

## **Beliefs and Intentions of Counselors, Parents, and Students Regarding Agriculture as a Career Choice**

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Educational programs in agriculture are in direct competition with programs such as engineering, business, and medicine which are judged by the public as being more glamorous and career-promising. As a result, talented young students are being counseled or attracted into such programs in pursuit of economic security and status.

In Illinois, agricultural education programs at the secondary level continue to experience enrollment declines (Craft, 1991). Data compiled between 1977 and 1986 by the Illinois Association of Vocational Agricultural Teachers (Witt, 1987) and the Illinois Board of Higher Education (Databook on Illinois Higher Education, 1986) from 1977 to 1986, showed declining numbers as high as 54 and 22 percent, respectively, in student enrollment in agricultural programs. These enrollment trends were not reflected by those reported for total student enrollment. Data reported during this period for secondary school enrollment showed a moderate decrease of 20 percent, while four-year institutions with agriculture programs only experienced a slight decrease of 4.2 percent.

This trend of declining enrollments in agriculture programs is contributing to a shortage in the available supply of individuals with knowledge and expertise in the food and agricultural sciences. According to a USDA report (Coulter, et al., 1990), our nation will likely face a 10 percent annual shortage of human capital through 1995, more serious than the shortage experienced during 1985-1990.

The conceptual framework for this study emphasized the necessity of studying beliefs, attitudes, and intentions. Fishbein and Ajzen (1975) determined that intentions to participate in an activity could be predicted based on a person's knowledge, observations, or other information held about some issue or event. This suggested that the decisions of individuals to select or not to select agriculture as a field of study or to become actively engaged in an agricultural career may be predicted by examining their beliefs about agriculture.

Several investigators (Slocombe, 1986; Golladay & Wulfsberg, 1979; Holder, 1973) found family members, guidance counselors, and peers as "significant others" who affect students' selection of an occupational program. Betts and Newcomb's study (1986) of urban students indicated that students perceived agriculture as science-oriented, but they lacked the knowledge of its importance as an industry and the career potential. The literature also sought to examine studies about the relationship between education, occupation, and background. Hicks (1976) found race was a major factor affecting guidance counselors' decisions regarding advice on the selection of a field of study or career option related to agriculture.

### **Purpose and Objectives**

The purpose of this study was to examine the beliefs held about agriculture by guidance counselors, high school juniors, and their parents, and the relationship between these beliefs and the intentions of these groups to select or not to select agriculture as a career choice.

The objectives of this study were to determine:

If differences and relationships exist among guidance counselors, parents, and high school juniors in their beliefs about agriculture and their intentions to consider agriculture as a possible career choice based on gender, ethnicity, size of community, and academic background.

The differences among guidance counselors, parents, and high school juniors' beliefs about agriculture and their intentions to consider agriculture as a career choice.

The relationship between the beliefs of guidance counselors and parents and the intentions of students to consider agriculture as a career choice.

### **Procedures**

The target populations of this study consisted of guidance counselors, high school juniors, and their parents, associated with the public high schools (N=695 schools) in the State of Illinois, during the 1987-88 school year. Stratified random sampling was used to assign 50 schools in each of four categories based on size of community. The three sample groups were drawn from each of the following categories: schools located in areas with over 100,000 residents (large urban), 25,000 to 100,000 residents (medium urban), 2,500 to 25,999 residents (small urban), and less than 2,500 residents (rural). The Chicago Public Schools were not included in the study because of the time needed to obtain required clearances.

An introductory letter was mailed to the guidance directors of each selected school explaining the purpose of the study and requesting their cooperation in administering the questionnaire to a class of juniors, who then took a questionnaire home for their parents to complete. Twelve large urban, 22 medium urban, 23 small urban, and 25 rural schools made up the total. Eighty-two schools participated in the study, based on the affirmative response of guidance directors who were asked for assistance. Only three medium urban and two small urban schools failed to participate in the study. Data were collected from 1,041 (62.7% response) high school juniors, 712 (68.4% response) parents of the juniors, and 82 (100% response) guidance counselors from the 82 schools. It should be noted that approval to conduct this study was based on anonymity of student respondents and cooperation of high school guidance counselors, therefore, no follow-up mailing was possible.

The instrument used in this study consisted of a three-part questionnaire which was specifically designed and field tested for this study (Thompson, 1989). Part I of the survey instrument contained 15 statements describing beliefs about agriculture, Part II contained

four statements to measure intentions to select or consider agriculture as a career choice, and Part III consisted of demographic items. A five-point Likert scale (1=strongly agree to 5=strongly disagree) was used to measure the responses.

