

A DESCRIPTION OF THE CHARACTERISTICS ATTRIBUTED TO STUDENTS' DECISIONS TO TEACH AGRISCIENCE

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Abstract

A major issue facing agricultural education is recruiting qualified young teachers to the profession. Attempts have been made to recruit new teachers by offering scholarship incentives, highlighting teachers at the National FFA Convention, and producing recruitment brochures. This Delphi study attempts to answer questions about how current agriscience teachers encourage their students to pursue careers in teaching. Respondents were teachers (n=11), stratified across six different southern states, who prolifically produced agricultural education students and future teachers. Findings indicated that teachers who serve as role models, build quality programs, and refrain from disparaging remarks and attitudes about the profession encourage students. Students may be enticed to teach if teachers demonstrate high standards, lead in the school and community, and take an interest in all aspects of a student's life. The research produced five constructs for recruitment of future teachers: encouragement, modeling, career counseling and awareness, program quality, and teacher effectiveness. The most influential constructs were determined to be encouragement and program quality. Career awareness and counseling was the least influential construct.

Introduction

How does one agriscience teacher of 35 years produce four agriscience teachers while other agriculture programs with similar degrees of programmatic success produce none? What teacher attitudes and behaviors encourage current students to pursue a career in agricultural education? Alternately, what activities and attitudes dissuade a student from teaching?

Competent and qualified teachers are important for student success and educational reform (National Commission on Teaching and America's Future, 1996; Stroup, 2002). Regionally, and perhaps nationally, teacher educators recognize the shortage of qualified agriscience teachers to fill current and proposed teaching positions as a top issue facing agricultural education (Camp, 2002). The shortage may be an obstacle for initiating new agriscience

programs or replacing agriscience teachers, especially in rural areas (van Kraayenoord, 2001).

Secondary agriscience teachers influence many decisions about a student's career and further education through teacher actions, comments, and instruction. Students spend hours with the agriculture teacher developing supervised agricultural experience programs, preparing for career development events, and working on FFA activities after school. During these interactions, teachers influence a student about the teaching profession.

Recruitment from a teacher's influence may not arise from a single event or brochure, but from the accumulation of knowledge and perceptions about the career. If current teachers engaged in the influencing practices that prolifically produced agricultural education students and teachers, then they could encourage

promising youth to enter the profession. Additionally, there may exist practices and attitudes that inhibit a student's desire to pursue teaching.

Theoretical Framework

Modeling career behavior and expectations of students' future performance may help explain why students pursue particular careers. Social cognitive theory suggests that people can learn by observing behaviors and consequences of others (Bandura & Walters, 1967; Schunk, 2000). Significant models, those possessing prestige, rewards, and competence, are the most influential (Bandura & Walters). People form lasting generalizations about occupations from very few examples (Krumboltz, 1979). Individuals choose careers in which their skills are reinforced by a role model advocating that particular career (Krumboltz; Mitchell, 1979).

Teachers' expectations for their students' future career successes may also play a role in encouraging or discouraging students from entering agricultural education. Expectancy theory suggests that people perform activities and make decisions based on anticipated outcomes and expectancy that those outcomes will occur (Vroom, 1964). Agriscience students learn a wide variety of skills and knowledge, opening many career avenues.

Combining social cognitive theory and expectancy theory, teachers may influence students' career choices through agricultural education (Figure 1). Teachers model career behaviors, hence the social cognitive theory. By their expectations, teachers influence a student's decision toward further education and various careers. Teachers may influence students through their attitudes, classroom practices, and modeling of teaching careers.

