

FACTORS ASSOCIATED WITH WESTERN REGION AGRICULTURE TEACHERS' PERCEPTIONS OF TEACHING EFFECTIVENESS

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Teachers of agriculture education teach in what may be perceived as a unique environment when compared to other teachers in a secondary school. Agriculture teachers generally instruct not only in classrooms and laboratories but also on-site at their students' farms, ranches, and cooperative learning sites. The scope of such instruction directly involves students' parents and other members of the community and usually involves time, effort, and travel beyond the normal school day. Often agriculture teachers, especially in the Western United States, live in small isolated communities that present cultural and physical situations which may influence their effectiveness as a teacher. Identification of such situations and the teachers' perceptions of how they may influence teacher effectiveness could increase awareness of the need to instruct to these factors in preservice and professional development of agriculture teachers. Although teachers of agriculture education may be individuals who grew up in such communities, and are accustomed to that environment, the development and maturation of an effective teacher could be enhanced by the awareness of how the environment influences teacher effectiveness.

Of particular concern to rural schools is the retention of quality instructors, especially those in communities of less than 2500 inhabitants. Communities of this size often are characterized by isolation and thus, insulation from social trends and changes. Schools in such communities account for 67 percent of the schools in the United States while accommodating 33 percent of the school children (Matthes & Carlson, 1987, p. 27). Certain environmental factors influence some teachers' decisions to choose rural teaching positions rather than urban positions. In a survey of Vermont and Iowa first year teachers, the investigators found that rural teachers rated school size, and the cost and pace of living as being more important in their placement decision than did urban teachers. Both groups of respondents indicated that administrative support and the presence of a pleasant school climate are essential to effective teaching and job retention (Matthes & Carlson, 1987). Community support of small rural schools is generally strong because parents are often times directly involved in daily operations. Individualized instruction, peer group teaching, and multi-age grouping, are considered academic advantages of small rural schools (Kindley, 1985).

Teachers in small rural schools often work in a "make-do" mentality as stated by Cole in his description of small schools in the rural Midwest. Lack of equipment, deteriorating instructional facilities, plus the presence of trends nationwide to raise educational standards have placed greater demands on already strained budgets, manpower, and schedules (Cole, 1988).

A particular aspect of rural teaching that has surfaced in research is that of the ability to teach a broad range of subject matter. A survey of rural teachers (Muse, 1977) indicated that training for rural educators should include: learning to teach with minimum facilities, more training in guidance and counseling, broader subject matter preparation, rural sociology and culture training, training in practical life support skills, and rural economy awareness.

Rural education has unique problems which are worthy of further definition and remediation (Muse, 1977). Since agriculture teachers generally work in rural schools, awareness of factors that influence teaching effectiveness and how to teach effectively in that context, can be of value to preservice and inservice programs.

Teachers of agriculture education in Nevada and their school principals were surveyed by Weiser (1988) to explore factors associated with the rural teaching environment. The exploratory factor analysis of twenty variables produced five significant factors: the teacher's training, the community environment, the school environment, student characteristics, and the background of the teacher were perceived as being important in rural teaching environments.

Purpose of the Study

Effectiveness as a teacher of agriculture education may be influenced by various factors inherent in the cultural and physical environment in which the teacher operates. This study sought to explore such factors and to determine teachers' perceptions of the importance of selected variables within these factors upon teacher effectiveness in agriculture. The specific research objectives of this study were to:

1. Describe selected characteristics of a representative sample of agriculture teachers from the Western Region of the United States.
2. Determine the factors that agriculture teachers from the Western Region of the United States perceive as influencing teaching effectiveness.

Methods

The population was identified by requesting the most recent, available roster of agriculture teachers from each of the thirteen western states and the 1987 Vocational Agriculture Teachers Directory. Of 1459 teachers identified as currently occupying positions in active programs, a computer generated random sample selected 411 individuals to be surveyed, including both rural and urban teachers in agriculture programs. The sample size was calculated based upon a formula presented by Tuckman (231-232). The formula derived the sample size based upon an anticipated return rate of 70 percent, an accepted five percent margin of sampling error, and a 95 percent confidence interval.

