

## **Perceptions of Agriculture Students Regarding the Image of Agriculture and Barriers to Enrolling in an Agriculture Education Class**

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### **Abstract**

The purpose of this study was to determine the perceptions of high school freshmen regarding the image of agriculture and the barriers to enrolling in an agricultural class. Results indicated that non-minority students had significantly higher overall mean scores than minority students for reasons for enrolling in an agricultural education class. The findings also indicated that non-minority students had a more positive perception of enrolling in an agricultural education course. Both groups of students indicated that no individual would have any influence on their reasons for enrolling or not enrolling in an agricultural education class; however, findings revealed that both groups of students indicated that they were enrolled in an agricultural education class or probably would enroll in a class because of reasons other than the intended purposes of the class.

## **Introduction/Theoretical Framework**

The decline in the number of students entering the field of agriculture has been on the rise over the years. As reported by the United States Department of Agriculture (1998), five major challenges face the U.S. agricultural industry in the next decade: (1) maintaining an agricultural system that's highly competitive in the global economy, (2) balancing agricultural production and the environment, (3) providing a safe and secure food supply for all citizens, (4) maintaining a healthy, well-rounded population, and (5) increasing the number of people entering the field, economic opportunities and improving the quality of life for all Americans. Although the numbers of American farms have declined over the years, American farmers still provide enough food for the American people and much of the world. On average, American consumers spend just 10 percent of their disposable income for food, which is lower than any other national in the world (American Farm Bureau, 2002). Also, in the world of agricultural production and technology, the United States continues to hold the advantage over its counterparts. USDA statistics show that 43 percent of U.S. farms have Internet access and 55 percent have general access to computers (American Farm Bureau, 2002). Additionally, a survey that was conducted on young farmers and ranchers shows that nearly 87 percent use a computer and 77.4 percent have Internet access (American Farm Bureau, 2002). If the United States wants to continue to be a front-runner in the world of agriculture, strong efforts must be made to recruit a cross-section of all Americans into agriculture.

Agriculture is one of the largest employers in the United States, with more than 22 million people employed in some phase from growing food and fiber to selling agricultural products at the retail level (American Farm Bureau, 2002); however, the demand for college graduates, particularly minority individuals, in this field continues to exceed the supply (Jones, 1999). The civilian labor force is projected to increase by 17 million over the 2000-2010 period, reaching 158 million in 2010 (United States Bureau of Labor & Statistics, 2002). The labor force group, Asian and other, and the Hispanic labor force are projected to increase faster than other groups, 44 percent and 36 percent, respectively, because of high net immigration and higher than average fertility (U.S. Bureau of Labor & Statistics, 2002). The Black labor force is expected to grow by 21 percent, more than twice as fast as the nine percent growth rate for the White labor force (U.S. Bureau of Labor & Statistics, 2002). Due to the dwindling participation of people of color in agricultural-related careers and the substantial demographic percentage increase that this population is expected to make in the next decade, those charged with perpetuating the leadership role of the United States in the area of agriculture and related fields should continue to find ways to enhance participation of this group (Jones, 1999).

To sustain agriculture at its current status, recruitment of outstanding individuals must be enhanced. To enhance recruitment, more effective recruitment strategies must be implemented. To develop effective recruitment strategies, it is necessary to research students' decision making processes and their images of agriculture (Lucas, 1993).

## **Purpose and Objectives**

The purpose of this study was to determine perceptions of high school freshmen regarding their image of agriculture and the barriers to enrolling in an agricultural class. Specific objectives of the study were to:

1. Describe selected demographic and situational characteristics of minority and non-minority students enrolled in a ninth grade English or homeroom class.
2. Compare the attitudes of minority students and non-minority students toward agricultural and their perceived barriers to enrolling or not enrolling in an agricultural education class.