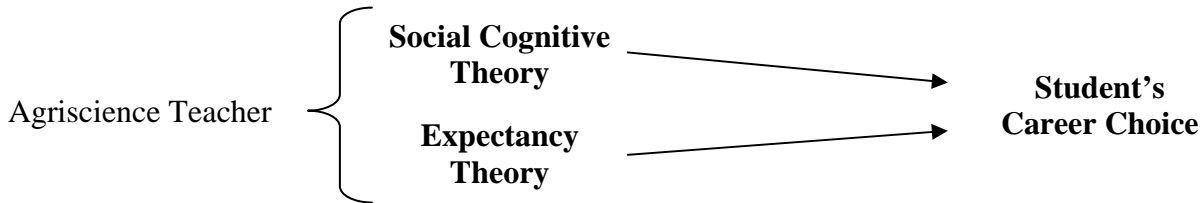


Figure 1. Influence of Agriscience Teacher's Career Modeling and Expectations on Career Choice

Conceptual Framework

Concern exists about securing quality, certified agriscience teachers (National Research Council, 1988). Camp (2002) suggested, "newly qualified potential teachers fail to take teaching positions even though positions are going to under-qualified people or indeed remaining unfilled" (p. 33). States are opening teaching positions to individuals from fields outside of education (Stroup, 2002). If individuals continue to seek alternative certification to teach agriculture, opportunities may exist to recruit secondary students and counsel them into teaching prior to their pursuit of other career options.

Many factors influenced a student's career choice including parents, counselors, socioeconomic status, skills and abilities, interests, peers, prior experiences in the career, other significant adults, media, and anticipated effort to attain a career position (Arrington, 1985; Baker & Hedges, 1991; Conroy, Scanlon, & Kelsey, 1998; Hillison, Camp, & Burke, 1986; Kotrlik & Harrison, 1987; Miller, Williams, & Sprouse, 1984; Wright & Custer, 1998).

Although scant recent research exists about selecting agriscience teaching as a career, teachers appear to influence a student's decision to teach. Students determined to teach upon commencement of teacher preparation were almost twice as likely to become teachers as students who

are uncertain about career decisions (Marso & Pigge, 1997). Research indicates that high school agriscience courses, FFA experience, and agriscience teachers influence students to teach (Arrington, 1985; Edwards & Briers, 2001; Hillison et al., 1986; Kotrlik & Harrison, 1987). Similar findings exist in other career and technical education areas; yet, teachers often fail to encourage students to teach (Frisbee, Belcher, & Sanders, 2000; Gehrt, 1990; Johnson, 1997; Place, 1997; Wright & Custer, 1998). Teachers in other disciplines are important encouragers for students entering teaching (Jackson, 1992; Kher-Durlabhji, Lacina-Gifford, Carter, & Lalande, 1997; King, 1993; Kunard, 1989; Longo, 1994; Stevenson, 1987; Wilder, 1999; Wood, 2001). Researchers have called for agriscience teachers to model positive career behaviors and recommended additional research to examine variables influencing career choices (Baker & Hedges, 1991; Briers & Moss, 1982; Eastman & Williams, 1993; Miller et al., 1984).

Purpose

The purpose of this study was to determine encouraging and discouraging teacher practices that influence a student's pursuit of a career in agricultural education. In order to accomplish the preceding purpose, objectives of this study were to:

1. determine practices and attitudes that encourage students to pursue agriscience teaching and
2. determine practices and attitudes that discourage students from teaching agriscience.

Methods / Procedures

This study used a Delphi technique to identify those teacher's attitudes and practices that are perceived to influence a person's decision to teach secondary agriculture. The Delphi method is a "set of procedures for formulating a group judgment for subject matter where precise information is lacking" (Dalkey, Brown, & Cochran, 1969, p. 7; Dalkey, 1969). Strauss and Zeigler (1975) proposed that the Delphi

technique be used as a means of soliciting interpretations, predictions, or recommendations from experts in the field. Delphi uses a purposively selected panel that possesses competence on the issue, represent the chosen population, and peer nomination of the individuals removes researcher bias (Gordon, 1994). These experts may have a wide range of diverse opinions (Stufflebeam, McCormick, Brinkerhoff, & Nelson, 1985). Because little research has been done to explore what teachers do to encourage students to pursue agricultural education as a career, the Delphi method is appropriate for exploring this question.

