

School Board Members' and Administrators' Perceptions of the CASE Curriculum

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Introduction/ Theoretical Framework

Curriculum integrating science, technology, engineering, and mathematics (STEM) has become a hot button item lately in secondary education. Pressures to move in the direction of a richer STEM-based curriculum has been applied from federal legislation (i.e., American Competitiveness Initiative, 2006). According to Kuenzi (2008) “When compared to other nations, the math and science achievement of U.S. pupils and the rate of STEM degree attainment appear inconsistent with a nation considered the world leader in scientific innovation” (p. 2). Core curriculum classes, such as science and math classes, have been a focus for the improvement of STEM competencies; albeit, the integration of STEM concepts has been apparent in the field of agricultural education. The push for STEM in agricultural education is partially in response to the National Research Council (2009) which indicated agricultural careers in the future will require more skills and knowledge related to STEM. It can also be argued that the foundation of STEM have been deeply rooted in agricultural education all along (Hillison, 1996). In fact, in some states secondary students can enroll in agricultural science classes to earn science credit (Conroy & Walker, 2000; Thompson & Balschweid, 1999). The agricultural science teachers, teaching science credited classes, need a curriculum which will embrace the unique aspects of the agricultural industry, while attending to the rigor of a STEM education. One possible curriculum choice is the Curriculum for Agricultural Science Education (CASE). The CASE (2014) curriculum provides a foundation of science; the CASE lessons are aligned to the National Science Education Standards, as well as other core content (Carraway, Ulmer, Burris, & Irlbeck, 2015).

Previous research has focused on science (Carraway et al., 2015; Spindler & Greiman, 2013) and math (Beaudoin, Johnston, Jones, & Waggett, 2013) teachers' perception of STEM integration in career and technical education. Although, the teachers in this study found value in agricultural STEM integration, they lack the authority to make decisions on curriculum adoption. The majority of financial and educational decisions are left up to the local boards of education, superintendents, and individual school principals (A Guide to Decision-Making in Schools, 2010; Structure of U.S. Education, 2008). When reviewing literature, school administrator's perceptions of STEM education, and more specifically CASE curriculum, a lack exist. This research study sought to determine school board member's and superintendents' perceptions of the CASE curriculum.

Methodology

This descriptive research study used a survey design; the survey instrument utilized in this study was developed by Carraway et al. (2015). The instruments were administered at CASE booth at the [STATE] Association of School Boards, in [CITY]. The school board members and administrators who participated in this study were asked to review an animal science CASE lesson before taking the survey instrument. Using a number randomizer, lessons were randomly assigned to each participant. After reviewing the lesson, the participants were asked to take the instrument on Qualtrics; the instrument included 17 four-point Likert-type items (1 = strongly disagree, 4 = strongly agree) inquiring about their perception of the lesson, and 15 demographic questions. School board members and administrators who participated were entered to win one of six, \$100 gift cards. Although the original creator established the reliability ($r = .69$) of the

instrument (i.e., Carraway et al., 2015), a post hoc test was conducted to ensure the instrument's reliability in this context, which resulted in a Cronbach's alpha of .81.

Results/ Findings

The majority of school board members and administrators who participated in this study were not currently (72%) or formerly (64%) associated with agricultural production/business. Similar results were indicated in regard to 4-H membership, where 16 (64%) indicated they were not involved in the youth organization. When asked about their previous involvement in secondary agricultural education, 13 (52%) indicated they were enrolled in agricultural education for at least one year. In regard to the agricultural connectedness score of the participants, 68% ($n = 17$) of the participants indicated a connection to agriculture.

Eight items on the instrument sought to measure the participants' perceptions of the CASE curriculum. "If students learn this content they will perform better in science class" ($M = 3.72$, $SD = 0.54$) and "Students at my school would be interested in an agriculture class structured in this manner" ($M = 3.72$, $SD = 0.68$) were the two items which the participants indicated the highest means. The reverse coded item, "Students in my school do not learn academic concepts in agriculture classes" had the lowest mean of 2.65 ($SD = 1.03$). The summated score for school board members and administrators' perceptions of the CASE curriculum was 3.47 ($SD = 0.31$), which indicates moderately high agreement with these items.

