

**The Effect of an Agricultural Communications Workshop  
on Urban High School Student Career-related Self-efficacy Levels**

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## **The Effect of an Agricultural Communications Workshop on Urban High School Student Career-related Self-efficacy Levels**

### **Abstract**

The agriculture industry is facing a need for qualified workers during a time when many colleges of agriculture are experiencing declining enrollments. The purpose of this study was to document potential changes in self-efficacy towards specific communications tasks and potential college obstacles as a result of participating in an agricultural communications related workshop. During the five-day workshop program, student received instruction and experiences in agriculture and communications careers, risk and crisis communications, photography, video production, news writing, and web design. The workshop was conducted in three cities across the nation during the summer of 2008. In one location students had received formal secondary-level agriculture instruction while students at two other locations had not been exposed to agriculture and related careers through a structured school program. In the two locations without an agriculture program, students were recruited to the workshop through the cooperation of local science teachers. The results indicate that the workshops were most effective at increasing self-efficacy for the two sites that featured non-agricultural students, while the workshop for the agricultural students saw many areas of self-efficacy actually decline. Among the recommendations was for future workshops that serve as an introduction to agricultural communications to be conducted for students who weren't already involved in agriculture. While urban agricultural programs should still be further developed as a permanent means of increasing minority involvement in agriculture, the possibility of recruiting agricultural communications students through science programs may prove to be a viable solution to resolving industry employment needs.

**Keywords:** self efficacy, agriculture, agricultural communications, college recruitment, urban students

# **The Effect of an Agricultural Communications Workshop on Urban High School Student Career-related Self-efficacy Levels**

## **Introduction**

The agriculture industry is facing a need for qualified workers while Colleges of Agriculture (COAs) are awarding less degrees at the baccalaureate level (Goecker, Gilmore, Smith, & Smith, 2005; U.S. Department of Education, 2007). A possible reason for this decline may be COAs' historical and steadfast reliance on the rural, white populations for their recruiting base during a time when national rural populations are dwindling (Department of Economic and Social Affairs Population Division, 2002). Further, state and national demographics are also shifting away from a White majority population including states such as Texas and California, which have both experienced a shift to a minority majority. (Brady, Hout, Stiles, Gleeson, & Hui, 2005; Caldwell, 2005)

Increasingly, COAs have begun to explore alternatives to their traditional recruiting base. Esters (2007) suggested that urban agriculture education programs are a good source for COAs to increase diversity. Russell (1993) suggested that COAs focus recruiting efforts on students in 4-H and FFA because they are receiving a positive perspective of agriculture through their participation. But until formal agriculture instruction can be established in urban secondary schools and programs, innovative efforts are needed to recruit urban students who don't have access or exposure to agriculture and its career possibilities. Williams (2007) recommended that "opportunities should be explored that might increase numbers of students who are female, from ethnic minorities, non-traditional age groups, and who are from out-of-state," (p. 110) and that current programs should be improved and new programs be developed that introduce students of all age groups to expose them to more majors and careers in agriculture.

A specific area of recruitment research that has seldom been examined is the area self-efficacy and its effect on whether a student will consider pursuing an agriculture-related major and eventual career. Designing workshops for students that could increase their confidence in completing an agriculture-related degree may be the type of innovative workshop called for by Williams. Research has shown that workshops with agriculture and biotechnology content could have sustained results when taught by individuals with expertise (Fritz, Ward, Byrne, Namuth, & Egger, 2005; Wiley, Bowen, Bowen, & Heinsohn, 1997). However, it is uncertain if these same results can be realized for a workshop focused on agricultural communications. Research needs to be done to assess what effects a workshop intervention that introduces participants to agricultural communications has on urban, minority students in terms of self-efficacy toward specific tasks in communications and towards overcoming obstacles in pursuing an agricultural communications degree.

### **Related Literature**

#### *Self Efficacy*

Bandura (2006) stated that self-efficacy affects behavior directly and indirectly from its effects on goals, outcome expectation, and perception of obstacles and opportunities. This helps explain Compeau and Higgins' (1995) observation that use and enjoyment of computers was higher and anxiety was lower with those who had high self-efficacy toward using computers than those with low self-efficacy. Bednar and Petersen (1995) suggested that those who anticipate success are more likely to persevere through obstacles and therefore were also more likely to be successful in their task.

