# Effects of a Recruitment Workshop on Selected Urban High School Students' Self-efficacy and Attitudes toward Agriculture as a Subject, College Major, and Career


## Abstract

*The purpose of this study was to determine if selected high school students' participation in a summer agricultural communications workshop affected their self-efficacy and attitudes toward agriculture as a subject, college major, and/or as a career. Data were gathered from an accessible population (N = 145), from which a purposive sample (n = 94) was derived. Data were collected with researcher-developed questionnaires, adapted from Mitchell's (1993) study of Ohio State University minority students' knowledge, perceptions, and career aspirations related to agriculture. Results indicated that urban students' pre-workshop attitudes were positive toward agriculture as a subject, college major, and as a career, but became significantly more positive after participation in the summer agricultural communications workshops. Students are more likely to study agriculture, pursue college majors in agriculture, and choose agricultural careers if they favorably viewed teachers' workshop participation and/or their friends successfully completing workshop tasks. Additional research should be conducted on the importance of teacher influence on a student's self-efficacy in agricultural science subjects. This study helped clarify the importance of self-efficacy as an influencing factor on urban minority students' attitudes toward agriculture as a subject, college major, and career choice.*

## Theoretical Framework

Agricultural programs need to recruit inner city and minority youth (Alston & Westbrook, 2006). "Attracting and retaining quality students in agricultural education remains one of the most difficult problems faced by the profession" (Myers, Breja, & Dyer, 2004, p. 18). Esters and Bowen (2004) suggested that "opportunities to maintain a pipeline of future agriculturalists will depend on the ability of secondary agricultural education programs to attract students from nontraditional backgrounds" (p. 25). Gainor (2006) noted that while studies on career self-efficacy have been conducted primarily with white middleclass students, more self-efficacy research is needed with other racial and ethnic minority groups. "The development of psychometrically sound instruments has led to increasing evidence of the utility of the concept of self-efficacy in understanding the career development process of a wide range of populations and groups" (Gainor, 2006, p. 163).

In a study of college freshman enrolled in agriculture studies at the University of Kentucky, Peiter, Coffey, Morgan, and Kantrovich (2004) found that 97% of those students were Caucasian (non-Hispanic) and slightly more than one third were from a farm. Only 15% were from metropolitan areas with populations over 100,000. Myers et al. (2004) used focus groups to identify recruitment issues ranging from teacher quality in agricultural education programs to the "farm" image still perceived by many students about agricultural education.

The theoretical framework for this study was based on the Social Cognitive Career Theory (SCCT) developed by Lent, Brown, and Hackett (1994, 2000). Lent et al. (1994) theorized that selecting a career field is molded by three cognitive functions: outcome expectancies, career interests, and career self-efficacy. Lent et al. (1994, 2000) believed that self-efficacy directly influences outcome expectancies and career interests. As a result, a

student's confidence in being able to successfully complete tasks for a particular career largely impacts his/her career decision-making processes. Berstein and Carayannis (2011) further expanded our understanding of the SCCT framework (Figure 1) by suggesting that "background contextual factors and learning experiences exert influence on self-efficacy and outcome expectation variables which then influence interests in career and academic pursuits" (p. 1130).

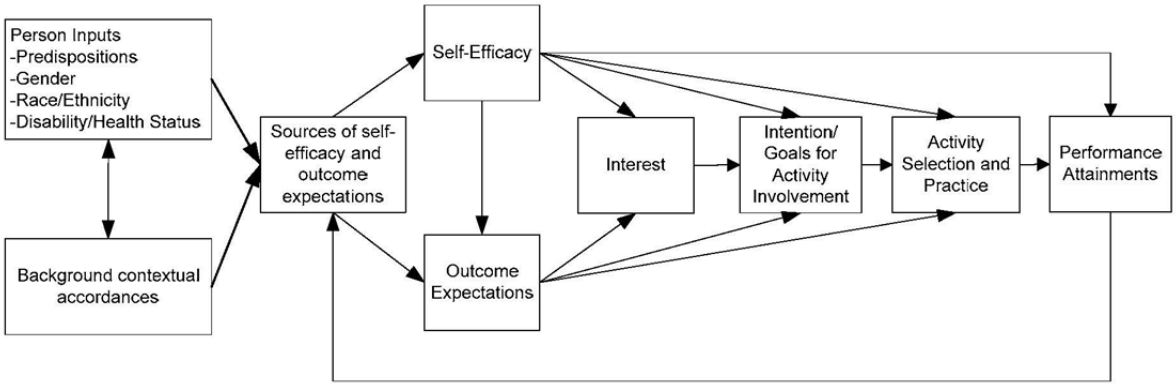


*Figure 1*. Social cognitive career theory. Adapted from "Exploring the Value Proposition of the Undergraduate Entrepreneurship Major and Elective Based on Student Self-Efficacy and Outcome Expectations," by A. Berstein and E. G. Carayannis, 2011, *Proceedings of the USASBE (United States Association for Small Business and Entrepreneurship)*, p. 1130.