## **Significance of Study**

Timely and accurate information regarding the perceptions that high school students have about agriculture and the analysis of factors that would prevent them from enrolling in an agriculture class are needed to enhance the recruitment of talented individuals in agriculture. Those who are dedicated to making agriculture a more diverse society would benefit from this study because it could possibly identify factors that would encourage minorities to enroll in agriculture classes and/or possibly choose agriculture as a career. Job opportunities in agriculture and related sciences are continuing to increase, and are expected to continue through at least 2005 (U.S. Department of Labor, 1996); however, the number of students pursuing agricultural careers through college since the 1970s has declined steadily. To reverse this trend, educational leaders must understand the motivational factors and rewards that lure people to a particular career (Zoldoske, 1996).

Previous studies (Talbert, 1992; Talbert, 1996; Talbert & Larke, 1995 & Terry, 1999), surveyed students who were currently enrolled in an agricultural class. This study differs in that the targeted sample population consisted of students enrolled in an English or homeroom class. By targeting these classes, the researcher was able to collect information from two types of students: those who were enrolled in an agricultural education class and those who were not enrolled in an agricultural education class.

## **Procedures**

The data for this study were collected by means of a slightly modified replicated instrument used in previous studies identifying factors influencing students to enroll in an agricultural course (Talbert, 1992; Talbert, 1996; Talbert & Larke, 1995 & Terry, 1999). Permission was granted by the researcher to use and modify the instrument. The data were analyzed using Social Sciences Release 11.5 (SPSS 11.5 for Windows). Descriptive statistics generated by SPSS procedures CROSSTABS were used to analyze demographic data and situational characteristics for objective one. Independent samples t-test (ANOVA) was used to determine differences in students' perceptions. The 11 scales for reasons for

enrolling, barriers to enrolling, and personal opinions toward agriculture were used as dependent variables and the student minority/non-minority status was used as the independent variable. An alpha level of .05 was used to determine statistical significance between the mean scores. All independent sample t-test scores were reported regardless of their significance. These were computed to satisfy objective two. To determine statistical significance, an alpha level of <.05 was used for all analyses. A pilot test of the instrument was conducted by administering the survey to 12 ninth grade students enrolled in a school in Fayetteville, Arkansas and not included in the study. The population of the study consisted of 132 ninth grade students who were enrolled in selected counties that had high enrollment of minority students in public high schools in the state of Arkansas during the spring of 2003. U.S. Census data were used to determine those counties in Arkansas that showed the highest numbers of African-American and Hispanic populations. These counties were targeted for the study. According to the latest U.S. Census (2000), the five counties with the largest percentages of Hispanic populations were Sevier, Yell, Carroll, Benton, and Bradley. The five counties with the largest percentages of African-American populations were Phillips, Chicot, St. Francis, Crittenden, and Deshea. Because of the design of the study, the researcher targeted only those high schools within each county that offered agricultural education programs.

Cover letters were mailed out to the ten individual school principals of each of the selected counties asking for their participation in the study. Before a school could participate, a written statement was to be sent to the researcher by the schools stating that they agreed to participate in the study. Verbal agreements to participate were secured from each of the individual principals of the targeted schools in the study, but due to inconvenient and untimely circumstances within their schools, only six responded with a written document agreeing to participate. The response rate was six out of ten. Those schools that agreed to participate were asked to select a ninth grade English or homeroom class within their school to participate in the study.

One of the researchers traveled to each of the targeted schools and administered the survey. The researcher explained the purpose and significance of the study to the students before administering the survey. The instrument consisted of the following parts:

### **Part I – Demographic**

Part I consisted of demographic characteristics of the students. These characteristics included ethnicity (African-American/Black, Caucasian/White, Hispanic, Native-American and Asian-American), gender, agricultural education (had or had not enrolled in an agricultural class), residence (farm or ranch, rural area, small town, and city/suburb) and agriculture as a career choice.