Esters and Knobloch (2007) concluded, "self-efficacy and outcome expectations were strong predictors of interest and intentions to pursue careers in agriculture" (p. 729). Degenhart

et al. (2006) also found that self-efficacy affected career interest in science, technology, engineering, and mathematics for middle school students. When the results by Degenhart, Wingenbach, Mowen, Lindner, and Johnson (2008) that interest affects attitude is considered with the results by Atwater, Wiggins, and Gardner (1995) that attitude affects career choice, the idea that self-efficacy can affect career choice can be logically concluded.

Lent, Hackett, and Brown (1999) found that the best avenue for increasing self-efficacy was personal experiences. The researchers concluded that students who received the most benefit from a self-efficacy intervention were those lacked self-efficacy but still had the required skills to complete the task. The researchers went on to state that as experience shapes self-efficacy, interest becomes more stable.

McGuire (1968) suggested that it's easier to adjust the attitude of subjects with intermediate levels of self-esteem, which is consisted partly of self-efficacy. Individuals with low self-esteem would suffer too much anxiety to intake the message while those with high self-esteem would be more confident in their views and less susceptible to change. It has also been suggested that individuals are more likely to take in a message and experience a lasting change if they are motivated to do so (Griffin, Neuwirth, Giese, & Dunwoody, 2002).

#### *Workshop Effects*

Krumboltz and Worthington (1999) suggested creating well designed, simulated occupational experiences for students to increase their interest in specific areas. Fritz et al. (2004) found that professionals who communicated biotechnology showed positive information gains one year after a workshop was conducted by university faculty with expertise in biotechnology. Similarly, Wiley et al. (1997) found that students who participated in a summer

food and agricultural sciences workshop maintained positive attitude changes one year after the workshop.

### *Minority Recruitment in Agriculture*

Boumtje and Haase-Wittler (2007) suggested that minority students need to be made aware of the opportunities available in agriculture so that they can make career decisions based upon their own interests and not those of others. Newsom-Stewart and Sutphin (1994) stated that interventions were necessary to improve minority perceptions of agriculture. Workshops could serve this purpose. But the workshops also need to be conducted in an effective, ethical manner. Smith, Park, and Sutton (2007) stated that promotion should be sought for more accurate representations of the agriculture industry rather than the typical cows, sows, and plows picture. Though researchers found that students felt that agriculture was important (Holz-Clause & Jost, 1995; Newsom-Stewart & Sutphin, 1994), the researchers also found that students tended to hold those same stereotypes and were also not interested in agriculture as a career. Russell (1993) similarly indicated that agriculture needed to be shown in a positive light in order to increase the number of students in 4-H and FFA. Holz-Clause and Jost (1995) found that students, urban and rural alike, held stereotypical views of farmers and of agriculture only being about manual labor.

### **Purpose and Objectives**

The purpose of this study is to document levels of self-efficacy toward overcoming obstacles for pursuing an agricultural communications degree and toward specific tasks in communications for 2008 participants of a workshop in agricultural communications before and after the workshop. Specifically, the objectives of this study are

1. Describe levels of self-efficacy toward agricultural communications tasks and obstacles for completing an agricultural communications degree for workshop participants before and after the intervention.
2. Describe the changes in level of self-efficacy for workshop participants.

### **Methods and Procedures**

This study consisted of pre- and post-workshop evaluations of self-efficacy levels for participants of a five-day agricultural communications workshop in risk/crisis communications, photography, video, Web design, and news writing. The workshop also included three related tours per site to provide an experiential component to the content as well as an opportunity for career exploration.

The population for this study consisted of all workshop participants with the exception of one who started the workshop but left prior to its conclusion ( $N = 24$ ). Workshop participants were 44% Hispanic, 36% African-American, 16% White, and 4% Native American.

The instrument for this study was adapted from the one used by Compeau and Higgins (1995) to assess computer-use self-efficacy and was modified using suggestions from Bandura (2006). The scale ranged from 1 = "Cannot do it at all" to 10 = "Highly certain that I can do it."

Reliability was assessed *post hoc* by calculating Cronbach's alpha for each self-efficacy section of the instrument. The reliability scores were as follows: 0.89 for the pre-workshop assessment of self-efficacy toward specific tasks, 0.86 for the pre-workshop assessment of self-efficacy toward overcoming obstacles, 0.86 for the post-workshop assessment of self-efficacy toward specific tasks, and 0.84 for the post-workshop assessment of self-efficacy toward overcoming obstacles. By adhering to recommendations made by Bandura (2006) and basing the instrument on the one used to assess computer self-efficacy by Compeau and Higgins (1995), as

well as having faculty from an agricultural education and communications department review the instrument, content and face validity were established.

