

**Perceptions of Vocational Agriculture Competencies and
Sex Equity in Oregon**

Michael Krummel, Vocational Agriculture Instructor
Hood River Valley High School
Hood River, Oregon

R. Lee Cole, Associate Professor
Agricultural Education
Oregon State University

Accepted for Publication September 1986

A considerable amount of interest and publication attention was given to sex equity issues at various levels of agricultural education programs five to ten years ago. Recently the topic of sex equity has received less publication attention than in the past. Did the past attention to sex equity have an impact on present perceptions of individuals regarding sex equity in vocational agriculture programs?

Equity was defined by Webster's Ninth New Collegiate Dictionary (Merriam-Webster, 1984) as freedom from bias or favoritism. When considering competency level attainment across all curricular areas of the vocational agriculture program, was there freedom from bias for male and female students?

Previous research indicated that teachers play a tremendous socializing role in American culture. They are a key to changing student concepts regarding sex role expectations (Kaplan, 1975; Matthews & McCune, 1975). Because teachers can be such a vital force in changing student concepts, there is a probability that teachers may actually increase and/or perpetuate stereotypic attitudes of students (Henderson & Knight, 1980). Given the important position the teacher holds, according to the research cited, it was important to determine if, perceptually, sex equity existed in vocational agriculture programs.

Purpose of the Study

The purpose of this study was to determine if sex equity had been perceptually established on a competency level attainment basis within the six taxonomy areas of vocational agriculture programs in Oregon. The taxonomies to be investigated were leadership, SOEP records and agricultural business, plant science, soil science, animal science, and agricultural mechanics.

The specific objectives of this study were to:

1. Determine if differences in self-perceived competency level attainment exist between male and female students in the junior level of Ag III vocational agriculture programs in Oregon.
2. Determine if differences in agricultural competency level attainment exist for junior level Ag III male and female students as perceived by their vocational agriculture instructors in Oregon.
3. Determine if junior level Ag III male and female students perceive their own agricultural competency attainment differently than their vocational agriculture instructors.

Methodology

A stratified random sample was drawn using two vocational agriculture programs from each of Oregon's 10 FFA districts (sample size was 20). The vocational agriculture instructor and all junior level (Ag III) students were included in the study for each program that was drawn. Cohen's Power Analysis procedure (Cohen, 1969) was used to establish that a minimum of 15 schools were required to participate in the study if a power level of .80 and a confidence level of .05 was desired.

A panel of experts consisting of three teacher educators, a state specialist in vocational agriculture education, and a state sex equity specialist established content validity of the instruments used for both students and teachers. Instrument reliability was checked through a series of field tests with vocational agriculture instructors and students who were not a part of the sample. The instrument used a five-point Likert-type scale to elicit student and instructor responses. The competencies contained in the instrument represented the six traditional vocational agriculture taxonomies and would normally have been taught before spring term of the junior year. Since senior classes are usually very small in Oregon programs, the junior class was selected to keep the total number of student participants as high as possible and still allow the students as much experience as possible in the vocational agriculture program.

The responses were analyzed statistically using the separate and paired t-test procedures. Frequency counts and percentages were used to report the student demographic data.

Seventeen of the 20 study schools returned usable materials. This comprised an 85% response rate. This response rate provided for a study sample of 143 male students, 37 female students, 15 male instructors and 2 female instructors.

Findings and Discussion

Approximately 21% of the students enrolled in vocational agriculture programs at the junior level in this study were female while 12% of the vocational agriculture instructors in the study were female. Approximately 60% of both male and female students lived on farms. Approximately 70% of both male and female students in vocational agriculture planned to work in agriculture after graduation from high school.

The self-assessed strongest area as identified in the demographic data for the male students in vocational agriculture was agricultural mechanics. Female students reported their strongest area to be leadership. The self-assessed weakest areas in agriculture for male students was reported to be soil science. Female students reported their weakest areas to be agricultural mechanics.

Objective Number One

The taxonomies investigated were leadership, SOEP records and agricultural business, plant science, soil science, animal science, and agricultural mechanics. Table 1 presents student self-perceived mean scores by taxonomy for all competencies studied.

There were no statistically significant differences in the agricultural taxonomies between male and female student self-perceptions except

Table 1

Male and Female Student Self-Assessment for Vocational Agriculture Competencies by Taxonomy

Taxonomy	Student Self-Perception Rating				Separate t-Value	Probability
	Male (N=143)		Female (N=37)			
	\bar{X}	S.D.	\bar{X}	S.D.		
Leadership	3.22	1.20	3.64	1.22	-1.91	0.08
SOEP Records & Agri-Business	3.44	1.23	3.49	1.28	-0.41	0.71
Plant Science	2.95	1.20	2.84	1.17	0.80	0.50
Soil Science	2.96	1.19	2.98	1.19	-0.75	0.58
Animal Science	3.25	1.19	3.45	1.18	-1.14	0.33
Agricultural Mechanics	3.62	1.20	2.47	1.21	5.09	0.00*

*Denotes statistically significant probability at or beyond the .05 level.

In the area of agricultural mechanics. This is consistent with the demographic data where males selected agricultural mechanics as their strongest area and females selected it as their weakest area.

Objective Number Two

Table 2 presents vocational agriculture instructor mean scores for their male and female junior level students competency level attainment in the six agricultural taxonomies.

Agricultural mechanics was the only area in which a statistically significant difference between male and female student competency level attainment was perceived by the instructors (male and female instructor scores were not analyzed separately because of the very small female instructor n). The mean score difference which existed for vocational agriculture instructors' perceptions of female and male student competency level attainment in agricultural mechanics was less than the mean score difference of competency level attainment as identified by student self-perceptions in the same area (0.60 compared to 1.15 respectively).