The expert panel consisted of 30 secondary agriculture teachers in the Southern Region of AAEE nominated by agricultural education certification-granting institutions. Teachers were nominated for having prolifically produced post-secondary agricultural education students. Each nominated up to three expert teachers who had produced multiple teachers for consideration. All 30 teachers were invited via email and telephone to participate in the study. Stratified across six southern states, 11 teachers participated in the survey (36.7% response). Acceptance rates for Delphi studies are generally between 35-75% (Gordon, 1994). Turoff (2002) recommended a minimum of 10 and maximum of 50 participants, although Rowe and Wright (1999) concluded no relationship between panel size and effectiveness. Other researchers have included 10-12 participants (Ausburn, 2002; Brockhoff, 2002; Critcher & Gladstone, 1998; Flippo, 1997; Kreber, 2003; Long, 1990; Miller & Husmann, 1994; Raskin, 1994; Repetto, Pankaskie, De Palma-Hankins, Schwartz, & Perry, 1997; Stivers & McMorris, 1991). The number of participants was sufficient for exploration into the proposed questions (Weatherman & Swenson, 1974). Participants were contacted via emails containing embedded links to online questionnaires in three successive waves.

The Delphi asked two open-ended questions: 1) what practices, activities, and attitudes do you recommend for teachers who want to encourage or persuade students to consider pursuing agricultural education

as a career, and 2) what practices, activities, and attitudes do you feel teachers engage in that cause students to become discouraged about or dissuaded from considering agricultural education as a career. Responses were recorded and returned to the coordinator. Answers and ideas were not validated or justified at this time (Dunham, 1996).

In the second wave, panel members were asked to rate each generated response using a five-point, Likert-type scale, refine each idea, and identify any new ideas related to factors influencing a student to pursue a teaching career. Responses to behaviors and attitudes in round two were recorded and returned to the coordinator via web survey.

From results of subsequent waves and comments listed by participants, the third wave was developed similar to Round 2. Participants were asked to rate and refine each behavior and attitude. Round three meant to reach consensus about teacher practices that encouraged and discouraged a student to pursue agricultural education careers, resulting in a list of ideas of teachers' concomitant strengths and weaknesses (Dunham, 1996). Consensus was sought with each successive round, as most Delphi studies reach consensus at the third round (Brockhoff, 2002; Critcher & Gladstone, 1998; Roberts & Dyer, 2004). Researchers set agreement level *a priori* at 80%. Items failing to receive agreement from 80% of the panel were removed.

Ideas were compiled from each wave of responses and descriptive statistics used to analyze ratings of each idea. Data collected using Likert-type scales was treated as interval data and reported with means and standard deviations for classification purposes. Nominal data for demographics of respondents was reported using frequencies and percentages.

Through emergent inductive analysis, researchers used a process of open coding to

reduce and construct meaning from the response data, allowing the responses to suggest probable constructs (Ary, Jacobs, & Razavieh, 2002; Gall, Gall, & Borg, 2003; Patton, 2002). While the literature review provided insights into possible codes, the literature review did not limit the addition or deletion of possible construct codes. Coding converged when all responses were exhausted and clear regularities emerged (Patton). Responses generated five overall constructs for both encouraging and discouraging practices: encouraging, modeling, career awareness and counseling, program quality, and teacher effectiveness.

Results

Ten teachers completed all three rounds of the study. Of 11 teachers initially participating in the survey, seven were male (63.6%), and four were female (36.4%). Three teachers held national teacher certification, six earned an associate's degree, 10 earned a bachelor's degree, and seven earned a master's degree. The majority (60.0%) of the bachelor's degrees were in agricultural education, with one each in animal science, education, food and resource economics, and plant pathology and genetics. Four held master's degrees in agricultural education and the other three in related education fields. Teaching experience ranged from 9 to 31 years, with a mean of 19.0 and standard deviation of 7.1 (Table 1). The 11 teachers had 30 of their former students currently enrolled in post-secondary agricultural education and 24 former students who were or are teachers. Teachers averaged a total of 4.9 former students in agricultural education. The mean variance between responses from Round 2 and Round 3 was 0.04 with a range of 0.00 to 0.55 on individual items.