The study was carried out during three separate workshops conducted in the summer of 2008. Sites 1 and 2 were comprised of urban students who had little-to-no direct experience with agriculture. Site 3 was comprised of urban students who attended an agricultural magnet school and were all members of FFA. Data was collected for the pre-workshop evaluation before participants began the first lesson of their respective weeklong workshop. The post-workshop data was collected on the final day of the workshop. Online questionnaires were used for both data collections.

SPSS 16.0 for Windows was used to analyze the data with frequencies and measures of central tendency. Microsoft Office Excel 2007 was used to analyze the change in means between assessments.

## **Results/Findings**

### *Self-efficacy Towards Specific Tasks – Combined Results*

In reporting the results from the 10-point self-efficacy scale from the combined three sites (Table 1), several items were rated in the top quartile of the scale. The highest levels of pre-workshop self-efficacy toward tasks belonged to photographing agriculturally related people, places, or events ( $M = 8.6$ ); completing a news story ( $M = 8.1$ ); filming agriculturally related people, places, or events ( $M = 8.0$ ); understanding who the audience is ( $M = 8.0$ ); and assessing who was most at risk during a risk/crisis situation ( $M = 8.0$ ). The lowest levels of self-efficacy pre-workshop toward tasks were creating a Web site that incorporated photos/videos and computer-generated images ( $M = 7.0$ ), constructing a Web site ( $M = 7.4$ ), and interviewing at least 10 people for a news story about water shortages ( $M = 7.4$ ).

Table 1

*Measures of Central Tendency for Self-efficacy Toward Tasks for All Participants from the Combined Locations (N = 24)*

Task	Mean		Median		Mode		SD	
	pre	post	pre	post	pre	post	pre	post
Photoshop	7.6	7.9	8.0	8.0	10	10	2.0	2.2
Completing news story	8.1	8.0	9.0	9.0	10	10	2.2	2.4
Ag-related	7.5	8.1	7.5	9.0	10	10	2.3	2.1
Constructing Web site	7.4	6.8	8.0	7.0	10	<sup>a</sup>	2.5	2.8
Photographing ag-related people, places, or events	8.6	8.9	10.0	10.0	10	10	2.3	1.5
Creating Web site with outside images	7.0	6.8	8.0	7.0	8	10	2.6	2.9
Filming ag-related	8.0	8.6	9.0	9.0	10	10	2.6	1.6
Audience analysis	8.0	8.6	8.5	9.0	10	10	2.5	1.6
Assessing risk/crisis situation	8.0	8.7	8.0	9.0	9	9	1.5	1.5
Required interviewing ten individuals about water	7.4	8.9	8.0	10.0	10	10	2.5	1.7

*Note.* Answers ranged from 0 = “Cannot do it at all” to 10 = “Highly Certain that I can do it.”

<sup>a</sup> Multiple modal scores indicated.

When examining the post-workshop self-efficacy levels, similar results were found, with the tasks of photographing agriculturally related people, places, or events ( $M = 8.9$ ) and assessing who was most at risk during a risk/crisis situation ( $M = 8.7$ ) again rated as the highest area. Notably, interviewing at least 10 people for a news story about water shortages ( $M = 8.9$ ) joined these two areas as being top rated. Also similar to the pre-workshop results, creating a Web site that incorporated photos/videos and computer-generated images ( $M = 6.8$ ) and constructing a Web site ( $M = 6.8$ ) were among the lowest rated areas.

The largest positive changes in self-efficacy towards specific tasks were in the tasks of interviewing at least 10 people for a news story about water shortages (+1.5) and assessing who was most at risk during a risk/crisis situation (+0.7). The tasks that experienced the greatest decrease in self were constructing a Web site (-0.6), creating a Web site that incorporated photos/videos and computer generated images (-0.2), and completing a news story (-0.1).

#### *Self-efficacy Towards Specific Tasks – Individual Site Results*

Variance was found between locations in the self-efficacy task scores. The highest Site 1 pre-workshop self-efficacy scores toward tasks was completing a news story and assessing who was most at risk during a risk/crisis situation ( $M = 8.4$ ) (Table 2). This differed from the highest Site 2 self-efficacy task scores of photographing agriculturally related people, places, or events ( $M = 9.0$ ) and understanding who the audience is ( $M = 8.7$ ). For Site 3, the site with formal agriculture instruction, photographing agriculturally related people, places, or events ( $M = 8.8$ ) and filming agriculturally related people, places, or events ( $M = 8.7$ ) were the highest self-efficacy task scores.

