The Tale of Two Contexts: Perceived Behavioral Control Among Farm and Nonfarm Students

Brett M. Wasden
brett.wasden@uky.edu
859-257-7588

Stacy K. Vincent
stacy.vincent@uky.edu
859-257-7588

University of Kentucky
500 Garrigus Building
Lexington, KY 40548

The Tale of Two Contexts: Perceived Behavioral Control Among Farm and Nonfarm Students

Within secondary school-based agricultural education, agricultural laboratories (e.g. greenhouses, land laboratories, livestock facilities, and mechanic laboratories) are considered beneficial in enhancing students' scientific skills and problem-solving skills through practical application (Shoulders & Meyers, 2012). While agricultural laboratories have historically been widely adopted in curricula by agriculture teachers, safety concerns of such experiential learning applications continue to be a paramount issue to instructors, educational administrators, and teacher educators (Chumbley, Hainline, & Wells, 2019). As such, safety education has continued to be of interest to agricultural education scholars, especially efforts to prevent student injuries during instruction (Chumbley et. al, 2019). Not only are secondary agriculture students considered to be the next generation of workers in the field of agriculture, food, and natural resources, but also, they are more likely to currently live/work on a farm as minor workers (Schafbuch, Vincent, Mazur, Watson, & Westnest, 2016). According to the National Institute for Occupational Safety and Health (2020), in 2014 over 700,000 youth completed farm work and nearly 12,000 youth were severely injured. Thus, provoking questions arise about the safety attitudes of students and the transferability of safety skills to the workforce. The purpose of this study is to explore the behavioral achievement of agricultural students who participated in a tractor safety curriculum designed for agricultural students.

Theoretical Framework

This study was guided by the theory of planned behavior (Ajzen, 1991), which posits that individual behavior is predicted by one's behavioral *intentions* (motivational factors) and behavioral *control* (actual and perceived ability) Ajzen (1991) hypothesized that *intentions* are shaped through attitudes towards the behavior, subjective norms, and perceived behavioral control. These components of the theory of planned behavior have successfully predicted behavioral achievement in a multitude of contexts within agricultural education such as urban food producers (Kopiywattage, Warner, & Roberts, 2018), encouraging water conservation efforts (Chaudhary, Warner, Lamm, Israel, Rumble, & Cantrell, 2017), enacting service learning by preservice teachers (Roberts, Edwards, & Robinson, 2019), interdisciplinary learning of secondary agriculture teachers (McKim, Pauley, Velez, & Sorensen, 2018), and parents' support of study abroad programs (Redwine, Blackburn, Greenhaw, Rutherford, Wingenbach, & Walter, 2017). Recently, a study by Chumbley et. al (2019) used the theory of planned behavior to examine university-level agricultural students' safety climate in the agricultural mechanics laboratory. According to Ajzen (1991), the predictive power of the theory of planned behavior varies across contexts and the components of the theory should be investigated individually.

Methodology

Interviews were conducted in December 2019 with twenty-one students from a group of secondary agricultural mechanics students (grades 10-12) who had participated in a larger quantitative study (n = 921) that included a tractor safety intervention. All participants were located within ten states in the Southeastern United States. Semistructured interviews were conducted with twenty-one students who reported either currently living/working on a farm or a nonfarm background. Following the theoretical lens set forth by Ajzen (1991), the interview protocol was created to assess attitudes, subjective norms, and perceived control. Each interview was scheduled to last approximately 45 minutes, digitally recorded, and transcribed by the author. Data were analyzed by the guidelines set forth by Yin (2012). A start list of codes was used to mirror the theoretical framework and first-level codes were added for other outcomes that emerged. Then, the researcher listened to each interview again which assisted in verifying

internal consistency and reduced the number of first level codes by condensing similar categories. For example, *family control, financial restrictions, employer's control*, and *age barriers* were combined to a higher-level node labeled *perceived control*. The data were next organized by three conceptually clustered matrices: *behavioral attitudes, subjective norms,* and *perceived behavioral control*. This analysis helped identify cross-case and intergroup patterns and differences. Multiple validity procedures, as suggested by Yin (2012), were employed in effort to enhance the accuracy of the findings: data from multiple sources were used to achieve triangulation; peer debriefing was used to enhance the accuracy of accounts; and two peer examiners, familiar with the theoretical framework, also validated accuracy of themes.

Results/Findings

While the researcher interpreted *behavior attitudes*, *subjective norms*, and *perceived behavioral control* of students from a farm background and a nonfarm background, respectively, the researcher displayed only the interpretations of *perceived behavioral control* for brevity. Ajzen (1991) noted that "perceived behavioral control is people's perception of the ease or difficulty of performing the behavior of interest" (p. 183). In this study the behavior of interest is willingness to operate a tractor with a Roll-Over Protection System (ROPS) which is a safety feature that includes a roll bar and seatbelt on modern tractors which protect operators in the case of a rollover (Schafbuch et. al, 2016). Students from a farm background spoke of barriers that would make the behavior of interest difficult while students from a nonfarm background vocalized more perceived control over the behavior. See the following example below.