The SCCT framework is derived out of the work of Bandura (1997), who defined self-efficacy theory as "…perceived self-efficacy refers to beliefs in one's capabilities to organize and execute the courses of action required to produce given attainments" (p. 3). Earlier, Bandura (1986) identified four factors that influence an individual's self-efficacy, namely verbal persuasion, vicarious learning, task performance, and physiological arousal. Of the four, Bandura (1986) believed the dominant factor was task performance. In this context, the actual performance of tasks pertinent to a particular career increases the subject's belief that he or she can succeed in that career. Positive beliefs lead to career interests and outcomes during the

decision process. Esters (2008) posited that individuals engaged in activities during career exploration help them gather relevant information that influenced their career choices.

Bandura (2002) also theorized that observational learning, that is, seeing peers complete a task, would lead to a stronger level of self-efficacy than would seeing others, such as professionals, complete the task. Schunk and Hanson (1985) demonstrated observational learning in a study of second-grade students. One group of students watched a teacher successfully performing subtraction, while another group watched other second graders completing the same task. Both groups then received a lesson on subtraction. The students who observed their peers successfully completing the problems scored higher on the follow-up subtraction test, and also indicated that they had greater confidence in their ability to complete subtraction problems than did the group that observed the teacher.

Tang, Pan, and Newmeyer (2008) suggested the SCCT framework was helpful in explaining students' career choices because of the interrelationships between self-efficacy, learning experiences, career interests, and other influencing factors. Concerning career development, self-efficacy has been applied successfully to vocational choice, career decision making, and career indecision (Hackett, 1995). Esters (2008) suggested that due to the declining number of students enrolled in agricultural-related programs, career exploration could be addressed through career development courses and career development activities. As such, students could make thoughtful career choices through career exploration activities.

To aid our understanding of career exploration, Myers et al. (2004) discovered an important component for agricultural education program recruitment by identifying the need for public relations programs. Public relations campaigns can be translated into workshop formats that attract students to agricultural education programs. Myers et al. noted that public relations

programs could be used to convey positive images of scientific and technical agriculture to prospective students. Myers et al. addressed the importance of public relations programs to support the efforts of workshop participation, influencing students' perceptions of agriculture as a college major or career after participation. For example, students were more likely to see themselves as competent in completing career tasks, and therefore expect future positive performance outcomes, if they had initial positive performance experiences (Paivandy, 2008). Esters and Bowen (2004) found that former high school students believed that recruitment activities, such as summer programs, were influential in their secondary education and career decisions. Esters and Bowen (2005) also found that "career opportunities, high school educational experiences, and work experiences" (p. 31) influenced high schoolers' future career choices.

[State] University, in collaboration with [State] University and [State] College, acquired USDA funding from to conduct innovative recruitment workshops from summer 2007 to 2009 in Houston, San Antonio, El Paso, Atlanta, and Chicago. The summer workshops (*Big City, Big Country Road Show*, a.k.a. BC2BC) were considered innovative because they had an agricultural communications foci in crisis communication, leadership, photography, writing, video production, and Website design to broaden students' views of agricultural careers, rather than relying on traditional formats, such as livestock exhibits and food demonstrations. These workshops emphasized an urban student's relationship with agriculture through the basic necessities of life: food, water, clothing, and shelter.

Based on the SCCT framework, the BC2BC program engaged urban students in hands-on activities with their peers through agricultural communications experiences that would increase their agricultural literacy and awareness of agricultural careers. Previous research has focused

on recruitment of non-underrepresented populations (Gainor, 2006; Peiter et al., 2004). Some studies have focused on the importance of recruitment influencers (Esters, 2008; Esters & Bowen, 2005; Myers et al., 2004; Paivandy, 2008), but few have focused primarily on the importance of recruitment workshops. Thus, this study contributes to our understanding of selected urban high school students' perceived self-efficacy in agricultural communications careers after participating in summer recruitment workshops.