## **Part II – Reasons for Enrolling or Not Enrolling**

The Agriculture-Scale (items 11-22) measured the influence of the agricultural education class and agriculture in general on the student's decision to enroll. The Influential Person-Scale (items 23-29) measured the influence of family members, friends and school personnel in the decision to enroll. The Disavowance Scale (items 30 & 34) involved items that would influence students to enroll in an agricultural education class for reasons other than the intended purposes of the class such as taking an agricultural education class because it was an elective, or being in an agricultural education class would give them a sense of acceptance and belonging. The Agricultural Career-Scale (items 31-33) measured the effect of vocational aspects of agricultural education on the enrollment decision.

## **Part III – Barriers to Enrolling**

The Personal Negative Scale (items 35-39) involved negative interaction with students or influential persons. The Teacher Negative Scale (items 40-43) involved negative interactions with the agricultural education teacher. The Course Negative Scale (items 44 & 45) measured the degree of incompatibility between the student and his/her perceived qualities of the course. The Agriculture Negative Scale (items 46-50) measured the negative perceptions of the student toward agriculture.

## **Part IV – Agricultural Opinions**

The Personal Career Scale (items 51-54,68) measured the student's attitude toward entering an agricultural career. The Agricultural Occupations Scale (items 55-61) surveyed the student's perception regarding the variety and scope of the agricultural industry. The Occupational Requirements Scale (items 62-67) consisted of the student's perception regarding the requirements needed to obtain a career in agriculture.

As with previous studies, a five-point Likert-type scale was used for each of the statements in the scales. Scales ranged from strongly disagree (1) to strongly agree (5). The higher the scale score the greater the individual perceived that particular scale as a reason for enrolling, a barrier to enrolling, or more strongly agreed with the personal opinion scale.

## **Findings**

The main focus of this study was to compare minority and non-minority students' perceptions of agriculture and the barriers to enrolling in an agricultural class. The results of this study, with the exception of Table 1, are presented in minority/non-minority status. For this analysis, students who identified their ethnicity as African-American/Black, Native-American, Hispanic, Asian American, or Bi-racial were coded into the data as being a Minority. Students who identified their ethnicity as being Caucasian/White were coded into the data as being a Non-Minority.

Objective one described selected demographic and situational characteristics of minority and non-minority students enrolled in a ninth grade English class or homeroom.

The sample consisted of 132 ninth grade students made up of 34.1% African-American/Black, 3.0% Native American, 6.8% Hispanic, 3.0% Asian American, and 53.0% Caucasian/White. Students reported their ages as 14 or younger (46.2%), 15 (45.5%), 16 (6.8%), 17 (0.8%), and 18 (0.8%).

Places of residence identified by students were 47.7% live in a small town, 28.0% in a rural area, 16.7% on a farm or ranch, and 7.6% in a small city or suburb. Both ethnic groups were more likely to live in a small town than any other place of residence. There were only 44.7% of the sample of students who had been enrolled or were currently in an agricultural education class. There were more minority students who had been enrolled in an agricultural education class (28.8%) than non-minority students (15.9%). Of the students who took part in the survey, 22.7% had participated in 4-H. Minority students (12.9%) were more likely to be members of 4-H than non-minority students (9.8%).

The majority of the students in both ethnic groups identified a high school diploma/GED as being their fathers' highest level of education (65.9%). The next level of education that was predominately selected by both groups was less than a high school diploma (14.4%). Minority students had more fathers who held an Associate or Technical degree (5.3%) than non-minority students while non-minority students had more fathers who had attained a Bachelor's Degree (6.1%) than minority students. The majority of the students in both groups identified a high school diploma as being their mothers' highest level of education (47.7%). The next levels of education that were predominate between both groups were those mothers with less than a high school diploma (15.9%) and mothers with Associate/Technical degrees (15.9%). Minority students had more mothers with a Bachelor's degree (7.6%) than non-minority students (4.5%) while non-minority students had more mothers with advanced degrees (6.1%) than minority students (2.2%).