Instrument development was based on a conceptual model derived from a review of current literature. The review of literature indicated that five general factors were perceived as having an influence upon teaching effectiveness: teacher training, teacher background, school environment, student characteristics, and the local community. A body of 39 items was selected which represented the five factors identified in the conceptual model. Exploratory factor analysis was selected as a viable strategy to validate the variables comprising the factor components of the conceptual model. Using a seven point Likert-type scale, a mail survey instrument was developed to determine the degree of importance of 39 variables representing five factors as perceived by teachers of agriculture education as influencing teacher effectiveness. A pilot instrument was field tested by 35 secondary teachers and postsecondary professionals and analyzed for reliability using Cronbach's alpha as a measure of internal consistency. The field tested instrument obtained a reliability coefficient of .90 and the actual instrument obtained a reliability coefficient of .91 in the study.

The first mailing to the selected population took place on October 3. After two weeks, response to the first mailing totaled 49 percent. A follow-up letter and survey were mailed on October 27. The total response from the second mailing was 73 percent. Four weeks later a third mailing was mailed and the final overall response rate was 84 percent which was acceptable to the researchers. A preliminary factor analysis procedure did not indicate major differences in the factors determined based upon the second and third mailing samples. See Table 1 for a list of states, the respective number of surveys mailed, surveys returned, and the percentage of returned surveys from each state. Six surveys were returned from inactive programs.

Principal components analysis was used to explore the data for factors which the teachers perceived as influencing teaching effectiveness. Orthogonal factors were extracted using the principal components analysis and were rotated to a final solution using the varimax procedure to maximize the proportion of variance accounted for by the factors. Items with a factor loading greater than .40 were used to determine those principal components having an eigenvalue greater than 1.0 and a scree plot evaluation criteria which accounted for the maximum amount of variance.

Results

The first research objective of this study was to describe selected characteristics of the teaching situation for a representative sample of agriculture teachers from the Western Region of the United States. Based upon the information collected from the **survey** instrumentation, the following results were obtained.

The average number of years of teaching experience was 11.7 years with a range from no experience to 34 years. The size of the schools in which the agriculture teachers taught varied widely. Thirty-seven percent of the schools had less than 300 students, twenty-eight percent had between 300 and

Table 1
Number and Percentage of Survey Respondents'

State	No. teachers	Random sample	No. returned	% returned
Alaska	26	8	2	25
Arizona	61	22	21	95
California	539	157	130	86
Colorado	79	16	14	88
Hawaii	29	9	7	78
Idaho	82	29	29	100
Montana	76	24	23	96
Nevada	22	5	5	100
New Mexico	82	29	22	76
Oregon	116	26	26	100
Utah	79	19	10	53
Washington	219	55	47	85
Wyoming	49	12	8	67
Total	1459	411	344	84

^a Six surveys were returned not completed, from programs no longer in existence.

999 students, and thirty-three percent of the schools had over 1000 students. The majority of communities in which the teachers taught, 57 percent, had populations less than 10,000 inhabitants. Seventy percent of the respondents indicated that their local school was in a rural setting.

When asked the school setting in which they would prefer to teach, 75 percent indicated they preferred a rural setting, six percent preferred an urban setting, and 21 percent indicated no preference. Forty-nine percent of the respondents indicated that they taught subjects other than agriculture.

The second research objective of this study was to determine the factors that agriculture education teachers perceive influence teaching effectiveness. Based upon the review of literature and the pilot study, thirty-nine variables were selected which represented five factors believed to be associated with a teacher's perception of teaching effectiveness.

Principal components analysis was used to determine the factors associated with the teachers' perceptions of teaching effectiveness from the 39 variables. The analysis extracted eleven significant factors which accounted for 60.8 percent of the total variance in the variable scores. The factors and the variables for each factor with their respective principal component scores greater than .40 are reported in Table 2.

The findings of this study present a conceptual model of eleven significant factors which agriculture education teachers perceive influence teaching effectiveness. The eleven factors are; professional teacher training, support for the agriculture program, community living environment, career considerations, school environment, teaching environment, professional development, youth experience, teaching load, preservice development and enrollment in the agriculture program.