Table 1
Number of Students Enrolled in Post-Secondary Agricultural Education and Number Who Were/Are Teachers

| Years Teaching | <i>n</i> | Post-secondary agricultural education students | Students who were/are teachers |
|-----------------|----------|--|--------------------------------|
| 6-10 | 1 | --- | --- |
| 11-15 | 4 | 4 | 10 |
| 16-20 | 2 | 7 | 5 |
| 21-25 | 1 | 3 | 2 |
| 26-30 | 2 | 11 | 5 |
| 31-35 | 1 | 5 | 2 |
| <i>M</i> = 19.0 | | <i>M</i> = 2.73 | <i>M</i> = 2.18 |

Top encouraging practices that led to students pursuing teaching careers were having a *program* for students rather than just a class to take and serving as a positive example and role model for those wanting to major in agricultural education (Table 2). Other responses that garnered agreement greater than a mean of 4.50 were student

participation in FFA activities, student enrollment in an agricultural education program, teacher exhibition of a positive attitude about teaching agriculture, teacher exhibition of an attitude of confidence as a teacher and in students' abilities to achieve, and teacher demonstration of enjoyment of teaching.

Table 2
Top Encouraging Practices (n=10)

| Practice | <i>M^a</i> | <i>SD</i> | median | range |
|---|----------------------|-----------|--------|-------|
| Having a program for students rather than just a class to take. | 5.00 | 0.00 | 5.0 | 0.0 |
| Serving as a positive example and role model of teaching. | 5.00 | 0.00 | 5.0 | 0.0 |
| Encouraging student involvement in FFA. | 4.90 | 0.32 | 5.0 | 1.0 |
| Students enrolling in an agricultural education program. | 4.80 | 0.42 | 5.0 | 1.0 |
| Exhibiting a positive attitude about teaching agriculture. | 4.80 | 0.42 | 5.0 | 1.0 |
| Exhibiting confidence as a teacher and in students' abilities. | 4.80 | 0.42 | 5.0 | 1.0 |
| Demonstrating enjoyment of teaching. | 4.80 | 0.42 | 5.0 | 1.0 |
| Taking time, showing interest, and caring for students. | 4.78 | 0.44 | 5.0 | 1.0 |
| Gaining student respect. | 4.70 | 0.48 | 5.0 | 1.0 |
| Conducting a comprehensive program. | 4.70 | 0.67 | 5.0 | 2.0 |
| Providing many leadership development activities. | 4.60 | 0.52 | 5.0 | 1.0 |
| Working for a successful agriscience program. | 4.60 | 0.52 | 5.0 | 1.0 |
| Visiting students. | 4.50 | 0.53 | 4.5 | 1.0 |
| Being prepared to teach students each day. | 4.50 | 0.53 | 4.5 | 1.0 |
| Keeping current with resources and technology. | 4.50 | 0.53 | 4.5 | 1.0 |
| Caring for students' personal career goals. | 4.50 | 0.53 | 4.5 | 1.0 |
| Students seeing the "fun" in agriscience teaching. | 4.50 | 0.85 | 5.0 | 2.0 |

^a Likert-type scale (1 = strongly disagree, 5 = strongly agree)

Major discouraging factors in a student's decision to teach were doing very little or absolutely nothing in the FFA component and not giving students an opportunity to participate in FFA, each with complete agreement and a mean

of 5.00 (Table 3). Having a program that is seen as a dumping ground for students was the third discouraging practice. Complaining and demonstrating a negative attitude were also discouraging factors.

Table 3
Top Discouraging Practices (n=10)

| Practice | <i>M</i> ^a | <i>SD</i> | median | range |
|---|-----------------------|-----------|--------|-------|
| Doing very little or absolutely nothing in the FFA component. | 5.00 | 0.00 | 5.0 | 0.0 |
| Not giving students an opportunity to participate in FFA. | 5.00 | 0.00 | 5.0 | 0.0 |
| Having a program that is seen as a dumping ground for students. | 4.90 | 0.32 | 5.0 | 1.0 |
| Demonstrating constant complaining. | 4.80 | 0.42 | 5.0 | 1.0 |
| Complaining about students in the program and administration. | 4.80 | 0.42 | 5.0 | 1.0 |
| Demonstrating negative attitudes. | 4.70 | 0.48 | 5.0 | 1.0 |
| Dwelling on the negative aspects of teaching. | 4.70 | 0.48 | 5.0 | 1.0 |
| Telling students that there is not a future in agriculture. | 4.70 | 0.67 | 5.0 | 2.0 |
| Berating college students for majoring in agricultural education. | 4.60 | 0.52 | 5.0 | 1.0 |
| Doing a poor job. | 4.60 | 0.70 | 5.0 | 2.0 |
| “Retiring” on the job years prior to actual retirement. | 4.50 | 0.76 | 5.0 | 2.0 |

