IDENTIFICATION OF OPINION LEADERS AMONG AGRICULTURAL EDUCATION TEACHERS

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Abstract

Scope and Method of Study: The purpose of this study was to determine the opinion leaders among agricultural education teachers in the Shawnee Professional Improvement group of Oklahoma pertaining to various aspects of agricultural education programs. A list of teachers for the P.I. group was obtained through the 2002 Agricultural Education Teacher and Staff Directory. The 21 teachers identified were contacted to schedule a time, and a personal visit was made to each teacher to administer the survey. A quantitative descriptive design was employed to describe and compare the identified opinion leaders with non-opinion leaders. Each completed a multiple-part survey to determine his or her personal, social, and leadership characteristics.

Findings and Conclusions: Agriculture teachers in the Shawnee P.I. were male, 40 years old, had taught for 14 years, and had received a bachelor’s degree plus hours toward a master’s degree. A high correlation was found between the sociometric and key-informant methods for identifying opinion leaders. Using the sociometric method, three teachers were identified as opinion leaders for the group. Opinion leaders were found to be older, had taught longer, earned a higher degree, and were more innovative and localite compared to non-opinion leaders.
Introduction/Theoretical Framework

**Diffusion Innovations Theory**

Diffusion of innovations theory explains how new ideas and practices spread within and between communities (Valente & Davis, 1999). Valente and Davis (1995) stated that the basis for the theory is that social contact, social interaction, and interpersonal communication play a vital role in influencing the adoption of new behaviors. Programs designed to use interpersonal communication to promote behavioral change are referred to as peer influence, education, or networks. This peer promotion model suggests that within a group some individuals act as role models for others. These role models act as opinion leaders in their communities and can be effective in quick and continuing behavior change (Valente & Davis, 1999).

The existence of opinion leaders in a social system offers change agents a “handle” whereby they can “prime the pump” from which new ideas flow through an audience via the “trickle-down” process. Briefly, this strategy for change implies that the change agent should locate opinion leaders and concentrate his or her promotional efforts on these individuals, allowing the new idea or innovation being promoted to spread by word of mouth from the opinion leader to the remainder of the change agent’s audience (Lionberger and Gwin, 1991).

Opinion leaders are individuals who carry information across social boundaries among groups. They are not necessarily the most innovative nor are they people at the top or on the edge of things. They are more of a broker between two groups (Burt, 1999).

Burt (1999) stated that opinion leaders make innovations contagious for the people with whom they speak. He also noted opinion leaders are not the people at the top of any social system but rather those who are looking for new ways to improve. Rogers (1995) added that the most influential opinion leaders are the key targets of change agents.

Opinion leaders can be differentiated from their followers in a number of ways. Rogers (1995) stated that compared to their followers, opinion leaders have greater exposure to mass media, are more cosmopolite, have greater change agent contact, have greater social participation, have higher socioeconomic status, and are more innovative than their followers.

**Methods of Identification of Opinion Leaders**

Using the characteristics stated by Rogers (1995), opinion leaders could be identified using four methods. Of these methods, it has not been determined through previous research what is the most effective in identifying opinion leaders, yet all are about equally valid. The four methods are sociometric, self-designating, key-informant’s rating, and observation.

Weimann (1994) stated the sociometric method uses a series of questions to determine with whom individuals meet and talk, whose company they enjoy, and with whom they like to have contact. When applied to opinion leadership studies, the method consisted of asking respondents who they sought advice or information from concerning a specific topic. Those individuals whose names appeared the greatest number of times were identified as the opinion leaders. Rogers (1995) listed that an advantage of the sociometric method was that it is easy to administer and adaptable to many areas. However, it is not applicable to sample designs.
The self-designating technique asks respondents to indicate the tendency for others to regard them as influential. This method is dependent upon whether the respondent can accurately identify and report their self-images. As concluded by Rogers and Cartano (1962), the six-item self-designating opinion leadership scale used in their study of the diffusion of new farm ideas among Ohio farmers is considered reliable, valid, and one-dimensional. The self-designating method is not as reliable as a more systematic analysis, but it does have the advantage of being easy to apply to a large group of potential opinion leaders.