Objective Number Three

Table 3 presents a comparison of male student self-perceptions by taxonomy with their instructor's perception of male students competency level attainment. Also included was female student self-perceptions by taxonomy with their instructor's perception of female student competency level attainment.

Vocational agriculture instructors rated male student competency level attainment significantly higher than the male students'

Table 2

Vocational Agriculture Instructor Competency Ratings for Their Male and Female Students by Taxonomy

Taxonomy	Vocational Agriculture Instructor Rating				Paired t-Value	Probability
	M Students (N = 17)		F Students (N = 17)			
	X̄	S.D.	X̄	S.D.		
Leadership	3.82	0.81	3.89	0.85	-0.92	0.40
SOEP Records & Agri-Business	3.71	0.66	3.98	0.65	-1.89	0.12
Plant Science	2.99	0.92	3.06	0.95	-0.87	0.43
Soil Science	3.34	0.88	3.31	0.83	0.89	0.42
Animal Science	3.72	0.82	3.85	0.81	-1.42	0.21
Agricultural Mechanics	3.74	0.88	3.14	1.07	-2.57	0.03*

*Denotes statistically significant probability at or beyond the .05 level.

self-perception in the taxonomy of leadership. Instructors rated female student competency level attainment significantly higher than the female students' self-perception in the taxonomy of agricultural mechanics.

Conclusions

From the findings of this study, the following conclusions were drawn.

Conclusion For Objective One

Junior level students in vocational agriculture perceived no difference between male and female students in competency level attainment for five of the six major program taxonomies. Students perceived a difference between male and female competency level attainment in the taxonomy of agricultural mechanics. A statistically significant difference occurred for only the agricultural mechanics taxonomy when comparing all male and female student study participants' self-perceptions.

Conclusion For Objective Two

Vocational agriculture instructors perceived a competency level attainment difference between their male and female junior level students in the taxonomy of agricultural mechanics. Instructors perceived no statistically significant differences between their male and female students among the other five major program taxonomies. The mean score differences for male and female students of vocational agriculture programs as perceived by their instructors was statistically significant only in the taxonomy of agricultural mechanics.

Table 3

Students' Self-Perception Versus Vocational Agriculture Instructors' Perception by Gender

Taxonomy	Students' Self-Perception ^a	Instructors' Perception of Students ^b	Separate t-Value	p
Male Students:				
Leadership	3.22	3.82	2.48	0.04*
SOEP & Agri-Business	3.44	3.71	1.17	0.36
Plant Science	2.95	2.99	0.40	0.72
Soil Science	2.96	3.34	0.90	0.42
Animal Science	3.25	3.72	1.92	0.07
Agricultural Mechanics	3.62	3.74	0.75	0.58
Female Students:				
Leadership	3.64	3.89	1.16	0.35
SOEP & Agri-Business	3.49	3.98	1.94	0.06
Plant Science	2.84	3.06	1.11	0.30
Soil Science	2.98	3.31	0.92	0.40
Animal Science	3.45	3.85	1.90	0.09
Agricultural Mechanics	2.47	3.14	2.59	0.03*

^aMale students N = 143; female students N = 37. ^bInstructors N = 17.

*Denotes statistically significant probability at or below the .05 level.

Conclusion For Objective Three

Vocational agriculture instructors perceived student competency level attainment higher than did the students themselves in selected taxonomies. Vocational agriculture instructors' mean score for male students in the taxonomy of leadership was significantly higher than the male students' self-perceived mean score in leadership. Vocational agriculture instructors' mean score for female students in the taxonomy of agricultural mechanics was significantly higher than the female students' self-perceived mean score in agricultural mechanics. In both cases, where a statistically significant difference occurred, the instructor's mean score was higher than the student self-perceived mean score.

Recommendations

1. Both the vocational agriculture students' and their instructors' mean scores indicate that there is a perceived significant difference in competency level attainment between male and female students in agricultural mechanics. A study should be done to determine if an

actual difference exists in competence level attainment for male and female students in agricultural mechanics.

2. Many factors contribute to sex bias and lack of sex equity. Perceived competency level attainment may be one of several. Studies should be undertaken to identify as many contributing factors as possible. Those factors which instructors can do something about should be addressed in vocational agriculture programs.

3. Whether the competency attainment differences are perceived or actual, the fact remains that people frequently respond out of perception. Vocational agriculture teachers should do all they can to reduce the perception that males are more competent in agricultural mechanics than females. This may require that teachers carefully assess how they treat male and female students during the instructional units in agricultural mechanics.

Discussion and Practical Importance of the Study

The practical importance of this study is that a perceived difference exists for competency level attainment between male and female students in the agricultural mechanics curriculum which some would insist does not exist. Informal observations have been made which have identified differing levels of expectations and assignments for male and female students in the agricultural mechanics curriculum. These informal observations should be quantified and, if real differences exist, changes should be made.

References

- Cohen, J. (1969). Stratified power analysis for behavioral sciences. New York: Academic Press.
- Henderson, J. L., & Knight, J. A. (1980, July). Sex bias and teacher evaluation of state FFA degree applications. Paper presented at the Central Region Agricultural Education Research Conference, Kansas City, MO.
- Kaplan, L. (1975). Survival talk for educators--Sexism in teacher education. Journal of Teacher Education, 26(4), 345-359.
- Matthews, M., & McCune, S. (1975). Eliminating sexism: Teacher education and change. Journal of Teacher Education, 26 (4), 294-300.
- Webster's ninth new collegiate dictionary. (1984). Springfield, MA: Merriam-Webster, 421.