To the Fair! How does the FFA Agriscience Fair Influence Student Career Aspirations?

Melissa L. Ingram
Utah State University
2300 Old Main Hill
Logan, UT 84322-2300
(435) 797-5741
Gwenyn3@aol.com

Cassidy Dutton
Utah State University
2300 Old Main Hill
Logan, UT 84322-2300
(435) 797-5741
Cassidydutton18@gmail.com

Tyson J. Sorensen
Utah State University
2300 Old Main Hill
Logan, UT 84322-2300
(435) 797-5741
tyson.sorensen@usu.edu

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Introduction/Need for Research

Priority area three of the 2016-2020 National Research Agenda (Stripling & Ricketts, 2016) places emphasis on attracting the next generation of agricultural scientists. Today's agriculture and STEM employers report shortages of skilled workers (Goeker, Smith, Fernandez, Ali, & Theller, 2015; U.S. Congress Joint Economic Committee, 2012). Furthermore, concerns remain regarding the number of females pursuing degrees and careers in STEM fields (National Science Foundation, 2008, 2011). One reason cited for the lack of skilled workers is students' lack of knowledge and confidence in science and science careers (Schmidt, 2014). School-based agricultural education (SBAE) and the FFA Agriscience Fair can help address these issues. According to Phipps and Osborne (1988), the most important function of SBAE is to prepare youth and adults for careers in agriculture. The agriscience fair can help students develop skills and confidence in agriculture and expose them to STEM careers. However, little research exists exploring how the agriscience fair influences students' career choice and the motivations of students to participate in the agriscience fair. This study sought to address those issues.

Theoretical Framework

The theoretical framework for this study was based on the Social Learning Theory of Career Decision Making (Krumboltz, Mitchell, & Jones, 1976; Mitchell, 1990). This theory is based on three key interactive factors that influence career choice: personal factors, environmental conditions, and learning experiences. Based on this theory, the conceptual framework for this study consists of three key interactive factors influencing career choice, which include students' demographic characteristics (personal factors), social influences (environmental conditions), and FFA Agriscience Fair (past experiences).

Methodology

This quantitative study used survey research methodology. The objectives of this study were: 1) determine the motivating factors for students' participation in the agriscience fair by gender, and 2) explore the influence of the agriscience fair on career choice by gender. The target population consisted of all FFA members participating in the 2016 Utah FFA Agriscience Fair (n = 132). The surveys were hand delivered by the researchers to all the participants as they set up their displays and students were asked to complete the surveys before the end of the event. A usable response rate of 59% (n = 78) was obtained. The survey instrument contained questions that were demographic in nature and questions aligned to the objectives of the study. Individual items were measured using a four-point scale (4 = *strongly agree,* 1 = *strongly disagree*). A panel of experts reviewed the instrument for face and content validity before administration. To assess internal consistency, a post-hoc analysis yielded a Cronbach's alpha value of .84. Of the participants, 59% (n = 46) were female while 41% (n = 32) were male. Of their career pathway aspirations, only 30% reported agriculture, food, & natural resources, while 18% reported they didn't know what career pathway they wanted to pursue.

Results/Findings

Overall, the top motivating factors for participation in the agriscience fair were 1) enjoyment of competitive events, 2) teacher's encouragement, and 3) interest in learning about

agriscience (see Table 1). Males agreed more than females that the agriscience fair would prepare them for college ($t(76) = -2.23$, $p < .028$, $d = .53$) and that their teacher required their participation ($t(76) = -2.09$, $p < .04$, $d = .48$). The effect sizes were medium (Cohen, 1988). The second objective was to determine how the agriscience fair effected student's career choice. Participants were asked their level of agreement for the statement, "The FFA Agriscience Fair has influenced my career choice." Males ($M = 3.22$, $SD = .61$) reported the agriscience fair affecting their career choice more than females ($M = 2.83$, $SD = .64$; $t(76) = -2.71$, $p = .008$, $d = .62$). The effect size was medium between males and females (Cohen, 1988). In total, 78.21% ($n = 61$) of the participants agreed or strongly agreed that the agriscience fair influenced their career choice. Over 90% ($n = 29$) of the male participants compared to only 69.57% ($n = 32$) of females agreed or strongly agreed that the FFA agriscience fair influenced their career choice.

Table 1
Reasons for Participation in the FFA Agriscience Fair

	Total ($n = 78$)		Female ($n = 46$)		Male ($n = 32$)				
Items	*M*	*SD*	*M*	*SD*	*M*	*SD*	*t*	*p*-value	*d*
I enjoy competitive events	3.61	0.52	3.57	0.54	3.69	0.47	-1.06	.294	.24
My teacher encouraged it	3.52	0.59	3.50	0.55	3.53	0.62	-0.24	.815	.05
I like learning about science	3.40	0.64	3.37	0.68	3.44	0.56	-0.47	.643	.11
It will prepare me for a career	3.29	0.74	3.24	0.80	3.28	0.68	-0.24	.808	.05
It will prepare me for college	3.27	0.61	3.13	0.65	3.44	0.50	-2.23	.028*	.53
I enjoy doing research	3.27	0.61	3.17	0.61	3.38	0.61	-1.44	.155	.35
My parents encouraged me	3.23	0.80	3.13	0.86	3.28	0.73	-0.81	.420	.19
I am good at it	3.17	0.58	3.09	0.59	3.25	0.57	-1.22	.227	.28
Friends encouraged me	2.89	0.87	2.85	0.92	2.84	0.77	0.02	.984	.01
Required by teacher	2.48	1.08	2.22	0.99	2.72	1.11	-2.09	.040*	.48

Note. All items scaled from 1 "Strongly Disagree" to 4 "Strongly Agree."
* *p*-value < .05 was established *a priori*.

Conclusions/ Implications/Recommendations

The findings of this study support the key concepts of the social learning theory of career decision making as we found the top reasons for participation in the agriscience fair to be the enjoyment of competition (personal factor), encouragement from teacher (social factor), and interest in science (personal factor). These factors influence students' decision to participate in the science fair, which in turn, at least for male students, seems to influence their career choice. More research should explore these relationships, especially as it relates to gender. Gender did not seem to be a major factor in terms of the motivations for participation in the agriscience fair since the top three motivations did not differ. However, males felt more pressure by their teacher to participate than females. At the same time, males agreed the agriscience fair would prepare them for college more than for females. Additionally, males more strongly agreed than females that the agriscience fair influenced their career choice. Perhaps this is a result of more males than females pursuing careers in science fields. We recommend more research exploring why males perceive the agriscience fair to be more influential on career choice than females.

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