Weimann (1994) stated that another method is to ask key-informants who are especially knowledgeable about the communication and social ties of the group. One advantage as noted by Rogers (1995) is that the key-informants rating saves time and money when compared to the sociometric method. A disadvantage to the method is each informant must be very knowledgeable with his or her particular social system.

The observation method to determine opinion leaders requires a recorder who monitors the group’s activities and records communication behavior. Weimann (1994) stated one advantage to this method is its directness. The observer does not have to rely on indirect measures based on individual responses. Therefore, the method has high validity. Disadvantages to the method are that it is best used for small groups and demands a great deal of time.

Professional Teacher Associations

An important “social system” for agricultural education teachers is their professional teacher associations. Lave and Wenger (1991) described people, like teachers, who are involved in a craft to have a “community of practice” where ideas and thoughts can be exchanged. Williams (1997) further correlates these “communities of change” to professional teacher associations. Teacher associations contain various elements that allow members to discuss education and to grow as educators. Encouragement for new teachers and support for the educational process are all part of the purpose for most professional education associations.

The Oklahoma Agricultural Education Teachers Association is a division of the Oklahoma Vocational Association. It serves many roles and provides benefits for Oklahoma’s agriculture teachers. All 435 agricultural education teachers in Oklahoma are required to be members of OAETA. The state is split into five districts and subdivisions within each district called Professional Improvement groups.

A review of literature found no research to identify opinion leaders among agricultural education teachers in Oklahoma P.I. groups.

Purpose and Objectives

The purpose of the study was to determine the opinion leaders among agricultural education teachers in the Shawnee P.I. group in Oklahoma pertaining to various aspects of agricultural education programs. The following objectives served as guidelines for the study:

1. Develop a profile of agriculture teachers based on selected demographic characteristics.
2. Determine innovativeness of agricultural education teachers.
3. Describe social participation of agricultural education teachers.
4. Describe cosmopoliteness of agricultural education teachers.
5. Identify opinion leaders among agricultural education teachers.
6. Compare identified opinion leaders to their peers in terms of demographics, innovativeness, social participation, and cosmopoliteness.

Methods/Procedures

Population
To accomplish the purpose of this study, agricultural education teachers in the Shawnee P.I. group during the 2001-2002 academic school year were purposefully selected. A census of the population consisting of 21 agriculture teachers was taken with a 95% response rate.

Data Collection
This research used a survey design. The researchers determined that to insure the high response rate needed for the study, a personal visit to each teacher in the Shawnee P.I. was imperative. Each teacher was contacted by phone to schedule an appointment for a visit.

Instrumentation
The instrument developed by the study conducted by Johnson (1968) was adapted for the current study. Due to the elapsed time since the Johnson study was conducted, it was necessary to update the instrument with current terminology. For example, the term “vocational agriculture” was used throughout the original survey. The name for programs teaching agriculture in secondary schools in Oklahoma was changed from “vocational agriculture” to “agricultural education” in 1988 (NAAE, 1998). In addition, other sections of the questionnaire were updated to reflect current issues in Oklahoma. Resources in the literature and a panel of experts comprised of teachers, teacher educators, and state agricultural education leaders were consulted in making these changes.

A pilot study was conducted to ensure validity and reliability of the instrument. The pilot group consisted of teachers not included in the population of this study. Minimal changes were made to the instrument following the pilot study.

The Q-sort technique was used to determine the key-informant’s rank of agriculture teachers according to opinion leadership. For this study, the Central District Program Specialist was identified as the key-informant for the Shawnee P.I. based on his knowledge of the teachers. At the time of survey administration, the key-informant was given guidelines on how to complete the survey along with teacher’s names within the P.I. printed on individual cards. The key-informant was asked to follow the guidelines by placing teachers into three equal groups according to the definition of opinion leadership given and then rank the teachers within each group. This rank from 1 to 21 was based on their degree of opinion leadership.