The Beliefs About Agriculture scale was factor analyzed to determine the most internally consistent items for measuring respondents' beliefs. Squared multiple correlations were used as prior estimates of communality, with iterated principal axis factoring and promax rotation, providing both orthogonal and oblique rotations. This procedure was repeated for each sample group of students (n=1041), parents (n=712), and counselors (n=82). A summary of the factor analysis is presented in Table 1. Three

**Table 1. Summary of Eigenvalues from Factor Analysis**

Respondent Group and Extracted Factor <sup>a</sup>	Eigenvalues	Proportion
Students (n=1041)		
Extracted Factor <sup>a</sup>		
1	5.46	.84
2	.63	.10
3	.44	.07
Parents (n=712)		
Extracted Factor <sup>a</sup>		
1	5.20	.80
2	.74	.11
3	.48	.09
Counselors (n=82)		
Extracted Factor <sup>a</sup>		
1	9.80	.88
2	.88	.08
3	.44	.04

<sup>a</sup>Factor 1: Agriculture as a Career; Factor 2: Academic Preparation; Factor 3: Agriculture in Illinois

factors derived three subscales from individual items with rotated factor loadings at .25 and above in the analysis of the three groups sampled. The ordering of these factors was the same in each of the three samples. The three subscales were "Agriculture As A Career," "Academic Preparation" (pursuant to studying agriculture in college), and "Agriculture in Illinois." Eigenvalues for each statement that was used to extract each factor are reported in Thompson (1989). Reliability coefficients (Cronbach's Alpha) for the three subscales (.50 to .94), and the beliefs scale (.74 to .91) are summarized in Table 2. Each correlation listed in this table is significant at the p<.01 level.

#### Analysis of Data

Descriptive statistics were used to summarize the demographic variables. The data for objective one were analyzed relative to gender, ethnicity, and community using multivariate (MANOVA) and univariate (ANOVA) statistics; education using an ANOVA; and background information using point-biserial correlations. Analysis of variance was used to analyze differences among the three groups relative to objective two, and a Pearson r for relationships in objective three. The alpha level was set at .05.

Table 2. Reliability and Correlation of Scales

Survey Scale	Items	Mean	SD	Factor			Cronbach's Alpha
				1	2	3	
<b>Juniors (n=1041)</b>							
Agriculture as a Career <sup>a</sup>	6	3.06	.75	1.00			.73
Academic Preparation <sup>b</sup>	6	2.92	.81	.69	1.00		.78
Agriculture in Illinois <sup>c</sup>	3	3.05	.80	.57	.56	1.00	.50
Beliefs about Agriculture <sup>d</sup>	15	3.05	.68	.90	.91	.74	.83
<b>Parents (n=712)</b>							
Agriculture as a Career	6	3.31	.74	1.00			.94
Academic Preparation	6	3.23	.67	.65	1.00		.90
Agriculture in Illinois	3	3.40	.71	.57	.53	1.00	.80
Beliefs about Agriculture	15	3.30	.61	.91	.88	.74	.96
<b>Counselors (n=82)</b>							
Agriculture as a Career	6	3.07	1.03	1.00			.80
Academic Preparation	6	3.14	.83	.92	1.00		.80
Agriculture in Illinois	3	3.26	1.03	.84	.85	1.00	.59
Beliefs about Agriculture	15	3.14	.91	.97	.97	.91	.88

<sup>a</sup>=Factor 1; <sup>b</sup>=Factor 2; <sup>c</sup>=Factor 3; <sup>d</sup>=Total.

## Results

Of the counselors responding, 51 percent (42) were females and 49 percent (40) were males. The largest ethnic group was reported as being white (83%). Approximately 21 percent and 45 percent of the counselors indicated that they had some past course work and/or related work experience in agriculture, respectively. Of the 1,041 high school juniors who completed the survey, 54 percent (562) were females and 46 percent (479) were males. Seventy-nine percent of the juniors were white. A small percentage of juniors indicated that they had taken a course in agriculture. In response to "future educational plans," 83 percent planned to continue their education beyond high school before taking a job. A total of 712 parents responded to the survey. Fifty one percent (51%) were males and 49 percent (351) were females. White parents comprised the largest ethnic group (80%). Parents listed their occupations as agricultural (11%), professional (28%), clerical (23%), service (20%) and other (16%). Forty-eight percent of parents reported having only a high school diploma, and 41 percent held degrees beyond the high school level.