^a Likert-type scale (1 = strongly disagree, 5 = strongly agree)

The least important encouraging practice was assigning students to write and present a report on a college of agriculture, eliciting mean agreement of 2.50 (Table 4). Other responses below mean agreement of 3.50 were teaching students about different types of agriculture, taking field trips to colleges where students interact with professors, inviting a professor to speak about agricultural education, recognition of

outstanding teachers, and modeling as a person who was a good student in school, was academically oriented, and also chose teaching agriculture. Least important discouraging practices were being pushy to try to get people to teach, encouraging top students to go into fields with highest pay, and lack of support received from agricultural education departments at universities.

Table 4
Least Important Practices

| Practice | <i>M</i> ^a | <i>SD</i> | median | range |
|--|-----------------------|-----------|--------|-------|
| Encouraging Practices | | | | |
| Assigning a written and oral report on a college of agriculture. | 2.50 | 0.85 | 3.0 | 2.0 |
| Teaching students about different types of agriculture in the U.S. | 3.00 | 1.15 | 3.0 | 4.0 |
| Taking field trips to universities for interaction with professors. | 3.10 | 0.88 | 3.0 | 3.0 |
| Inviting a professor to speak about agricultural education. | 3.30 | 1.16 | 3.5 | 4.0 |
| Administration and professional organizations recognizing outstanding teachers. | 3.30 | 1.34 | 3.5 | 4.0 |
| Modeling of self as a good student, who was academically oriented and chose teaching agriculture. | 3.44 | 1.01 | 4.0 | 3.0 |
| Trying to make teaching “cool” by emphasizing unique aspects of teaching, such as facilities, equipment, and technology. | 3.50 | 0.97 | 4.0 | 3.0 |
| Discouraging Practices | | | | |
| Being pushy to try to get people to teach. | 3.40 | 0.84 | 3.0 | 3.0 |
| Encouraging the top students to go into the highest paying fields. | 3.40 | 1.26 | 3.5 | 4.0 |
| Lack of support or poor service from teacher education. | 3.40 | 1.26 | 3.5 | 4.0 |

^a Likert-type scale (1 = strongly disagree, 5 = strongly agree)

Using content analysis, researchers determined that encouraging and discouraging constructs were encouragement, program quality, teacher effectiveness, modeling, and career awareness and counseling (Table 5).

Examples of responses in the *career awareness and counseling* construct were “assigning students to write career reports,” “teaching about different types of agriculture,” and “taking field trips to the university.” Examples of responses grouped into the *encouragement* construct were “exhibiting confidence as a teacher and in students’ abilities,” “caring for students’ personal career goals,” and “berating college students for majoring in agricultural

education.” Examples of statements grouped into the *modeling* construct were “serving as a positive example and role model for agricultural education,” “exhibiting a positive attitude about teaching agriculture,” and “dwelling on the negative aspects of teaching rather than the positives.” Examples of responses in the *program quality* construct were “having a program for students rather than just a class to take,” “keeping current with resources and technology,” and “doing very little or nothing in FFA.” Examples of responses sorting into the *teacher effectiveness* construct were “taking time, showing interest, and caring for students,” “gaining student respect,” and “‘retiring’ on the job.”

Table 5
Construct Ranking (n=10)

| Encouraging Construct | μ^a | Discouraging Construct | μ |
|-------------------------------|---------|-------------------------------|-------|
| Encouragement | 4.53 | Program Quality | 4.97 |
| Program Quality | 4.50 | Encouragement | 4.73 |
| Teacher Effectiveness | 4.29 | Modeling | 4.13 |
| Modeling | 4.24 | Teacher Effectiveness | 4.10 |
| Career Awareness / Counseling | 3.64 | Career Awareness / Counseling | 3.83 |

^aLikert-type scale (1 = strongly disagree, 5 = strongly agree)