Examples of Perceived Behavioral Control of Students From a Farm Background

- "I cannot force my boss to install a roll bar . . . it is too expensive for him and I have to drive what he tells me."
- "My dad and grandad drives it and I am expected to drive it too."
- "No one listens to kids our age. I get it but I can't change my dad's mind about ROPS."

Examples of Perceived Behavioral Control of Students From a Nonfarm Background

- "After this class, I will never drive a tractor without a roll bar and seatbelt. I value my life too much."
- "I control my life and if I don't want to drive a tractor then I won't. . . I don't care what my family says."
- "[Teacher's name] told us a lot of kids die from tractor rollovers when the tractor does not have a ROPS. It would be stupid to put me or anyone else on a tractor without it."

Conclusions/Implications/Recommendations

The purpose of this study was to explore the behavioral achievement of secondary agriculture students who participated in a tractor safety curriculum. As Pajares (2005) stated, "context is not everything but context colors everything" (p. 355). Results showed that participants who identified themselves as currently living/working on a farm have less perceived control over their behavioral intentions. While participants who identified themselves from a nonfarm background articulated their immediate behavioral achievement. As stated by Ajzen (1991), preliminarily results, such as these, should be taken cautiously because behavior intentions are difficult to change. Similarly, Schafbuch et. al (2016) concluded that agricultural youth are "apprentices of their lifelong observations," which result in more difficulty in changing their safety behavior (p. 143). Therefore, secondary instructors and teacher educators are recommended to continue to address safety curriculum within their programming. The researchers recommend follow-up studies to confirm these results among agricultural youth. Longitudinal studies will also aid in addressing the tenacity of safety skills within the workforce.

References

Chaudhary, A. K., Warner, L. A., Lamm, A. J., Israel, G. D., Rumble, J. N., & Cantrell, R. A. (2017). Using the theory of planned behavior to encourage water conservation among extension clients. *Journal of Agricultural Education, 58*(3), 185-202. https://doi.org/10.5032/jae.2017.03185

Chumbley, S. B., Hainline, M. S., & Wells, T. (2019). Examining University-level Agricultural Students' Safety Climate Attitudes in the Agricultural Mechanics Laboratory. *Journal of Agricultural Education, 60*(2), 54-68. https://doi.org/10.5032/jae.2019.02054

Kopiyawattage, K. P. P., Warner, L. A., & Roberts, T. G. (2018). Information needs and information-seeking behaviors of urban food producers: implications for urban extension programs. *Journal of Agricultural Education, 59*(3), 229-242 https://doi.org/10.5032/jae.2018.03229

McKim, A. J., Pauley, C. M., Velez, J. J., & Sorensen, T. J. (2018). Interdisciplinary learning opportunities in agriculture, food, natural resources, and science: The role of the teacher. *Journal of Agricultural Education, 59*(2), 179-196. https://doi.org/10.5032/jae.2018.02179

National Institute for Occupational Health and Safety. (2020). *Agricultural Safety.* https://www.cdc.gov/niosh/topics/aginjury/

Pajares, F. (2006). Self-efficacy beliefs during adolescence: Implications for teachers and parents. In F. Pajares & T. Urdan (Eds.), *Adolescence and education, Vol. 5: Self-efficacy beliefs of adolescents* (pp. 339-367). Greenwich, CT: Information Age Publishing

Redwine, T., Blackburn, J., Bunch, J. C., Greenhaw, L., Rutherford, T., Wingenbach, G., Walther, D. (2017). Describing parents' perceptions, valuation, and support of study abroad programs at three southern land-grant universities. *Journal of Agricultural Education, 58*(4) 240-253. https://doi.org/10.5032/jae.2017.040240

Roberts, R., Edwards, M. C., & Robinson, J. S. (2019). Benefits of Using Service-Learning in the Preparation of Teachers: An Analysis of Agricultural Education Teacher Educators' Beliefs and Intentions. *Journal of Agricultural Education, 60*(4), 19-34. https://doi.org/10.5032/jae.2019.04019

Schafbuch, M. L., Vincent, S. K., Mazur, J., Watson, J., & Westnest, S. (2016) The CROPS curriculum experiement: Evaluating the farm safety knowledge gained among secondary Apalachia youth. *Journal of Agricultural Education, 57*(2), 134-145. https://doi.org/10.5032/jae.2016.02134

Shoulders, C. W., & Myers, B. E. (2012). Teachers' use of agricultural laboratories in secondary agricultural education. Journal of Agricultural Education, 53(2), 124-138. https://doi.org/10.5032/jae.2012.02124

Yin, R. K. (2012). Applications of case study research (3rd ed.). Thousand Oaks, CA: Sage.