### Objective One

A MANOVA computed for the three beliefs subscales indicated overall effects were significant for group ( $p < .01$ ) and gender ( $p < .05$ ). Univariate analysis (ANOVA) showed that differences existed among each subscale for group and for gender in the "Agriculture as a Career" subscale ( $p < .01$ ). The overall group difference was explained by a significantly lower ( $p < .01$ ) student group mean ( $M=3.05$ ,  $SD=.68$ ), than reported for parents ( $M=3.30$ ,  $SD=.61$ ) and counselors ( $M=3.27$ ,  $SD=.45$ ). The overall gender difference was characterized by females ( $M=3.27$ ,  $SD=.45$ ) having significantly ( $p < .01$ ) higher means

than males ( $M=3.06$ ,  $SD=.44$ ) for the "Agriculture as a Career" subscale and also high means on the other subscales. On the other hand, male respondents' intentions to select agriculture ( $M=2.34$ ,  $SD=.62$ ) were found to be significantly ( $p<.05$ ) higher than were those for females ( $M=2.05$ ,  $SD=.75$ ).

Differences ( $p<.05$  and  $p<.01$ ) were also found among community type and the interaction within groups. Respondents from the large urban community type ( $M=3.34$ ,  $SD=.78$ ) held significantly ( $p<.05$ ) more favorable beliefs about agriculture as a career than did respondents from rural communities ( $M=3.15$ ,  $SD=.54$ ). The comparison of the community types and respondent group means revealed some notable differences among guidance counselors' in their beliefs and intentions. In the large urban type ( $M=3.69$ ,  $SD=.68$ ) counselors were found to have been the most positive in their beliefs, while their counterparts in the rural type had the least positive beliefs ( $M=2.83$ ,  $SD=.44$ ). On the other hand, respondents from rural communities ( $M=2.41$ ,  $SD=.83$ ) indicated more favorable intentions to select agriculture as a career choice ( $p<.05$ ) than did those of the small ( $M=2.15$ ,  $SD=.72$ ), medium ( $M=2.22$ ,  $SD=.79$ ), and large ( $M=2.02$ ,  $SD=.69$ ) urban community types.

The variable ethnicity was found not to be a significant factor in beliefs or intentions about agriculture as a career choice. Scores for both white and minority respondents were virtually alike.

Parents holding master's degrees had significantly ( $p<.05$ ) more positive beliefs and intentions about agriculture as a career choice than those parents without a college education.

Exposure to coursework in agriculture had a positive influence on students' beliefs about agriculture (Table 3). The twenty one percent ( $n=219$ ) of the juniors who responded to the survey as having taken agricultural coursework obtained a mean score of 3.18 ( $SD=.80$ ) as compared to a mean of 3.05 ( $SD=.61$ ) for those (79%) who had not taken previous coursework. This finding indicates a more favorable relationship ( $r=.30$ ;  $p<.01$ ) between coursework in agriculture and beliefs about agriculture. Responses to the Intentions scale indicated positive relationships among students ( $r=.30$ ;  $p<.01$ ), parents ( $r=.13$ ), and counselors ( $r=.30$ ;  $p<.01$ ) regarding the selection of agriculture as a career choice based on their exposure to coursework. Table 3 shows a more favorable attitude to select agriculture among those groups who had prior agricultural coursework.

### Objective Two

An ANOVA was conducted to determine if group differences existed among the mean beliefs and intentions scores of student, parent, and counselor groups. The results of the analysis for beliefs revealed overall group differences significant at the  $p<.01$  level. Further analysis using the Scheffe post-hoc procedure indicated that the student group mean ( $M=3.05$ ,  $SD=.68$ ) was significantly lower than those reported for the parent group ( $M=3.30$ ,  $SD=.61$ ) and the counselor group ( $M=3.19$ ,  $SD=.91$ ). The analysis conducted for group differences for the Intentions scale revealed significant differences among the student-parent groups and the counselor-parent groups. The Scheffe procedure conducted

on the scale indicated that the parent group mean (M=1.86, SD=.74) was significantly lower ( $p=.05$ ) than that reported for the student group (M=2.46, SD=.61). The parent group mean was also significantly lower than that for the counselor group (M=2.28, SD=1.01).

Table 3. Point-Biserial Relationship Between Previous Coursework in Agriculture and the Beliefs and Intention Scales

Type of Respondent	Beliefs About Agriculture Scale						
	Coursework in Agriculture			No Coursework in Agriculture			r
	N	Mean	SD	N	Mean	SD	
Juniors	219	3.18	.80	822	3.05	.61	.30**
Parents	548	3.31	.67	164	3.23	.74	.09
Counselors	17	3.04	.78	65	3.27	.73	-.20*

  

Type of Respondent	Intentions to Select Agriculture Scale						
	Coursework in Agriculture			No Coursework in Agriculture			r
	N	Mean	SD	N	Mean	SD	
Juniors	219	3.06	.80	822	2.03	.61	.30**
Parents	548	2.46	.67	164	2.33	.74	.13
Counselors	17	2.94	.78	65	2.50	.73	.30**

\* $p<.05$ ; \*\* $p<.01$ .

