

Exploring the Role of Agricultural Education and Curriculum Intervention in Behavioral Change Among Youth in Appalachia

Submitted by:

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Introduction/Need for Research

It is evident that teachers play an integral role in the success of their students. Many agricultural educators attribute their desire to teach to the strong example that was shown by their own agricultural instructors (Ajzen, 1985). This is not the case for all students. As outlined in Lortie's (1975) Apprenticeship of Observation (AoO) theory, individuals tend to develop behaviors as a direct result of what is witnessed growing up. Many experience a strong tendency to follow the traditions of their upbringing, meaning the role of parent-student relationships can greatly influence the behaviors and perceptions students have toward learning objectives (Lortie, 1975).

Studies by Beckman & Smith (2008) and Zelezny (1999) report that behavior change can be accomplished through educational programs. However, this cannot effectively be done solely with knowledge-based programs (Kaiser & Furher, 2003). In order to create a learning environment where true behavioral change exists, the class structure must incorporate cognitive, social, psychomotor, and emotional dimensions. This is especially pertinent within secondary education, as Zelezny (1999) proposed behavioral changes are more likely to occur among younger learners when placed in situations that provide longer exposure to content. As such, the foundation of this study derives from constructs presented in the Theory of Planned Behavior (TPB), focusing on targeted educational intervention as a method of engaging students and mitigating the hindrance of AoO on student behavior.

The purpose of this study was to assess the factors influencing a student's behavior change through an educational intervention. Based on the TPB, The study measured changes in student attitudes, subjective norms, perceived behavioral control, and behavioral intent before and after the implementation of curriculum in an effort to improve engagement among agricultural education students. Students' perceived knowledge and skills were also assessed.

Theoretical Framework

In an effort to reverse learned negative behaviors acquired through AoO (Lortie, 1975), TPB was utilized as a guideline for curriculum construction and behavioral intervention within this study. The AoO theory provides insight on how individuals faced with unfamiliar situations revert back to previously observed behaviors (Lortie, 1975). In the high school agricultural classroom, students who have not traditionally received formal safety training will likely resort to mimicking those practices observed from family members and employers in similar situations. This can be detrimental to youth, as agriculture remains one of the most dangerous careers in the United States with nearly 113 people 20-years-old or younger dying annually from agriculturally related accidents (CDC, 2014).

The TPB proposes four key cognitive factors that lead to behavioral change- attitudes, social norm perceptions, behavior control, and perceived behavioral intent. Attitude is outlined as "the degree to which a person has a favorable or unfavorable evaluation or appraisal of the behavior in question"; social norms as "the perceived social pressure to perform or not perform a behavior." Behavioral control as "the perceived ease or difficulty of performing the behavior as it is assumed to reflect past experiences as well as anticipated impediments and obstacles," and perceived behavioral intention as "the extent to which a person feels able to enact the behavior," (Ajzen, 1991; Ajzen, 2002). Within TPB social norms are presented as both subjective and descriptive norms (Rivis & Sheeran, 2003), meaning key factors are linked and a persons'

intention to perform a behavior will be at its strongest when attitudes and subjective norms are favorable and perceived behavioral control is high.

Methodology

A tractor safety educational intervention was implemented to high school students ($N=83$) enrolled in agricultural education courses across three states in the Appalachian region of the Southeast. Participating educators attended a curriculum and professional development training session in July 2015. The intervention followed a five-month semester from pre- to post-assessment with one month of curriculum instruction and one month of application/construction of Cost-effective Rollover Protective Structures (CROPS). Based on the Theory of Planned Behavior (TPB), the effectiveness of the intervention was evaluated by the changes in participants' attitude (5 items; pretest: $M=6.05$, $SD=1.28$, $\alpha=.89$), perceived norms (3 items; pretest: $M=4.70$, $SD=1.39$, $\alpha=.88$), behavioral control (3 items; pretest: $M=5.41$, $SD=1.47$, $\alpha=.85$), behavioral intention (3 items; pretest: $M=5.40$, $SD=1.40$, $\alpha=.95$), and perceived knowledge and skills gained (Pre: $m=4.54$; Post: $m=5.35$; $t=3.38$, $p<.01$) about CROPS. Perceived skills and knowledge gained were also measured as one of the main outcomes of the CROPS curriculum (3 items; pretest: $M=4.55$, $SD=1.80$, $\alpha=.94$). All items were measured with 7-point Likert-type scales before and after the intervention. A paired-sample t-test was conducted to examine the four changes in TPB variables.

Results/Findings

To test the differences between pre- and post- assessments of TPB variables throughout this study, a paired-sample t-test was conducted. Results of the t-test demonstrate that all TPB variables increased from pre- to post- assessments for all variables. This includes an increase in attitudes [Pre: $m=6.02$; Post: $m=6.34$], social norms [Pre: $m=4.69$; Post: $m=4.88$], behavioral control [Pre: $m=5.38$; Post: $m=5.72$], behavioral intentions [Pre: $m=5.26$; Post: $m=5.54$], and perceived knowledge and skills [Pre: $m=4.54$; Post: $m=5.35$], with a statistically significant difference in attitudes ($p<.05$) and perceived knowledge and skills ($p<.01$).

Conclusions

Based on the results of the survey, all average TPB variables increased over the course of curriculum implementation, with a significant increase in attitude, and knowledge and skills gained through the process. This demonstrates that for the students included in our survey, the curriculum implementation by their instructors' stimulated positive attitudes toward the implementation and construction of CROPS on tractors. Students reported they felt more confident in their own ability to construct CROPS, and displayed an increased positivity towards the need and value of CROPS on tractors.

Implications/Recommendations/Impact on Profession

The findings suggest further implementation of curriculum intervention will stimulate positive attitudes toward the use of CROPS on tractors among Appalachian youth. Future research should expand upon this to examine the teacher qualities that lead to the greatest influence of behavioral change, and experiment with behavior change in additional agricultural areas. A longitudinal study would also help in further understanding and substantiating the change in behavior measured through this study.

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