Analysis of Data
To analyze data collected from this study, the Statistical Package for Social Sciences (SPSS) version 10.0 was used. Data from the instrument were both descriptive and correlative.
Innovativeness of teachers was calculated using the formula developed by Christiansen (1965). To determine the innovativeness of teachers, a date for each innovative practice or idea was determined. The earliest any teacher in the Shawnee P.I. could have adopted any of the teaching practices was 1971. Therefore, it was determined that using the formula developed by Christiansen, a date of 1970 could be used for all innovations that arose prior to 1971. All other dates were determined through historical reading of the topic. The formula took into account the date a particular innovation was adopted, the number of innovations actually adopted by an individual teacher, the maximum number of years any teacher had taught agricultural education, and the number of years each teacher had been teaching agricultural education. If a teacher had not adopted a particular innovation, a date of 2002 was given with no credit of innovation adoption. If the teacher indicated that a particular innovation had been adopted but did not give a date, a date of 2002 was given with credit of innovation adoption.

The date each innovation could have been adopted was subtracted by either the date recorded by the teacher or the date given by the researcher for each innovation. The calculations for all innovations were added together and divided by the actual number of innovations adopted by each individual. This number for each teacher was then multiplied by an equalization factor. An equalization factor was used so that younger teachers would not be penalized for teaching a fewer number of years. The equalization factor divided the maximum number of years any one teacher had taught (29) by the number of years an individual teacher had taught.

Social participation was determined using the Chapin Scale of Social Participation (Chapin, 1937). The scale was used to describe the social participation of agriculture teachers and compare opinion leaders with non-opinion leaders. The scale was not used to compare the agriculture teachers with existing norms, other professions, or scales.

Findings

Figure 1 shows the frequency each teacher was named as a source of advice or information in any one of the eleven areas identified. Teacher number 7 had 26 mentions and was named most frequently while teachers 20 and 6 had 20 and 17 mentions, respectively. All other teachers were mentioned less than fifteen times. Teachers 11 and 21 were never mentioned.

To correlate the three methods, ranks were given to each teacher according to the frequency each was named by another teacher as a source of advice and information. Table 1 shows the rank of each teacher along with the number of times each was named.

There were two teachers whose names appeared 20 or more times on the sociogram (teachers coded 7 and 20). Teacher number seven was given the first rank since he/she had the most responses. The third most frequent name was teacher number six with 17 mentions. Larke and Norris (1988) used a natural break to identify opinion leaders using the sociometric method. There was a difference of five between ranks 3 and 4 showing a natural break for opinion leader identification for this study. Teachers numbered 2 and 15 were named six times giving them both
Table 1

<table>
<thead>
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a rank of ten. With a frequency of five, three teachers (5, 12, and 13) were ranked number 12. All other teachers were named less than five times according to the sociometric measure.

**Self-designating method**

A technique used by Rogers in 1957 (1995) and adapted by Johnson (1968) was used to determine opinion leaders using the self-designating method. This method uses a series of six questions to determine if individuals view themselves as opinion leaders.

With a score of 5, teacher coded as number 4 had the highest degree of self-designating opinion leadership (Table 2). Teachers numbered 5, 6, and 15 had the next highest degree of opinion leadership and were given an average rank of three. A rank of six was assigned to three teachers (2, 9, and 17) with a score of 7. The largest group of teachers had a sum score of eight. The next largest group was comprised of four teachers who each had a score of nine.
Table 2

Self-Designating Method Ranks and Scores

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Key-informant’s rank method

This method uses an individual (district program specialist) to rank the degree of opinion leadership for each member (Table 3). The opinion leaders were in the top half of the population.

Correlations Among Methods

The researchers performed correlations (Table 4) to determine the method to use in identifying opinion leaders. A rank of teachers for each method was determined and then correlated. Teacher number 3 was not ranked on self-designating method because a survey response was not obtained. The sociometric and key-informant methods did not rely on a response from teacher number 3 to designate as an opinion leader.

Table 3

Key-Informant Ranks According to Respondent Number

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<th>Respondent Number</th>
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<td>1</td>
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</table>

* Denotes identified opinion leaders.

Table 4

Correlations Among Methods for Determining Opinion Leaders

<table>
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<th>Self-Designating</th>
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<tr>
<td>Self-Designating</td>
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<tr>
<td>Key Informant</td>
<td>.717</td>
<td>.130</td>
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\(^a\) Strong-moderate correlation \(^b\) Weak-weak correlation \(^c\) Little or no correlation
There was a weak-weak correlation between the self-designating and the sociometric methods with a correlation of .286. The self-designating method had little to no correlation with the key-informant method with a correlation of .130. A high correlation of .717 existed between the sociometric and key-informant methods.