The lowest self-efficacy pre-workshop for Site 1 were creating a Web site that incorporated photos/videos and computer-generated images ( $M = 5.9$ ) and the task being related to agriculture ( $M = 6.3$ ). The lowest pre-workshop areas for Site 2 were creating a Web site that incorporated photos/videos and computer-generated images and filming agriculturally related people, places, or events ( $M = 6.8$ , each). Site 3's lowest pre-workshop areas were interviewing at least 10 people for a news story about water shortages ( $M = 7.2$ ) and completing a news story ( $M = 7.7$ ).

Similar variance between sites was found when examining the post-workshop self-efficacy task scores. The highest Site 1 tasks scores were in photographing agriculturally related

people, places, or events ( $M = 9.4$ ) and interviewing at least 10 people for a news story about water shortages ( $M = 9.1$ ). For Site 2, the highest post-workshop self-efficacy tasks were filming agriculturally related people, places, or events ( $M = 9.7$ ) and understanding who the audience is ( $M = 9.3$ ). The highest post-workshop self-efficacy tasks scores for Site 3 were interviewing at least 10 people for a news story about water shortages ( $M = 8.7$ ) and photographing agriculturally related people, places, or events ( $M = 8.6$ ).

Table 2

*Summary of Mean Self-efficacy Toward Tasks for Individual Locations (N = 24)*

Task	Site 1 (n = 7)			Site 2 (n = 6)			Site 3 (n = 11)		
	pre	post	+/-	pre	post	+/-	pre	post	+/-
Photoshop	6.7	8.0	1.3	8.0	9.2	1.2	8.0	7.1	-0.9
Completing news story	8.4	8.0	-0.4	8.3	8.7	0.4	7.7	7.5	-0.2
Ag-related	6.3	7.7	1.4	7.1	8.3	1.2	8.6	8.2	-0.4
Constructing Web site	6.9	6.7	-0.2	7.0	8.3	1.3	8.0	5.9	-2.1
Photographing ag-related	8.0	9.4	1.4	9.0	9.0	0.0	8.8	8.6	-0.2
Creating Web site with outside images	5.9	6.7	0.8	6.8	8.3	1.5	7.9	6.1	-1.8
Filming ag-related	7.9	8.3	0.4	6.8	9.7	2.9	8.7	8.3	-0.4
Audience analysis	7.4	9.0	1.6	8.7	9.3	0.6	7.9	8.0	0.1
Assessing risk/crisis situation	8.4	8.7	0.3	7.2	9.2	2.0	8.2	8.4	0.2
Required interviewing ten individuals about water	8.0	9.1	1.1	7.2	8.8	1.6	7.2	8.7	1.5

*Note.* Answers ranged from 0 = “Cannot do it at all” to 10 = “Highly Certain that I can do it.” +/- indicates change from pre-workshop level to post-workshop level.

For Site 1, the lowest post-workshop self-efficacy tasks were constructing a Web site and creating a Web site that incorporated photos/videos and computer-generated images ( $M = 6.7$ ,

each). The lowest Site 2 post-workshop self-efficacy task scores were the task being related to agriculture, constructing a Web site and creating a Web site that incorporated photos/videos and computer-generated images ( $M = 8.3$ , each). For Site 3, the lowest self-efficacy task scores were for constructing a Web site ( $M = 5.9$ ) and creating a Web site that incorporated photos/videos and computer-generated images ( $M = 6.1$ ).

The tasks with the largest positive change in self-efficacy scores for Site 1 were understanding who the audience is (+1.6), the task being related to agriculture (+1.4), and photographing agriculturally related people, places, or events (+1.4). For Site 2, the largest task score increases were filming agriculturally related people, places, or events (+2.9) and assessing who was most at risk during a risk/crisis situation (2.0). The largest positive increases in tasks scores for Site 3 were interviewing at least 10 people for a news story about water shortages (+1.5) and assessing who was most at risk during a risk/crisis situation (+0.2).

The tasks with the greatest decrease in self-efficacy at Site 1 were completing a news story (-0.4) and constructing a Web site (-0.2). The only task not see an increase in self-efficacy for Site 2 was photographing agriculturally related people, places, or events (0.0). The tasks with the greatest self-efficacy decrease for Site 3 were constructing a Web site (-2.1) and creating a Web site that incorporated photos/videos and computer-generated images (-1.8).