Of the 9 items measuring the participants' perceptions of the implementation of the CASE curriculum, "teachers and administrators, at my school, would support an agriculture class taught with the teaching philosophies of this lesson" was the item with the highest agreement ($M = 3.84$, $SD = 0.75$). The two items which received the lowest level of agreement were the items indicating their science ($M = 2.60$, $SD = 1.20$) and agricultural science ($M = 2.64$, $SD = 1.20$) teachers lack the knowledge to teach this curriculum. The summated mean score for the participants' perceptions of implementing the curriculum was 3.44 ($SD = 0.41$).

Conclusions/ Recommendations

Although school board members and administrators did not indicate a high level of current involvement in the agricultural industry, past participation in secondary agricultural education bolstered their agricultural connectedness score. This connection to agriculture might imply that they will be more willing to support agricultural education curriculum, such as CASE. The participants not only indicated they perceived the curriculum to be science related, they also felt this curriculum would help students' performance in their science classes. It can be implied that the evident presence of science relation is due to the CASE curriculum's alignment with the Science Education Standards. The school board members and administrators indicated they would support the CASE curriculum at their school, and would allocate funds to support a CASE class. Understanding the school board members' and administrator's perceptions of the CASE curriculum is important in the adoption process of this curriculum, but it is also necessary to determine the perceptions of other administrators (CTE directors, principals, assistant principals) who make curriculum adoption decisions. Further research should be conducted to determine CTE directors' perception of the CASE curriculum. It is also recommended that this research study be duplicated with the utilization of a probabilistic sample.

References

- American Competitiveness Initiative. (2006). American Competitiveness Initiative: Leading the world in innovation. *Washington, DC: Domestic Policy Council Office of Science and Technology.*
- Beaudoin, C., Johnston, P. C., Jones, L. B., & Waggett, R. J. (2013). University support of secondary STEM teachers through professional development. *Education, 133*(3), 330-339.
- Carraway, C., Ulmer, J. D., Burris, S., & Irlbeck, E. (2015). *Exploring science teachers' perceptions of the curriculum for agricultural science education* (Unpublished doctoral dissertation). Texas Tech University, Lubbock.
- Conroy, C. A. & Walker, N. J. (2000). An examination of integration of academic and vocational subject matter in the aquaculture classroom. *Journal of Agricultural Education, 41*(2), 54-64. doi: 10.5032./jae.2000.02054
- Curriculum for Agricultural Science Education. (2014). *CASE program description.* <http://www.case4learning.org/about-case/promotional-tools.html>.
- Hillison, J. (1996). The origins of agriscience: Or where did all that scientific agriculture come from? *Journal of Agricultural Education, 37*(4), 8-13. doi: 10.5032/jae.1996.04008
- Kuenzi, J. J. (2008). Science, technology, engineering, and mathematics (stem) education: Background, federal policy, and legislative action (Report No. 1-1-2008). Retrieved from University of Nebraska-Lincoln, Digital Commons website: <http://digitalcommons.unl.edu/crsdocs/35/>
- National Research Council (2009). *Transforming agricultural education for a changing world.* Washington, D. C.: The National Academies Press.
- Public Education Network. (2010). *A guide to decision-making in schools.* Retrieved from http://publiceducation.issuelab.org/resource/guide_to_decision_making_in_schools_a
- Spindler, M., & Greiman, B. C. (2013). CTE Teachers and the Process of CTE and Science Content Integration. *Career and Technical Education Research, 38*(2), 125-146.
- Structure of U.S. Education. (2008). America.gov. Retrieved from http://www.america.gov/st/edu_c-english/2008/September/20080911223538eaifas0.320335.html
- Thompson, G. W. & Balschweid, M. A. (1999). Attitudes of Oregon agricultural science and technology teachers toward integrating science. *Journal of Agricultural Education, 40*(3), 21-29. doi: 10.5032/jae.1999.03021