Students (41.7%) in the sample identified their chance of being employed in an agricultural career after graduation as being "unsure." Only 12.9% of the population said, "probably yes," while 31.8% said "probably not." Students were asked to evaluate their chances of being involved in an agricultural career within their working lifetime. A majority (39.4%) of the students in the sample identified their chances of being employed in an agricultural career sometime in their lifetime as being "unsure." Non-minority students (14.4%) were more likely than minority students (5.3%) to answer, "probably yes." On the other end of the scale, minority students (7.6%) were more likely and non-minority (4.5%) were less likely to answer "definitely not."

Objective two was to compare minority and non-minority students' reasons for enrolling in an agricultural class, their perceived barriers to enrolling in an agricultural class, and attitudes toward agriculture. Items 11 through 68 were used to construct the scales used in these analyses.

Analysis of the data indicated (Table 1) that non-minority students had significantly higher overall mean scores than minority students on the Agriculture scale and the

Agricultural Career scale for reasons for enrolling in an agricultural education class. This finding indicated that non-minority students had a more positive perception of enrolling in an agricultural education course than minority students. On the Influential Persons scale, both minority and non-minority students had overall mean scores lower than 3.0 which may indicate that none of the statements in the influential persons part of the survey had or would have any influence on their reasons for enrolling in an agricultural education class. On the Disavowance scale, both groups of students had overall mean scores higher than 3.0 which may indicate that they were enrolled in an agricultural education class or would probably take an agricultural education class because of reasons other than the intended purposes of the class.

*Table 1.*  
**Independent Samples t-test of Students' Reasons for Enrolling in an Agricultural Education Class**

| Scale               | Ethnicity    | Mean*  | Standard Deviation | t-value | Significance (<.05) 2-tailed |
|---------------------|--------------|--------|--------------------|---------|------------------------------|
| Agriculture         | Minority     | 3.2836 | .6198              | 2.125   | .036                         |
|                     | Non-Minority | 3.5452 | .7745              |         |                              |
| Agricultural Career | Minority     | 3.4395 | .8751              | 2.531   | .013                         |
|                     | Non-Minority | 3.8250 | .8716              |         |                              |
| Influential Persons | Minority     | 2.5853 | .8690              | 1.475   | .143                         |
|                     | Non-Minority | 2.8020 | .8191              |         |                              |
| Disavowance         | Minority     | 3.2419 | .8951              | .787    | .433                         |
|                     | Non-Minority | 3.3643 | .8884              |         |                              |

Note: \*1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree

The perceived barriers to enrolling in agricultural class scales (Table 2) show similarities and some differences from the reasons for enrolling scales. All of the perceived barriers to enrolling scales have means lower than 3.0, which may lead to the conclusion that none of the statements in the survey are actually barriers to enrolling in an agricultural class. Analysis of the data indicates that non-minority students had significantly lower overall mean scores than minority students in three of the four scales used to measure the perceived barriers to enrolling.

For analysis purposes, a higher mean score is described as a perception of a greater barrier to enrolling in an agricultural class. This means that non-minority students believe that these factors were slightly less important barriers to their enrollment in an agricultural

education course than minority students. Non-minority students perceived the teacher as being the least barrier to enrolling while minority students perceived agriculture as being the greatest barrier to enrolling. The teacher negative scale yielded the lowest mean score among minority students, indicating that the agricultural education instructor was the least significant barrier to their enrolling in agricultural class.

*Table 2.*

***Independent Samples t-test of Students' Barriers to Enrolling in an Agricultural Education Class***

| Scale       | Ethnicity    | Mean*  | Standard Deviation | t-value | Significance (<.05) 2-tailed |
|-------------|--------------|--------|--------------------|---------|------------------------------|
| Personal    | Minority     | 2.5419 | .6759              | 2.155   | .033                         |
| Negative    | Non-Minority | 2.2543 | .8368              |         |                              |
| Teacher     | Minority     | 2.2702 | .8338              | 3.097   | .002                         |
| Negative    | Non-Minority | 1.8143 | .8530              |         |                              |
| Course      | Minority     | 2.3629 | .9842              | .338    | .736                         |
| Negative    | Non-Minority | 2.3000 | 1.1370             |         |                              |
| Agriculture | Minority     | 2.6387 | .8031              | 3.078   | .003                         |
| Negative    | Non-Minority | 2.1943 | .8492              |         |                              |

Note: \*1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree

Analysis of the data for the personal opinions about agriculture scales (Table 3) indicates that non-minority students had only one significantly (<.05) higher mean score than minority students.