Conclusions and Recommendations

Based upon the results obtained in this study, the following implications have been derived. The first major implication of this study was that the most significant factor that teachers perceive as being associated with teaching effectiveness is the teachers' perception of their teacher training program. This factor accounted for the largest proportion of variance in the variable scores. However, teacher education programs do not appear to be the sole factor associated with teacher perceptions of teaching effectiveness. Therefore, it is concluded from this investigation that the preparation of effective teachers is influenced by a multitude of factors many of which occur in the actual teaching environment beyond teacher preparation programs.

Table 2
Variables and Principal Component Scores for Factors Associated with Teacher Perceptions of Teaching Effectiveness

Variables	Score
Factor 1 - Professional Teacher Training; 22.4%	
Influence of teacher educators.	.62
Your teacher training coursework.	.56
Frequency of visits from university teacher educators.	.78
Frequency of visits from your state supervisor.	.74
Factor 2 - Support for the Agriculture Program; 6.3%	
Interest level of the students in your agriculture program.	.59
Community support of the vocational agriculture program.	.76
School administration support of the agriculture program.	.60
Vitality of the local agriculture economy.	.45
The community reflects your personal beliefs.	.50
How "in-tune" you feel with your local community.	.56
Support of the agriculture program by local farmers and ranchers.	.67
Factor 3 - Community Living Environment; 5.1%	
Opportunities for recreational pursuits in the local area.	.43
How far away you live from a major shopping and entertainment center.	.74
Distance traveled from home to school.	.75
The availability of services in your community to maintain your home and personal vehicles.	.74
Factor 4 - Career Considerations; 4.8%	
Teaching vocational agriculture offers job security.	.60
Access to advanced education.	.57
Proximity to your own ranch, farm, or agribusiness.	.48
Availability of teaching positions elsewhere.	.52
Your perception of career advancement opportunities.	.50
Factor 5 - School Environment; 4.1%	
The benefits package included in your teaching contract.	.56
The relationship to the other teachers in your school.	.53
Your perception of the level of substance abuse by students in your school.	.57
Membership in community service clubs.	.61
Factor 6 - Teaching Environment; 3.8%	
Quality of instructional facilities.	.60
The curriculum you are expected to teach.	.72
School activities the vocational agriculture teacher is expected to sponsor.	.49
Instructional resources available to teachers in your school.	.58
Factor 7 - Professional Development; 3.2%	
Membership in professional organizations.	.80
Access to inservice programs.	.74
Factor 8 - Youth Experience; 3.0%	
You grew up in an agricultural and/or agribusiness environment.	.80
Your experience in FFA or 4-H as a youth.	.81
Factor 9 - Teaching Load; 2.8%	
Distance covered in making student project visits.	.60
Student to teacher ration in your program.	.66
Compensation for added responsibilities such as FFA, SOE, Adult Ed.	.67
Factor 10 Preservice Development; 2.7%	
Where you did your student teaching.	.64
The occupational area in which you satisfied certification requirements for work experience.	.69
Factor 11 - Enrollment in the Agriculture Program; 2.7%	
Number of students in your vocational agriculture program.	.75

**Principal component scores greater than .40 are reported.

A second major implication of this study was that several factors were related to the local community setting of the agriculture education program. Other studies have shown that rural educators perceive the local community to be an important factor in their teaching program. The findings of this study indicate that agriculture teachers perceive that the support from and the environment of the local community are important factors related to teaching effectiveness. Therefore, a recommendation of this investigation is that teacher preparation programs, especially first year teacher programs, provide assistance for teachers to become familiar and focused upon the role of the agriculture education programs in the local community.

Furthermore, agriculture teachers perceive that the school environment and the teaching environment are important factors related to teaching effectiveness. It was not surprising that teachers perceive these two factors to be important however, it is of interest that the two factors related to the support of the local community were stronger. Also, it was somewhat interesting that these two factors were nested between the career factor and the professional development factor.

The final implication of this study is the development of a theoretical framework for determining factors associated with teachers' perceptions of variables which influence teaching effectiveness. This study goes beyond the classroom processes and explores the influences of the environment in which the teacher is teaching. Of particular importance are the findings which indicate that the local community appears to be an important factor with teachers regarding their perceptions of teaching effectiveness. Further studies should be conducted to determine additional factors related to the perceptions of teaching effectiveness especially in small rural schools. This study conceptualized a model of eleven factors which agriculture teachers perceive influence teaching effectiveness.

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