Since there was shown to be a strong-moderate correlation between the sociometric and key-informant rating method, the researchers determined the best method was the sociometric method in identifying opinion leaders due to its specific technique.

In a study by Larke and Norris (1988), opinion leaders were identified using the sociometric technique. A natural break occurred between the teachers who were named the fifth and sixth most often. The natural break identified the top five opinion leaders for their study.

The researchers decided to look for a natural break in the frequencies given by the sociometric technique. A natural break occurred between the third and fourth ranked teachers with frequencies of 17 and 12, respectively. This was the largest break between any two teachers. The opinion leaders were identified as respondents 6, 7, and 20.

**Demographic Characteristics of Teachers**

There were 19 males (95%) and 1 female in the Shawnee P.I. group. All three of the opinion leaders were male.

The average age of the teachers was approximately 40 years. When the group was divided into opinion leader and non-opinion leader categories, opinion leaders were approximately seven years older with a mean age of 45.7 compared to the mean age of non-opinion leaders of 38.8.

The teachers in the group had been teaching an average of 13.6 years. The opinion leaders had approximately nine more years of teaching experience compared to non-opinion leaders. On average, opinion leaders had been teaching approximately 21 years, and non-opinion leaders had been teaching 12 years. In terms of the number of years teaching within the Shawnee P.I., teachers had been teaching for an average of 11 years. The opinion leaders have been within the P.I. an average of about three years longer than non-opinion leaders. The average number of years that opinion leaders had been teaching within the P.I. was 13.8 years while non-opinion leaders had been teaching an average of 10.5 years. Teachers were employed at an average of 1.8 schools. The data showed no notable difference in the number of schools taught at by opinion leaders and non-opinion leaders, with averages of 1.7 and 1.8 schools, respectively. The teachers had been teaching at their present location for approximately eight years. Opinion leaders had been teaching at their present location approximately four years longer than non-opinion leaders, who had been teaching at their current location for seven years.

In terms of the number of college credit hours completed since beginning their agricultural education careers, the respondents had completed an average of 15.5 hours. The opinion leader group had completed an average of 20 hours, while non-opinion leaders had completed approximately 15 hours. When looking at the degrees earned, a scale was used to determine the highest degree achieved: 1 = bachelor’s degree, 2 = bachelor’s degree plus hours toward a master’s degree, 3 = master’s degree, 4 = master’s degree plus hours toward a doctorate. Most of
the teachers had completed a bachelor’s plus hours toward a master’s degree with a mean of 2.1. On average opinion leaders had a mean score of 2.7 compared to a mean of 1.9 for non-opinion leaders.

Innovativeness of Teachers
Objective two was to determine the innovativeness of agriculture teachers. The scale developed by Christiansen (1965) was used to calculate the innovativeness score. The score is depicted according to ranks, with the most innovative teacher ranking first. A score of zero would indicate adoption of all innovations the first year possible. The lower the score, the more innovative the person. Ranks and scores for each respondent can be found on Table 5.

According to Rogers (1995), the adopter categories within a population form a bell-shaped curve (Figure 2). Innovators comprise 2.5% of any population. For this population, teacher number ten was the innovator with the lowest innovation score of 21.69. Early adopters make up 13.5% of the curve and teachers numbered 6 and 15 fell in this category. The early majority and late majority adopters comprise a total of 68% of the population with 34% for each category. The early majority category had scores ranging from 52.99 to 129.96 and included teachers coded 2, 4, 7, 8, 9, 18, and 20. The late majority group included teachers with an innovativeness score ranging from 133.30 to 421.30. These were teachers numbered 1, 5, 11, 13, 17, 19, and 21. The remaining teachers are laggards. The laggards for the group were teachers numbered 12, 14 and 16 with scores ranging from 634.40 to 738.80.

To further describe the characteristics of agriculture teachers in terms of innovativeness, the innovativeness ranks were correlated to selected demographics: age, years teaching agricultural education, and amount of schooling completed.

