016).

Methodology & Program Phases

The idea of this project was to determine if intervention of agricultural mechanization modules enhanced the perception of skills for female agriculture teacher candidates. Phase one of the project has been completed which determined the perceptions of female teacher candidates. The population of study (*N* = 14) included 9 females (Spring 2015 & 2017) at the University of Arkansas. All participants identified in this study responded to a questionnaire about their ability to teach agricultural mechanics. The next phase of the project will include the development of skill enhancement modules towards mechanical technologies based on respondent feedback. During the semester of student teaching, participants will enroll in a Methods of Agricultural Education Labs course consisting of educational activities targeting identified needs and competencies. Furthermore, efficacy will be determined before and after completion of this course. Data will be compared to determine if the intervention of these activities enhanced their perceptions and abilities in agricultural mechanization for female teacher candidates. The final phase of this project will be to develop curriculum and gain further efficacy scores of female teacher candidates at other programs.

Initial Results and Implications

Data analysis revealed that before entering the student teaching block, having completed 12 credit hours of agricultural mechanization courses, respondents reported a value of 3.0 (*SD* = 1.63) on a 10 point scale towards their ability to teach agriculture mechanics. After completing a Methods of Teaching in Agricultural Laboratories course, respondents viewed their ability to teach as 6.14 (*SD* = 1.07). At the completion of their student teaching experience, participants noted their ability to teach agricultural mechanics as 7.71 (*SD* = 1.38). Therefore, female students (*n* = 9) perceived that their ability progressed from undergraduate course work to the end of student teaching. An ANOVA analysis determined significance through the three phases and significance was seen at each interval of data acquisition (F (2) = 21.18, p =.0001).

Based on the described pool of potential applicants for careers in agricultural education, improving abilities and efficacy of female agricultural education professionals will be paramount to a sustained workforce in the future. Further, agricultural education is not a program that allows for most teacher candidates to gain knowledge and skills in the diverse scope of traditional programs (pathways in animal, plant, mechanization, etc). Therefore, it is paramount that teacher candidates have the abilities and confidence to teach in other pathways than their sometimes singular focus. It is surmised that through the enhancements, similar action may be taken towards other pathways for teachers, regardless of gender, if success is warranted through further data analysis

Future Plans/ Advice to Others

As described, further data gathering and analysis will ensue throughout this project and the scope will be increased substantially. Perceptions of females will be gathered towards agricultural mechanization but this could be refined towards pathways of need in many other program areas. It is assumed that further refinement of the process and candidate needs will be found and refined through completion of this initial action research project. As others may determine needs of their teacher candidates based on gender or other needs, deciding on best practices should be attempted based on a validated process of inquiry similar to what guides this project.

Cost/ Resources Needed

Because of the initial inquiry of this project, resources are limited to a population of study and an instrument to guide the inquiry needs of this project. Students will need an estimated 5 minutes to allocate towards the initial instrument completion. Further time allocation will be based on student needs and developed curriculum and activities warranted towards the knowledge and skill attainment. Although in the future of this project, equipment and machinery should not extend beyond basic mechanization seem in agricultural education laboratories locally. Therefore, the need for extensive equipment should pose no problem because the needs of students should only extend towards basic mechanization knowledge and skills.

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