## Purpose and Objectives

The purpose of this study was to determine if selected urban high school students' participation in summer agricultural communications workshops affected their perceptions of agriculture as a subject, a college major, and/or as a career. The objectives were to

1. Describe students' attitudes toward agriculture as a subject.
2. Describe students' attitudes toward agriculture as a college major.
3. Describe students' attitudes toward agriculture as a career.
4. Determine if significant differences existed between students' pre- and post-workshop participation attitudes toward agriculture.

## Methods

Selected methods used to report the results in this paper were part of a larger research project (*Big City, Big Country Road Show: Recruiting non-traditional and underrepresented students into the food and agricultural sciences workforce*). Similar descriptions of the methods and demographics exist for the larger project (Authors, 2007), but are described fully herein. Descriptive survey methods, using Web-based data collection methods (Authors, 2002), were used to conduct this study. Approval to carry out this research was obtained from the [State] University Institutional Review Board.

The population included all urban high school students (grades 9 to 12) who were considered a part of the underrepresented populations in agriculture and who lived in San Antonio and Houston ($N$ = 55,264) during summer 2007; El Paso, Atlanta, and Chicago ($N$ = 121,863) during summer 2008; and San Antonio ($N$ = 17,792) during summer 2009. Project directors used a USDA definition of underrepresented (USDA-Grants-MSP FAQs, n.d.) populations, which included Hispanic and African American students. School districts in Houston (593% Hispanic, 292% African American), San Antonio (88% Hispanic, 9% African American), El Paso (79% Hispanic, 5% African American), Atlanta (4% Hispanic, 86% African American), and Chicago (39% Hispanic, 47% African American) were selected because of their high enrollments of underrepresented populations in agriculture.

Participants were recruited through promotional materials mailed to more than 500 high school administrators, counselors, and teachers in Houston, San Antonio, El Paso, Atlanta, and Chicago. Two teachers from each city were selected to serve as workshop recruiters for their individual schools. Selected teachers taught core-curriculum classes in mathematics and science. By using core-curriculum teachers, the BC2BC project directors were able to contact students from a broad range of backgrounds and interests.

Students identified by teacher recruiters completed online applications. Students' demographic and personal information were collected on the online applications only. Not having demographic questions on the research instrument itself increased research participants' trust levels, as described by social exchange theory (Dillman, 2007). Each applicant received a unique code at the time of his/her online application. Codes were used to identify participants' pre- and post-responses to increase confidentiality. BC2BC administrators reviewed all student applications. Student selection criteria included grade level and interest in the BC2BC program.

The recruitment process produced an accessible population ($N$ = 145) in Houston, San Antonio, El Paso, Atlanta, and Chicago, from which a purposive sample ($n$ = 94) was derived. Of the 94 students selected to participate in the summer workshops, 30 did not complete all research elements in the BC2BC program, resulting in experimental mortality. Gall, Gall, and Borg (2007) defined experimental mortality as "losing research participants during an experiment because participants dropped out, missed pre- or post-testing, or were absent from one or more sessions" (p. 386). The final sample included 64 program completers for a response rate of 68%. Caution is warranted when attempting to generalize the results of this study to any other population of interest.

Data were collected using researcher-developed questionnaires adapted from Mitchell's (1993) study to measure Ohio State University minority students' knowledge, perceptions, and career aspirations related to agriculture. [State] University and [State] University faculty members participating in the BC2BC program evaluated the instrument for face and content validity.

Perceptions of agriculture as a subject, college major, and/or career were measured individually with similar five-point, Likert-type scales. Each section contained a series of 15 statements to quantify students' perceptions of agriculture. The first section measured attitudes toward agriculture as a subject. Example statements included: (a) *I enjoy studying subjects related to food production,* (b) *I enjoy learning about agriculture because it affects all industries,* and (c) *I do not have to learn about agriculture to be a success professionally.* Response choices for the Likert-type scale were *1 = Strongly Disagree, 2 = Disagree, 3 = Neither Agree or Disagree, 4 = Agree,* and *5 = Strongly Agree.*

The second section measured attitudes toward agriculture as a college major. Example statements included: (a) *I can work in a variety of fields with a degree in agriculture,* (b) *I do not want to major in agriculture because I have no interest in farming,* and (c) *I want to major in agriculture because it would be challenging.* Response choices for the Likert-type scale were the same as in the first section.