*Table 3.*

***Independent Samples t-test of Students' Opinions About Agriculture Scale Scores by Ethnicity***

| Scale        | Ethnicity    | Mean*  | Standard Deviation | t-value | Significance (<.05) 2-tailed |
|--------------|--------------|--------|--------------------|---------|------------------------------|
| Personal     | Minority     | 3.2548 | .6996              | 1.463   | .146                         |
| Career       | Non-Minority | 3.4429 | .7681              |         |                              |
| Agricultural | Minority     | 3.4470 | .6275              | 2.689   | .008                         |
| Occupational | Non-Minority | 3.7592 | .6975              |         |                              |
| Occupational | Minority     | 3.2473 | .5850              | .343    | .732                         |
| Requirements | Non-Minority | 3.2857 | .6881              |         |                              |

Note: \*1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree

For all three scales in Part IV of the survey, non-minority students had higher overall mean scores than minority students. In general, both groups had positive opinions about agriculture. The occupational requirements scale had the only significant mean scores

between the groups. This indicated that non-minority students had more positive opinions on occupations in agriculture and the scope of the agriculture industry than minority students. The occupations in agriculture scale yielded the highest means for both groups, while the occupational requirements scale yielded the lowest mean between both groups. This could indicate that although both groups of students may know the opportunities that exist in agriculture, they may not be on the same track in regards to what is required of them to pursue those jobs in agriculture.

## **Conclusions**

The following conclusions were formulated based on the results of the study:

1. The population of the study was diverse in ethnicity and gender while the majority of all students had not been members or previous members of 4-H.
2. There were few significant differences between minority and non-minority students enrolled in a ninth grade English or homeroom class for enrollment decisions in an agricultural education class.
3. Both minority and non-minority students' parents had similar education levels, and both groups resided in similar situations.
4. The majority of the students still had positive perceptions of agriculture regardless of whether or not they had enrolled in an agricultural education class.
5. Both groups of students were likely to enroll in an agricultural education class for reasons of disavowance.
6. Both groups of students were more likely to enroll in an agricultural class because they believed it would benefit them in life, and prepare them for an agricultural career.
7. Both groups disagreed with the statements used to measure barriers to enrolling in an agricultural class.
8. Influential persons were the least motivating factor for students to enroll in an agricultural education class. This finding counters Super's (1957, 1963) conclusions. Super's studies stated that role models, especially same gender parents, exert a great influence on the career decision process.
9. Both groups of students had positive opinions about agriculture and its related fields, but the majority of the students were less confident in their knowledge about how to prepare for those careers.

## **Recommendations**

Based on the findings of this study, the following recommendations were developed:

1. By the ninth grade, adolescents seem to already have a solid view of their image about agriculture. Because of this, early inclusion of an agricultural course, possibly at the junior high level, should be implemented to broaden students' perceptions of agriculture and its related fields.

2. Because minority and non-minority students were aware of the many occupations in agriculture but less confident about how to prepare for an agricultural career, agricultural instructors, along with other teachers in the school, should collaborate and implement some form of instruction that could be used as a tool to inform students on what requirements they would need in order to pursue a particular field in agriculture or a related field.
3. Because of the low overall mean scores in Part III, Barriers to Enrolling, qualitative studies should be conducted to determine why there are low percentages of students in agricultural education classes.
4. Because both minority and non-minority students were more likely to enroll in an agricultural education class for “disavowance” reasons, counselors should discourage students from enrolling in agricultural education classes for reasons other than the intended purposes of the class.
5. Studies similar to this one should be conducted with more minority and non-minority students in different demographical and educational settings. For instance, this study should be replicated at schools that are located in large urban areas, possibly at the sixth grade level.

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