Table 5
Innovativeness Scores and Rankings

<table>
<thead>
<tr>
<th>Rank</th>
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<sup>a</sup> Denotes designated opinion leader.

Martin (2002) stated that varying degrees of correlations describe correlations more accurately. Demographic characteristics of age and years teaching agriculture education showed to have a strong-negative correlation. In other words, as age of the teachers increased, the innovativeness score decreased. The amount of schooling completed had a low-negative correlation to innovativeness.
Social Participation of Teachers

The third objective was to describe the social participation of agriculture teachers. Using the Chapin Scale of Social Participation (1937), social participation was determined. One point was given for each organization membership by the teacher. Two points were given for merely attending meetings for each organization. Three points were given for each organization given a financial contribution. Four points were given for each committee membership, and five points were given for each office held. The points for each category as well as the total points for all teachers were averaged. The population was involved in an average of 2.3 organizations. With a score of 2.35, non-opinion leaders were involved in an average of 0.35 more organizations than opinion leaders.

The population had a mean attendance score of 4.10 with opinion leaders averaging slightly below with a score of 4.00 and non-opinion leaders scoring slightly above with a mean score of 4.12.

With a mean score of 3.40, the population average was higher than that for opinion leaders with an average of 3.00 but slightly less than non-opinion leaders with an average of 3.47. Opinion leaders did have a higher mean score for committee membership than the non-opinion leaders. The population mean score was 5.40, and the opinion leader and non-opinion leader averages were 6.67 and 5.18, respectively. The population and non-opinion leader groups received an average of 3.24 points for offices held leaving opinion leaders with no points earned.

After total points were summed, the average score earned for the population was 17.95. Opinion leaders had 15.67 points, and non-opinion leaders had earned nearly three points more than opinion leaders with a total of 18.35 points. These data are summarized in Table 6.
To further describe agriculture teachers' social participation, the total points earned for each teacher were correlated to selected demographics: age, years teaching agricultural education, and amount of schooling completed.

Table 6
**Social Participation of Agriculture Teachers**

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<td>5.40</td>
<td>6.67</td>
<td>5.18</td>
</tr>
<tr>
<td>Offices Held</td>
<td>3.24</td>
<td>.00</td>
<td>3.24</td>
</tr>
<tr>
<td>Total Points</td>
<td>17.95</td>
<td>15.67</td>
<td>18.35</td>
</tr>
</tbody>
</table>

a 1 point given for each organization; 2 points for attendance; 3 points for contribution; 4 points for each committee membership; 5 points for each office held.

Demographic characteristics of age, and years teaching agriculture education were found to have little or a weak correlation to social participation, while the amount of schooling completed was found to have a strong-weak correlation to participation.

**Cosmopolitaness of Teachers**
Rogers (1995) stated that the cosmopolitaness of individuals could be determined by knowing an individual's exposure to mass media and contact with others.

**Mass Media Exposure**
Publications listed within the survey were grouped by education, research, special feature, livestock show, and farming categories. Scores were calculated by giving a score of 1 if the teacher did not receive the publication, a score of 2 if the teacher received but did not read the publication, a score of 3 if they seldom read the publication, and a score of 4 if they read the publication regularly.

The population had a mean of approximately 2.00 for education and research type publications. Opinion leaders were slightly lower than non-opinion leaders with respect to educational magazines with a score of 2.00 compared to the 2.16 score of non-opinion leaders. Opinion leaders were higher than non-opinion leaders for research publications with a score of 2.45 compared to non-opinion leaders' score of 1.94.

The population had a score of approximately 3.00 for special feature, livestock show, and farming publications. Opinion leaders had a higher mean for the special feature and livestock publications with scores of 3.25 and 3.40, respectively, compared to that of non-opinion leaders. Non-opinion leaders had a mean of 2.90 for both publications. Opinion leaders had a mean more than one point higher than non-opinion leaders in respect to farming publications with mean scores of 3.30 and 2.20, respectively.
Personal Contact
To determine the contact agriculture teachers had with others, teachers were asked to record the number of meetings attended at various levels.