The third section measured attitudes toward agriculture as a career. Example statements included: (a) *I want a career in agriculture because it will be exciting,* (b) *I do not want a career in agriculture because I find it boring,* and (c) *A career in agriculture would be a waste of my talents.* Response choices for the Likert-type scale were the same as in the first section.

Scores for each attitudinal scale were summed to compare students' overall pre- and post-workshop perceptions of agriculture as a subject, college major, and career. Table 1 shows pre- and post-test attitudinal scale reliabilities. All attitudinal scales were found to be reliable using Cronbach's (1951) alpha coefficients. Tuckman (1999) reported that "observational reliabilities should be at .75 or above . . . and .50 or above for attitude tests" (p. 445).

Table 1

*Cronbach's Alpha Coefficients for Attitudinal Scales*

| Attitudinal Scale | Pre-test | Post-test |
|---|---|---|
| Agriculture as a Subject | .84 | .85 |
| Agriculture as a College Major | .85 | .87 |
| Agriculture as a Career | .77 | .84 |

The instrument was administered twice. A pre-test was administered via e-mail prior to participants' completion of online instructional modules. Workshop participants were sent

personalized e-mails with the study's purpose, a survey hyperlink, and each participant's unique code for entering the online survey. Students completed the pre-test from one to two weeks in advance of the face-to-face agricultural communications workshop. The post-test, which was identical to the pre-test, was administered online at the conclusion of the workshop. Again, each participant was given his/her unique code to enter the online survey. Time between response sets ranged from 14 to 28 days. Four participants were absent during the post-test administration and despite repeated follow-up reminders, did not complete the survey; those participants' pre-test responses were excluded from analyses. Findings of the study are representative of the respondent group ($n = 64$). Although some broader implications exist, caution is warranted against generalizing the results of this study beyond the respondent group.

Data were analyzed using descriptive statistics. Participants' pre- and post-workshop attitudes toward agriculture as a subject, college major, and career were analyzed using paired sample *t*-tests; a significance level of $\alpha = .05$ was established *a priori*.

## Results

Respondents were inner-city high school students ($n = 64$) from Houston, San Antonio, El Paso, Atlanta, and Chicago. Participants' ages ranged from 14 ($n = 4$) to 18 ($n = 1$) with an overall average of 15.92 ($SD = 1.01$) years. The majority of participants were Hispanic ($n = 46$), female ($n = 42$), and most ($n = 27$) participated in 2007 when they were sophomores or juniors ($n = 46$) at the time of their workshop (Table 2).

Table 2

*Participants' Demographic Profiles (n = 64)*

| Variable | Sub-group | *f* | % |
|---|---|---|---|
| Year | 2007 | 27 | 42.2 |

| | | | |
|---|---|---|---|
| | 2008 | 24 | 37.5 |
| | 2009 | 13 | 20.3 |
| Age | 14 | 4 | 6.3 |
| | 15 | 22 | 34.4 |
| | 16 | 14 | 21.9 |
| | 17 | 23 | 35.9 |
| | 18 | 1 | 1.6 |
| Race | Hispanic | 46 | 71.9 |
| | Black | 12 | 18.8 |
| | White | 5 | 7.8 |
| | Asian | 1 | 1.6 |
| Gender | Female | 42 | 65.6 |
| | Male | 22 | 34.4 |
| Grade | 9th | 17 | 26.6 |
| | 10th | 20 | 31.3 |
| | 11th | 26 | 40.6 |
| | 12th | 1 | 1.6 |

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Researchers were interested in learning if the agricultural communications workshops affected urban high school students' perceptions of agriculture as a subject. Three separate subscales were used to measure students' attitudes toward agriculture as a subject, college major, and career choice. Some statements in each subscale were negatively worded to avoid patterned responses.

In measuring students' attitudes toward agriculture as a subject, nearly all statements had shifts, from pre- to post-test administration, for more positive attitudes toward agriculture as a subject (Table 3). Statements in Table 3 are ordered by descending post-workshop mean scores.