### *Self-efficacy Towards Potential College Obstacles – Combined Results*

When students considered the obstacles they may face when considering college (Table 3) the highest pre-workshop self-efficacy scores toward obstacles and thus the ability to overcome them was attending school for four years ( $M = 9.2$ ) and attending an out-of-state school ( $M = 8.8$ ). With the post-workshop scores, confidence in overcoming these two obstacles remained high and were joined by high self-efficacy scores for there being a university within

200 miles of the participants school that offered the degree ( $M = 8.5$ ) and needing a master's degree to earn more than \$40,000 per year ( $M = 8.5$ ).

Table 3

*Measures of Central Tendency for Self-efficacy Toward Obstacles For All Participants (N =24)*

Obstacle	Mean		Median		Mode		SD	
	pre	post	pre	post	pre	post	pre	post
Four-year degree	9.2	9.2	10.0	10.0	10	10	1.3	1.3
Out-of-state school	8.8	8.5	9.0	10.0	10	10	1.6	2.2
Paid < \$30,000	6.5	6.3	7.0	7.0	<sup>a</sup>	10	3.0	3.5
Required ag literacy	7.5	7.4	8.0	8.0	<sup>a</sup>	8	2.3	2.1
Knowing multiple communication techniques	8.6	8.4	9.0	9.0	10	10	1.6	1.9
University within 200 miles	8.1	8.5	9.0	9.0	10	10	2.3	1.8
Family against getting Ag. Communications degree	6.3	7.2	7.0	8.5	10	10	3.7	3.1
Attending private university	7.2	7.3	7.5	8.0	10	10	3.0	2.8
No people of same ethnicity	7.3	8.0	9.0	9.0	10	10	3.3	2.3
Master's degree required for +\$40,000	8.2	8.5	9.0	9.0	10	10	2.0	2.3

*Note.* Answers ranged from 0 = "Cannot do it at all" to 10 = "Highly Certain that I can do it."

<sup>a</sup> Multiple modal scores indicated.

The lowest pre-workshop self-efficacy scores toward college-related obstacles were none of the participant's family members wanting the participant to pursue the degree ( $M = 6.3$ ) and that the career may pay less than \$30,000 per year ( $M = 6.5$ ). These two obstacles remain the lowest rated in the post-workshop assessment. The obstacles that realized the greatest positive change in self-efficacy scores were that none of the participant's family members wanting them

to pursue the degree (+1.1) and the potential of there not being any people of the same ethnicity as the participant in agricultural communications (+0.7). The obstacle with the greatest self-efficacy decrease was attending an out-of-state school (-0.3).

#### *Self-efficacy Towards Potential College Obstacles – Individual Site Results*

When examining self-efficacy towards potential college obstacles by location (Table 4) the highest pre-workshop self-efficacy score toward obstacles for Site 1 were going to school for four years ( $M = 9.4$ ) and attending an out-of-state school ( $M = 9.0$ ). Site 2's highest self-efficacy levels were also going to school for four years ( $M = 9.5$ ) and attending an out-of-state school ( $M = 9.3$ ). For Site 3, the highest pre-workshop areas were going to school for four years ( $M = 8.9$ ) and a required knowledge of multiple communications techniques ( $M = 8.6$ ).

The lowest rated pre-workshop self-efficacy obstacles scores for Site 1 were none of the participant's family members wanting them to pursue an agricultural communications degree ( $M = 5.3$ ) and careers typically paying less than \$30,000 per year ( $M = 6.3$ ). For Site 2, the lowest pre-workshop self-efficacy levels was none of the participant's family members wanted them to pursue the degree ( $M = 7.0$ ) and there not being any people of the same ethnicity as the participant in agricultural communications ( $M = 7.0$ ). Site 3's lowest pre-workshop levels of self-efficacy toward obstacles were careers typically paying less than \$30,000 per year ( $M = 6.0$ ), and none of the participant's family members wanting them to pursue the degree ( $M = 6.6$ ) and attending a private university ( $M = 6.6$ ).

The obstacles with the highest post-workshop levels of self-efficacy toward the obstacles for Site 1 were going to school for four years ( $M = 10.0$ ) and there being a university within 200 miles of the participant's hometown that offered the degree ( $M = 9.6$ ). For Site 2, the areas with the highest self-efficacy were attending an out-of state school ( $M = 9.7$ ) and going to school for

four years ( $M = 9.5$ ). Site 3's highest post-workshop self-efficacy were going to school for four years ( $M = 8.6$ ) and a required knowledge of multiple communications techniques ( $M = 8.1$ ).