### Objective Three

Objective three was to determine if relationships exist between the beliefs by guidance counselors and students' parents and the students' decisions to select agriculture as a career choice. These relationships were tested by correlating the mean beliefs scores of parents and counselors with students' scores from the intentions scale. Significant relationships are presented in Table 4.

Table 4. Point-Biserial Correlations of Beliefs Scores for Parents and Counselors With the Intentions Score of Juniors.

Survey Scale		Correlated with Intentions Scale Juniors
Agriculture as a Career	Parents	.19*
	Counselors	.47**
Academic Preparation	Parents	.15*
	Counselors	.41**
Agriculture in Illinois	Parents	.15*
	Counselors	.28**
Beliefs About Agriculture	Parents	.18*
	Counselors	.63**

\* $p<.05$ ; \*\* $p<.01$ .

The Agriculture as a Career subscale revealed slightly positive correlations between parents' beliefs and juniors' intentions ( $r=.18$ ;  $p<.01$ ) and a moderately positive correlation between counselors' beliefs and students' intentions ( $r=.47$ ;  $p<.01$ ). These findings indicated that the belief structure of parents and counselors tended to be strongly associated with high school juniors; intention to select or not to select agriculture as one of their career choices. An especially strong relationship ( $r=.63$ ;  $p<.01$ ) was found between counselor beliefs and junior intentions in the analysis of the "Beliefs About Agriculture" scale.

### Implications

The results of this study have a number of implications for the profession. Principal among them are that better-educated parents and counselors in large urban communities are likely to be more receptive to students obtaining agricultural education than is commonly anticipated. The receptivity for agricultural education in larger urban areas in Illinois may reflect similar phenomena in other states, with clearer potential for reaching vast new client groups. Conversely, the relatively negative beliefs of counselors in rural schools, where agricultural education tends to be concentrated, is cause for concern. Are these beliefs associated with rural poverty, the image of agriculture, the degree to which agricultural education is perceived as "contemporary," or other variables?

Prior coursework in agriculture helps pave the way for students' decisions to study agriculture in college and/or pursue a career in agriculture. Efforts to expand agricultural literacy and agricultural science instruction to "nonvocational" student groups in all school districts could be a great investment in future decisions of students to increasingly become engaged in agricultural education and agriculture.

Finally, counselors and parents should be viewed as potential and actual allies of agricultural educators. Their influence on youth is enormous, and they are frequently more willing to support students' participation in agriculture than many believe. Closer collaboration with them is essential in effectively serving youth.

### Conclusions and Recommendations

Based on the findings the following conclusions were drawn:

The findings of this study suggest that groups with more positive beliefs and intentions toward agriculture are persons with formal education beyond high school, and residents of large urban communities. Beliefs and intentions of ethnic minorities were virtually the same as those of whites.

High school students who have taken coursework in agriculture expressed more favorable beliefs about agricultural careers and are more inclined to consider agriculture as an area of study than those students without such exposure.

Guidance counselors located in large urban communities expressed more favorable beliefs about agriculture as a career for their students than other counselors, parents, and students from other rural and urban community types. Large urban communities, therefore, may be a major potential growth area for agricultural education, contrary to conventional wisdom.

An important relationship exists between parents and counselors' beliefs about agriculture and high school juniors' intentions to select it as a possible career option. Stronger relationships were found between counselors' beliefs and juniors' intentions. Thus, counselors and parents play a vital role in educational and career plans of youth.

Based on the findings and conclusions, the following recommendations are offered:

Bolder efforts are needed to expand agricultural education for diverse urban audiences. Minority group members are as receptive as others and should be served with equal zeal.

Research is needed on the factors which contribute to relatively negative perceptions toward agriculture in rural areas, and whether these factors are manipulable. Rural poverty, the image of agriculture, and whether agricultural education curricula are seen as "contemporary" are possible factors deserving investigation.

Studies should be conducted to examine the dynamics and implications of favorable beliefs and intentions toward agriculture in large urban communities. Rural traditions, urban stereotypes, and conventional wisdom should be opened up to greater examination in the process.

Future studies should consider the theoretical framework provided by the Bentler and Speckart (1979) model, which added prior behaviors to the model formulated earlier by Fishbein and Ajzen (1975).

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