Table 3

*Students' Attitudes toward Agriculture as a Subject (n = 64)*

| | Pre-workshop | | Post-workshop | |
|---|---|---|---|---|
| Statements | *M* [a] | *SD* | *M* [a] | *SD* |
| Everyone, including myself, should learn where their food and clothing come from. | 3.98 | .92 | 4.33 | .71 |
| I enjoy learning about agriculture because it has an effect on all industries. | 3.63 | .89 | 4.15 | .88 |
| I feel confident I can contribute to a conversation about agriculture. | 3.41 | .85 | 4.03 | .92 |
| I have pursued information pertaining to agriculture. | 3.19 | 1.13 | 3.98 | .98 |
| I enjoy learning more about agriculture through the media. | 3.81 | .87 | 3.93 | .98 |
| Studying agriculture is important in order to have a well-rounded education. | 3.60 | .81 | 3.92 | .91 |
| I would like to see more coverage of agriculture in the media. | 3.83 | .77 | 3.90 | .94 |

| | | | | |
|---|---|---|---|---|
| I enjoy studying subjects related to food production. | 3.50 | 1.04 | 3.78 | .88 |
| I would enjoy participating in an agricultural organization like FFA or 4-H. | 3.56 | .96 | 3.75 | 1.00 |
| I have an interest in learning more about livestock. | 3.17 | 1.15 | 3.32 | 1.03 |
| I do not have to learn about agriculture to be a success professionally.[b] | 2.72 | 1.12 | 2.62 | 1.22 |
| I have not taken an interest in studying agriculture because my school does not offer courses in it.[b] | 2.30 | 1.26 | 2.50 | 1.28 |
| I find learning about agriculture boring because I am not interested in soil science.[b] | 2.14 | 1.02 | 2.08 | 1.17 |
| I find learning about agriculture boring because I am not interested in animal production.[b] | 2.22 | 1.15 | 1.97 | 1.17 |
| I do not enjoy learning about agriculture because my friends do not find it interesting.[b] | 1.86 | .93 | 1.70 | .93 |

*Note*. [a] All items measured on 5-point Likert-type scale: *1 = Strongly Disagree, 2 = Disagree, 3 = Neither Agree or Disagree, 4 = Agree,* and *5 = Strongly Agree*. [b] Reverse coded statement.

In similar fashion, researchers were interested in knowing if the agricultural communications workshops affected urban high school students' perceptions of agriculture as a college major. Table 4 shows that respondents did not strongly agree ($M$ = 4. 51-5. 00) or strongly disagree ($M$ = 1. 00-1. 50) with any of the 15 attitudinal statements in the pre- or post-workshop surveys. Students' responses for five statements shifted from neutral (neither agree nor disagree; $M$ = 2. 51-3. 50) to more positive ($M$ = 3. 51-4. 50) attitudes toward agriculture as a

college major after the workshop. “Majoring in agriculture will limit the type of careers I can pursue” shifted from a neutral (*M* = 2.64, *SD* = 1. 13) to a more positive (*M* = 2.08, *SD* = 1.19) attitude; the shift is positive because the statement was negatively worded. Students’ perceptions about their “teachers’ encouragement to major in agriculture” became more positive (*M* = 3.74, *SD* = 1.19) after the workshop experience. Statements in Table 4 are ordered by descending post-workshop mean scores.

Table 4

*Students’ Attitudes toward Agriculture as a College Major (n = 64)*

| | Pre-workshop | | Post-workshop | |
|---|---|---|---|---|
| Statements | *M* [a] | *SD* | *M* [a] | *SD* |
| I can learn a variety of skills by majoring in agriculture. | 4.20 | .89 | 4.52 | .72 |
| My parents would approve of me majoring in agriculture. | 4.28 | .79 | 4.48 | .70 |
| I can work in a variety of fields with a degree in agriculture. | 4.03 | .80 | 4.45 | .72 |
| There are a variety of majors for me to choose from within a college of agriculture. | 3.91 | .83 | 4.38 | .85 |
| Majoring in agriculture would be very valuable to my future. | 3.54 | .96 | 4.12 | .88 |
| A degree in agriculture would allow me to work with biotechnology. | 3.41 | .87 | 3.87 | .93 |
| I want to major in agriculture because I find it interesting. | 3.19 | 1.01 | 3.73 | .90 |
| I want to major in agriculture because it would be challenging. | 3.34 | .93 | 3.67 | .90 |
| Teachers have encouraged me to major in agriculture. | 2.89 | 1.22 | 3.47 | 1.19 |
| My friends would consider it worthwhile for me to major in agriculture. | 2.95 | 1.08 | 3.45 | 1.02 |