Table 4

*Summary of Mean Self-efficacy Toward Obstacles for Individual Locations (N = 24)*

Obstacle	Site 1 (n = 7)			Site 2 (n = 6)			Site 3 (n = 11)		
	pre	post	+/-	pre	post	+/-	pre	post	+/-
Four-year degree	9.4	10.0	0.6	9.5	9.5	0.0	8.9	8.6	-0.3
Out-of-state school	9.0	9.1	0.1	9.3	9.7	0.4	8.3	7.6	-0.7
Paid < \$30,000	6.3	5.6	-0.7	7.7	8.5	0.8	6.0	5.6	-0.4
Required ag literacy	7.3	6.9	-0.4	7.2	7.8	0.6	7.7	7.4	-0.3
Knowing multiple communications techniques	8.6	8.6	0.0	8.8	8.8	0.0	8.6	8.1	-0.5
University within 200 miles	8.7	9.6	0.9	7.3	8.7	1.4	8.2	7.7	-0.5
Family against getting Ag. Communications degree	5.3	7.9	2.6	7.0	8.2	1.2	6.6	6.2	-0.4
Attending private university	7.6	8.4	0.8	7.7	7.8	0.1	6.6	6.3	-0.3
No people of same ethnicity	7.4	8.6	1.2	7.0	9.2	2.2	7.4	7.1	-0.3
Master's degree required for +\$40,000	8.9	9.1	0.2	8.8	9.0	0.2	7.6	7.7	0.1

*Note.* Answers ranged from 0 = "Cannot do it at all" to 10 = "Highly Certain that I can do it." +/- indicates change from pre-workshop level to post-workshop level.

For Site 1, the lowest areas of post-workshop self-efficacy toward obstacles were careers typically paying less than \$30,000 per year ( $M = 5.6$ ) and a required basic knowledge of all facets of agriculture ( $M = 6.9$ ). The areas of the lowest self-efficacy for Site 2 were a required basic knowledge of all facets of agriculture and attending a private university ( $M = 7.8$ , each). Site 3's lowest areas of post-workshop self-efficacy toward obstacles were careers typically

paying less than \$30,000 per year ( $M = 5.6$ ) and none of the participant's family members wanting them to pursue the degree ( $M = 6.2$ )

The areas of the most increase for Site 1 in terms of self-efficacy toward obstacles were none of the participant's family members wanting them to pursue the degree (+2.6) and there not being any people of the same ethnicity as the participant in agricultural communications (+1.2). The areas of the biggest increase for Site 2 were there not being any people of the same ethnicity as the participant in agricultural communications (+2.2) and there being a university within 200 miles of the participants hometown that offered the degree (+1.4). For Site 3, the only area to increase was a master's degree being required to earn more than \$40,000 per year (+0.1).

The areas of decrease for Site 1 in terms of self-efficacy toward obstacles were careers typically paying less than \$30,000 per year (-0.7) and a required basic knowledge of all facets of agriculture (-0.4). The only areas not to increase for Site 2 were going to school for four years and a required knowledge of multiple communication techniques (0.0, each). The areas of the biggest decrease for Site 3 were attending an out-of-state school (-0.7), and a required knowledge of multiple communication techniques and there being a university within 200 miles of the participant's hometown that offered the degree (-0.5, each).

### **Conclusion/Implications/Recommendations**

Overall, there were mixed results for the workshops' ability to increase self-efficacy toward specific tasks. The greatest increase in self-efficacy was in the specific task of interviewing at least 10 people for a news story about water shortages and the task of understanding who the audience is for agriculture-related communication.

When linking the specific tasks self-efficacy scores back to the workshop design and delivery, the lessons on risk and crisis communication and video production were the most

effective lessons at increasing specific task self-efficacy with the least effective lesson areas being Web design and news writing. When examining by the individual workshop sites, variance was found with the most effective lesson areas being photography (Site 1), video (Site 2) and risk and crisis communications (Sites 2 & 3). Similar variance between sites was found when examining the least effective lessons with news writing (Site 1) and Web design in general (Site 1 & 3) being identified.

When assessing self-efficacy towards overcoming obstacles toward majoring in agricultural communications or securing a related career, two areas realized the greatest positive change as a result of the workshop at sites 1 and 2 (no formal agriculture instruction): (a) the participant's family members wanting them to pursue the degree found and (b) there not being any people of the same ethnicity as the participant in agricultural communications. This change was not realized at the school with formal agriculture instruction.