The population of agriculture teachers attended approximately seven P.I. meetings with opinion leaders attending about 10 meetings. At the district level, opinion leaders had attended approximately two more meetings than non-opinion leaders whose mean was 2.80. The population had attended a mean of 3.10 district meetings. The population had attended a mean of 2.65 statewide meetings. Non-opinion leaders had attended an average of 2.50 fewer meetings than opinion leaders who had attended a mean of 3.30 statewide meetings. There was little variation in the number of regional meetings opinion leaders and non-opinion leaders had attended. The population attended an average of 0.25 regional meetings. There was only one teacher, a non-opinion leader, who had attended a national meeting.

Conclusions and Recommendations

Conclusions
Based on the findings of this study, the following conclusions were made:
1. The typical agriculture teacher in the Shawnee P.I. is: male; middle-aged; has taught for many years in the same P.I. and at the same school; and has completed work toward a master’s degree.
2. Compared to their followers, opinion leaders in this P.I. are older, have taught longer, and have earned a more advanced academic degree.
3. Opinion leaders in the Shawnee P.I. are more innovative than their followers. This conclusion agrees with Rogers (1995) that opinion leaders within a group tend to be more innovative than non-opinion leaders.
4. The most innovative teacher is not an opinion leader. This conclusion, too, agrees with Rogers (1995) contention that innovators are seen to be untrustworthy about their opinions on innovations and distant from the rest of the population.
5. Opinion leaders in the Shawnee P.I. are very localite. They are not as involved in their community or professional organizations as their followers.

Recommendations
1. District program specialists could be seen as change agents for Oklahoma agricultural education; therefore, the district program specialists should use the identified opinion leaders to help in the adoption of change in agricultural education. This recommendation concurs with that of Larke and Norris (1988) where they suggested that opinion leaders be used as a link between state staff and agriculture teachers in Texas.
2. Because of the esteem in which opinion leaders are held by their followers, opinion leaders in this P.I. group should be appointed as chairs for various committees that are focused on changes in areas such as curriculum, Supervised Agricultural Experience programs, the FFA organization, and livestock show regulations.
3. Opinion leaders should be used as mentors for new teachers. This recommendation supports a recommendation by Peiter (2002) that agricultural education teachers should serve as mentor teachers for new agricultural education teachers.
4. Sociometric and key-informant’s ranking methods should be used when identifying opinion leaders among agricultural educators.
5. Teachers identified as opinion leaders should undergo training to understand their role as opinion leaders and as leaders of change.
6. Studies should be conducted to identify opinion leaders in other groupings of agricultural education instructors such as other P.I. groups or district and state groups.
7. A study should be conducted to determine the effectiveness of opinion leaders in influencing other agriculture teachers to adopt new innovations.
8. A study should be conducted to compare the innovativeness, cosmopoliteness, and social participation of agricultural education teachers to teachers of other subject areas.

Discussion
There are several discoveries and questions regarding opinion leadership theory and agricultural education teachers as a result of this study. The first discovery was the continuity between Rogers (1995) theory and the findings of this research. The identified opinion leaders, for the most part, had those demographic characteristics as listed by Rogers (1995). Although the demographic characteristics are congruent with Rogers, what personal characteristics contribute to making an individual an opinion leader? Are there characteristics other than demographics that contribute to identifying a teacher as an opinion leader?

Although the demographic characteristics coincided with Rogers’ theory for opinion leaders, the social participation theory did not. Opinion leaders tend to be more localite and involved in their communities compared to non-opinion leaders, yet non-opinion leaders in this study were found to be members of more organizations. The possibility exists that identified opinion leaders may have been highly involved in community activities, but not formal members of organizations. Is social participation, in terms of the number of organization memberships, a factor in identifying opinion leaders among agricultural education teachers?

In terms of the cosmopoliteness of agriculture teachers, non-opinion leaders visited more departments of agricultural education than opinion leaders. According to Rogers (1995), opinion leaders tend to have much personal contact with their followers. If opinion leaders are visiting fewer departments, when and where do these opinion leaders interact and exchange ideas with other teachers? Are there activities in which these teachers attend that allow them to have greater contact with fellow agriculture teachers in the P.I. group?

These discoveries and questions are a guide to understanding opinion leadership in agricultural education. Although there is much to be learned about opinion leadership and the diffusion of innovations, the findings in this study provide direction in understanding how these theories apply to agricultural education.

References