Conclusions, Implications, and Recommendations

While agriscience teachers are not the sole influence on career decisions, they can significantly influence a student’s decision to teach (Hillison et al., 1986; Kotrlik & Harrison, 1987; Wright & Custer, 1998), primarily through encouragement and program quality (Figure 2). Teachers perceived their ability to serve as a role model and to demonstrate a positive attitude about teaching encouraged students to enter the profession (Bandura & Walters, 1967). The encouraging behaviors included the

behaviors of quality teachers, including the developing a total agriscience program, challenging students to excel in agriscience and FFA activities, and modeling high standards of the career, such as a positive attitude about teaching, confidence in teaching and students, and enjoyment of teaching (Briers & Moss, 1982; Eastman & Williams, 1993; Johnson, 1997; Wright & Custer, 1998). Generally, teachers who are professional, respect students, mentor, and exhibit positive teacher attitudes and behaviors tend to produce future teachers, while the opposite attitudes and practices tend to discourage students from teaching.

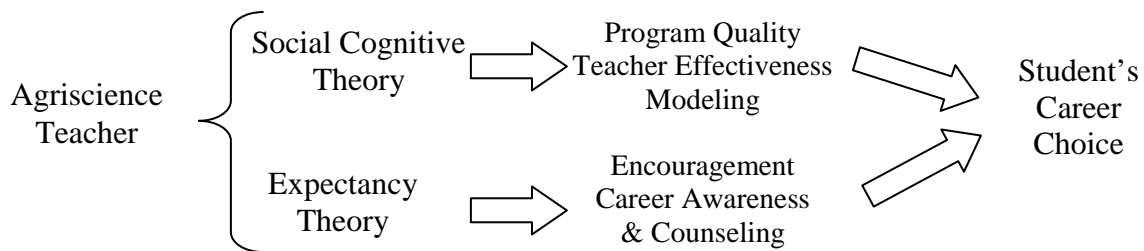


Figure 2. Agriscience teacher’s influence on student’s career choice.

While teachers often provide career awareness and counseling (Arrington, 1985), findings in this study indicate that they may be of little avail. Findings indicate that teachers felt that assigning written reports, taking field trips to universities, inviting teacher educators for seminars, and other

career awareness and counseling functions were not effective in generating interest and commitment to teach.

Agriscience teachers may find that they engage in many attitudes and behaviors that both encourage and discourage a student in pursuit of a teaching career. Many of these

influencing attitudes and behaviors may go unnoticed by the teacher, as they become second nature in the daily routine. Practical applications of this research may lead to questions about how to boost morale in the teaching ranks. Why do negative attitudes persist in teaching? How can in-service and pre-service preparation engage newly inducted teachers so that they develop positive, professional attitudes about agricultural education?

Perhaps teacher educators can help determine the attitudes and behaviors that encourage students to teach. Teachers in this study mentioned that guest speakers were ineffective in promoting students to teach. If so, teacher educators may be out of step with activities that encourage students to become teachers. Teacher educators need to determine what triggers students to consider teaching and then model recruitment activities around those factors. An examination of current teacher educator practices is necessary. How do teacher educators model professional attitudes and behaviors in their collegiate classrooms and activities? Do teacher educators portray interest in students' lives, are they leaders on campus and in the community, and do we hold students to high standards of productivity and academics?

Future research is necessary to determine the influencing factors associated with the decision to teach from the *student* perspective. A logical follow-up in this line of inquiry would be to survey the students of these agriscience teachers to determine which of their teacher attitudes and behaviors influenced students' career decisions. Are teacher perceptions about their influence on students' career decisions accurate? What specific attitudes and behaviors encourage students to teach, and how can teachers reinforce these?

Because many factors influence career decisions, one would be negligent in allocating sole influence to agriscience teachers. However, they appear to be a major factor in the process of forming career expectations and influencing career decisions. By employing encouraging attitudes and behaviors, agriscience teachers could help recruit new teachers into the profession. Further, insight into these

influential attitudes and behaviors may help teacher educators retain prospective teachers through college and encourage them into productive careers. Agriscience teachers are but one part in the career decision process, and attempting to recruit new teachers requires careful examination of the entire process, beginning perhaps in elementary school and progressing through college.

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