The results for sites 1 and 2 provide support for the successful workshops achieved by Fritz et al. (2004) and Wiley et al. (1997) that saw improvements when individuals with expertise led the workshops. It needs to be determined why Site 3 was not successful at increasing self-efficacy. If the agricultural background of the students was a contributor, future agricultural communications workshops for this demographic need to be tailored to suit the needs for agriculture students. If ineffective lessons were the cause for the disparity, then it needs to be determined what was done differently, and instructors should strive for consistency.

Looking at both the specific tasks and career-related obstacles areas of self-efficacy, differences between the workshop locations were found. While the results of this study may indicate a potential relationship between the workshop's effectiveness in improving self-efficacy towards agricultural communications and the presence/absence of formal agriculture instruction,

the results are not conclusive. Variance in participant demographics, workshop structure (setting, order of lessons, tours, instructors, etc.), number of participants at each site, and the time of year may also be contributing factors to the variance in scores. While additional workshops and research are required, these findings are encouraging to those seeking to increase urban, minority involvement in agriculture.

## References

- Atwater, M.M., Wiggings, J., & Gardner, C.M. (1995). A study of urban middle school students with high and low attitudes toward science. *Journal of Research in Science Technology*, 32 (6), 665-677.
- Bandura, A. (2006). Guide for constructing self-efficacy scales. In F. Pajeres & T. Urdan (Eds.) *Self-efficacy beliefs of adolescents* (pp. 307-337). Greenwich, CT: Information Age Publishing.
- Bednar, R.L., & Petersen, S.R. (1995). Conceptual themes: Overview and analysis. In *Self-Esteem: Paradoxes and innovations in clinical theory and practice*, (pp. 36-58, 2<sup>nd</sup> ed.).
- Boumtje, P., & Haase-Wittler, P.S. (2007). Factors affecting enrollment of minority students in agriculture majors at Southern Arkansas University. *Proceedings of 2007 CTE Research and Professional Development Conference*, 41, 346-354.
- Brady, H., Hout, M., Stiles, J., Gleeson, S., & Hui, I. (2005). *Return on investment: Educational choices and demographic change in California's future*. Berkeley, CA: University of California, Berkeley, Survey Research Center. Retrieved July 31, 2008, from [http://socrates.berkeley.edu:7101/new\\_web/pubs/Return\\_On\\_Investment\\_Final\\_Report.pdf](http://socrates.berkeley.edu:7101/new_web/pubs/Return_On_Investment_Final_Report.pdf)
- Caldwell, A.A. (2005). Minority population surging in Texas: Nonwhites now more than 50 percent of state's population. *The Associated Press*. Retrieved October 22, 2007, from [http://seattletimes.nwsourc.com/html/nationworld/2002433073\\_texas11.html](http://seattletimes.nwsourc.com/html/nationworld/2002433073_texas11.html)
- Compeau, D.R., & Higgins, C.A. (1995). Computer self-efficacy: Development of a measure and initial test. *MIS Quarterly*, 19, 189-211.
- Degenhart, S.H., Wingenbach, G.J., Dooley, K.E., Lindner, J.R., Mowen, D.L., & Johnson, L. (2006). Middle school students' attitudes toward pursuing careers in science, technology, engineering, and math. *Proceedings of 2006 American Association of Agricultural Education National Research Conference*, 33, 276-288. Retrieved September 26, 2007, from <http://aaae.okstate.edu/proceedings/2006/Research%20Papers/Paper%20F-2.pdf>
- Degenhart, S.H., Wingenbach, G.J., Mowen, D.L., Lindner, D.L., & Johnson, L. (2008, February). *What affects changes in middle school students' STEM interests and beliefs?* Poster presented at annual meeting of Southern Association Agricultural Scientists, Dallas, TX.
- Department of Economic and Social Affairs Population Division. 2002. *World urbanization prospects: The 2001 revision*. New York, NY: United Nations Publication Board. Retrieved March 4, 2008, from [http://www.un.org/esa/population/publications/wup2001/WUP2001\\_CH4.pdf](http://www.un.org/esa/population/publications/wup2001/WUP2001_CH4.pdf)
- Esters, L.T. (2007). Factors influencing postsecondary education enrollment behaviors of urban agricultural education students. *Career and technical education research*, 32 (2), 79-98.