| | | | | |
|---|---|---|---|---|
| I want to major in agriculture so I can get a high-paying job. | 3.37 | 1.05 | 3.45 | 1.06 |
| Counselors have encouraged me to major in agriculture. | 2.72 | 1.28 | 2.90 | 1.23 |
| I do not want to major in agriculture because I have no interest in farming.[b] | 2.45 | 1.15 | 2.30 | 1.17 |
| I do not want to major in agriculture because I have no interest in ranching.[b] | 2.48 | 1.20 | 2.17 | 1.09 |
| Majoring in agriculture will limit the type of careers I can pursue.[b] | 2.64 | 1.13 | 2.08 | 1.29 |

*Note*. [a] All items measured on 5-point Likert-type scale: *1 = Strongly Disagree, 2 = Disagree, 3 = Neither Agree or Disagree, 4 = Agree,* and *5 = Strongly Agree*. [b] Reverse coded statement.

Finally, the researchers wanted to learn if the agricultural communications workshops affected urban high school students' perceptions of agriculture as a career. The statements measuring students' attitudes towards agriculture as a career are listed in Table 5, in descending order of post-workshop mean scores. Again, results indicated that attitudes were positive towards careers in agriculture, and tended to become more positive after participation in the summer workshops.

Table 5

*Students' Attitudes toward Agriculture as a Career (n = 64)*

| | Pre-workshop | | Post-workshop | |
|---|---|---|---|---|
| Statements | *M* [a] | *SD* | *M* [a] | *SD* |
| I would feel comfortable telling people I work in agriculture. | 4.02 | .98 | 4.48 | .72 |
| A career in agriculture would allow me to advance to higher | 3.80 | 1.03 | 4.28 | .85 |

| | | | | |
|---|---|---|---|---|
| positions. | | | | |
| An understanding of agriculture would be beneficial in any career. | 3.73 | 1.08 | 4.20 | .86 |
| By working in agriculture, I will be using the latest technologies | 3.70 | .95 | 4.15 | .84 |
| I admire people who work in agriculture. | 3.52 | .96 | 4.15 | .78 |
| In order to work in agriculture, I will need a college degree. | 3.58 | 1.02 | 3.95 | 1.02 |
| I want a career in agriculture because it will be exciting. | 3.39 | .90 | 3.92 | .96 |
| I want a career in agriculture so I can make good money. | 3.45 | .97 | 3.58 | 1.05 |
| If I work in agriculture, I would be involved in farming. | 2.67 | 1.05 | 2.93 | 1.31 |
| If I work in agriculture, I would be involved in ranching. | 2.78 | 1.11 | 2.90 | 1.26 |
| A career in agriculture would be unfulfilling for me.[b] | 2.42 | 1.05 | 2.23 | 1.14 |
| I do not want to work in agriculture because I find it boring.[b] | 2.08 | 1.10 | 1.95 | 1.11 |
| A career in agriculture would be a waste of my talents.[b] | 2.00 | 1.08 | 1.73 | 1.06 |
| I do not want to work in agriculture because I would get dirty.[b] | 1.83 | .98 | 1.68 | .95 |
| My family would not approve of me having a career in agriculture.[b] | 1.58 | .87 | 1.61 | .98 |

*Note*. [a] All items measured on 5-point Likert-type scale: *1 = Strongly Disagree, 2 = Disagree, 3 = Neither Agree or Disagree, 4 = Agree,* and *5 = Strongly Agree*. [b] Reverse coded statement.

Students' scores from each subscale measuring their attitudes toward agriculture as a subject, college major, and career were analyzed to determine if significant differences existed between pre- and post-workshop participation. Paired samples *t*-test showed there was a

statistically significant difference, $t(59) = -3.12$, $p<.05$, between students' attitudes toward "Agriculture as a Subject" before ($M = 46.68$, $SD = 5.33$) and after ($M = 49.80$, $SD = 5.63$) the summer workshops (Table 6). A medium positive effect ($d = .57$) size was detected (Cohen, 1988). According to Cohen, this effect size represents a nonoverlap of approximately 33% of the pre- and post-test distributions.

A statistically significant difference, $t(59) = -3.85$, $p<.05$, existed between students' attitudes toward "Agriculture as a College Major" before ($M = 49.07$, SD = 5.41) and after ($M = 52.92$, $SD = 6.27$) the summer workshops (Table 6). A medium positive effect ($d = .66$) size was detected. According to Cohen, this effect size represents a nonoverlap of approximately 38.2% of the pre- and post-test distributions.