- Esters, L.T., & Knobloch, N. (2007). Rural Korean students' level of interest and intentions to pursue careers in agriculture. *Proceedings of 2007 American Association of Agricultural Education National Research Conference*, 34, 728-730. Retrieved September 14, 2007, from <http://aaae.okstate.edu/proceedings/2007/PosterAbstracts/728-Esters&Knobloch.pdf>
- Fritz, S.M., Ward, S.M., Byrne, P.F., Namuth, D.M., & Egger, V.A. (2004). Short and long-term impacts of biotechnology education on professionals who communicate science to the public. *Journal of Natural Resources and Life Sciences Education*, 33, 111-116.
- Goecker, A.D., Gilmore, J.L., Smith, E., & Smith, P.G. (2005). *Employment opportunities for college graduates in the U.S. food, agricultural, and natural resources system*. West Lafayette, IN: Purdue University. Retrieved March 3, 2008, from [http://www.csrees.usda.gov/newsroom/news/2005news/USDA\\_05\\_Report2.pdf](http://www.csrees.usda.gov/newsroom/news/2005news/USDA_05_Report2.pdf).
- Griffin, R.J., Neuwirth, K., Giese, J., & Dunwood, S. (2002). Linking the Heuristic-systematic Model and depth of processing. *Communication Research*, 29(6), 705-732. Retrieved August 27, 2008, from <http://crx.sagepub.com/cgi/reprint/29/6/705>
- Holz-Clause, M., & Jost, M. (1995). Using focus groups to check youth perceptions of agriculture. *Journal of Extension*, 33 (3). Retrieved September 17, 2008, from <http://www.joe.org/joe/1995June/a3.html>
- Krumboltz, J.D., & Worthington, R.L. (1999). The school-to-work transition from a learning theory perspective. *The Career Development Quarterly*, 47, 312-325. Retrieved February 26, 2008, from <http://web.ebscohost.com/ehost/pdf?vid=2&hid=8&sid=027d44df-f09f-4d47-a143-ba03b14c0052%40sessionmgr8>
- Lent, R.W., Hackett, G., & Brown, S.D. (1999). A social cognitive view of school to work transition. *The Career Development Quarterly*, 47, 297-311. Retrieved February 26, 2008, from <http://web.ebscohost.com/ehost/pdf?vid=2&hid=7&sid=6ace9d54-8232-4962-afb4-4ed8576ac7d8%40sessionmgr8>
- Lynch, T.L. (2001). *Factors influencing the enrollment of minority students in agricultural science programs at Virginia Tech*. Dissertation, Virginia Polytechnic Institute and State University.
- McGuire, W.J. (1968). Personality and attitude change: An information-processing theory. In A.G. Greenwald & T.C. Craik (Eds.), *Psychological foundations of attitudes* (pp. 171-196). New York & London: Academic Press.
- Newsom-Stewart, M., & Sutphin, H.D. (1994). How tenth grade students perceive agriculture and environmental science: Comparison by gender and ethnicity. *Journal of Agricultural Education*, 35 (3), 50-56. Retrieved September 17, 2008, from <http://pubs.aged.tamu.edu/jae/pdf/Vol35/35-03-50.pdf>
- Russell, E.B. (1993). Attracting Youth to Agriculture. *Journal of Extension*, 31 (4). Retrieved October 16, 2007, from <http://www.joe.org/joe/1993winter/a2.html>

- Smith, E.A., Park, T.D., & Sutton, M. (2007). Effect of location and education on perceptions and knowledge about agriculture. *Proceedings of 2007 American Association of Agricultural Education National Research Conference*, 34, 305-316. Retrieved September 26, 2007 from [http://aaae.okstate.edu/proceedings/2007/IndividualPapers/305-Smith\\_etal.pdf](http://aaae.okstate.edu/proceedings/2007/IndividualPapers/305-Smith_etal.pdf)
- U.S. Department of Education, National Center for Education Statistics. (2007). *The Condition of Education 2007* (NCES 2007-064). Washington, DC: U.S. Government Printing Office.
- Wiley, Z.Z., Bowen, B.E., Bowen, C.F., & Heinsohn, A.L. (1997). Attitude formulation of ethnic minority students toward the food and agricultural sciences. *Journal of Agricultural Education*, 38, 21-29. Retrieved October 16, 2007, from <http://pubs.aged.tamu.edu/jae/pdf/vol38/38-02-21.pdf>
- Williams, K.B. (2007). *Factors influencing choice of academic major: A comparison of agricultural and non-agricultural degree programs*. Unpublished doctoral dissertation, Texas Tech University.