Finally, a statistically significant difference, $t(59) = -3.28$, $p<.05$, existed between students' attitudes toward "Agriculture as a Career" before ($M = 44.37$, $SD = 4.34$) and after ($M = 47.65$, $SD = 4.78$) the summer workshops (Table 6). A medium positive effect ($d = .72$) size was detected. According to Cohen, this effect size represents a nonoverlap of approximately 43% of the pre- and post-test distributions.

Table 6

*Paired Samples t-Test for Students' Pre- and Post-Workshop Participation Attitudes toward Agriculture as a Subject, Major, and Career (n = 60)*

| Pairs | | *M* | *SD* | Paired Differences *M* | Paired Differences *SD* | *t* | df | *p* |
|---|---|---|---|---|---|---|---|---|
| 1 | Pre- Agriculture as a Subject - | 46.68 | 5.33 | -3.12 | 6.41 | -3.76* | 59 | .00 |
| | Post- Agriculture as a Subject | 49.80 | 5.63 | | | | | |
| 2 | Pre- Agriculture as a Major- | 49.07 | 5.41 | -3.85 | 5.14 | -5.80* | 59 | .00 |
| | Post- Agriculture as a Major | 52.92 | 6.27 | | | | | |
| 3 | Pre- Agriculture as a Career - | 44.37 | 4.34 | -3.28 | 5.41 | -4.70* | 59 | .00 |
| | Post- Agriculture as a Career | 47.65 | 4.78 | | | | | |

*$p < .05$.

## Conclusions and Recommendations

Attracting urban, underrepresented populations to college majors and careers in agriculture remains a difficult situation for colleges of agriculture and agricultural professionals. Much of the research has focused on recruiting general populations of students to the profession and students' attitudes toward majors and careers in agriculture. This study supported findings of previous studies, but also focused on identifying underrepresented minority students' self-efficacy and attitudes toward agriculture as a subject, college major, and career as a result of their participation in an agricultural communications workshop.

Based on the data, respondents' statistically significant gains in positive attitudes following the summer workshops indicated that the workshops favorably influenced

respondents' attitudes toward agriculture as a subject, college major, and career choice. The results for specific statements related to friends' attitudes and teachers' influences on agriculture as a college major were congruent with the results from other studies (Bandura, 2002; Schunk & Hanson, 1985). Students are more likely to study agriculture, pursue college majors in the agricultural sciences, and choose agricultural careers if they favorably viewed teachers' workshop participation and/or their friends successfully completing workshop tasks. Teachers, friends, and parents are likely influencers on students' choices for college majors. Additional research should be conducted on the importance of teacher influence on a student's self-efficacy in agricultural science subjects. It is recommended that workshop organizers incorporate more local teachers as positive influencers in future summer workshops. Future workshops should include small group activities where students can view their teachers' and friends' completion of group activities (consistent with observational learning techniques, as found by Schunk & Hanson, 1985) to reinforce learned material.

Underrepresented minority students held generally favorable attitudes toward agriculture as a career, and but made significant increases in favorable attitudes toward agriculture as a career after participation in the agricultural communications workshops. Previous research indicated that significant increases were to be expected. Esters (2008) noted that career exploration could be addressed through career development courses and career development activities. Tang et al. (2008) suggested that the Social Cognitive Career Theory was helpful in explaining students' career choices because of the interrelationships between self-efficacy, learning experiences, career interests, and other influencing factors. Students responded positively toward agriculture as a career, which was a result of program participation. Their self-efficacy about pursuing careers in agriculture was heightened, supporting the theoretical

framework (the Social Cognitive Career Theory developed by Lent et al., 1994) that guided this study. It is recommended that future workshops continue to provide various hands-on applications allowing minority students to increase self-efficacy through career interest and exploration. An important concept to include in future workshops is an understanding that self-efficacy benefits can be gained when students watch their peers successfully complete tasks; each student does not have to perform every workshop task to benefit from its actual completion.

This study helped clarify the importance of self-efficacy as an influencing factor on urban minority students' attitudes toward agriculture as a subject, college major, and career choice. However, care must be taken in extrapolating the results of this study to other populations. Therefore, additional research should be conducted to determine the influence of self-efficacy with other urban underrepresented populations in the food and agricultural sciences.

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