University of Kentucky
UKnowledge

Theses and Dissertations--Community & Leadership Development

Community & Leadership Development

2021

The “CASE” for Assessments: An Evaluation of CASE End of Course Assessments and Teacher Motivation

Andrew Lawrence Hauser
University of Kentucky, andrewlhauser@gmail.com
Author ORCID Identifier:
https://orcid.org/0000-0002-6861-4899
Digital Object Identifier: https://doi.org/10.13023/etd.2021.048

Right click to open a feedback form in a new tab to let us know how this document benefits you.

Recommended Citation

Hauser, Andrew Lawrence, "The “CASE” for Assessments: An Evaluation of CASE End of Course Assessments and Teacher Motivation" (2021). *Theses and Dissertations--Community & Leadership Development*. 55.
https://uknowledge.uky.edu/cld_etds/55

This Master's Thesis is brought to you for free and open access by the Community & Leadership Development at UKnowledge. It has been accepted for inclusion in Theses and Dissertations--Community & Leadership Development by an authorized administrator of UKnowledge. For more information, please contact UKnowledge@lsv.uky.edu.

STUDENT AGREEMENT:

I represent that my thesis or dissertation and abstract are my original work. Proper attribution has been given to all outside sources. I understand that I am solely responsible for obtaining any needed copyright permissions. I have obtained needed written permission statement(s) from the owner(s) of each third-party copyrighted matter to be included in my work, allowing electronic distribution (if such use is not permitted by the fair use doctrine) which will be submitted to UKnowledge as Additional File.

I hereby grant to The University of Kentucky and its agents the irrevocable, non-exclusive, and royalty-free license to archive and make accessible my work in whole or in part in all forms of media, now or hereafter known. I agree that the document mentioned above may be made available immediately for worldwide access unless an embargo applies.

I retain all other ownership rights to the copyright of my work. I also retain the right to use in future works (such as articles or books) all or part of my work. I understand that I am free to register the copyright to my work.

REVIEW, APPROVAL AND ACCEPTANCE

The document mentioned above has been reviewed and accepted by the student's advisor, on behalf of the advisory committee, and by the Director of Graduate Studies (DGS), on behalf of the program; we verify that this is the final, approved version of the student's thesis including all changes required by the advisory committee. The undersigned agree to abide by the statements above.

Andrew Lawrence Hauser, Student

Dr. Rebekah Epps, Major Professor

Dr. Patricia Dyk, Director of Graduate Studies

The “CASE” for Assessments: An Evaluation of CASE End of Course Assessments and Teacher Motivation

---

THESIS

A thesis submitted in partial fulfillment of the
requirements for the degree of Master of Science in
Community and Leadership Development in the College of Agriculture, Food and Environment at the University of Kentucky

By
Andrew Lawrence Hauser
Lexington, Kentucky
Director: Dr. Rebekah B. Epps, Associate Professor of Agricultural Education
Lexington, Kentucky
2021

Copyright © Andrew Lawrence Hauser 2021
https://orcid.org/0000-0002-6861-4899

ABSTRACT OF THESIS

The "CASE" for Assessments: An Evaluation of CASE End of Course Assessments and Teacher Motivation

Curriculum for Agricultural Science Education (CASE) End of Course (EoC) assessments are summative assessments used to evaluate the CASE curriculum. This quantitative study explored the effects teacher motivation has on student performance on CASE EoC assessments. CASE teachers (n= 55) who participated in the study responded to the 28-item CASE End of Course Assessment Teacher Motivation Questionnaire on a 5-point Likert-type scale. The researcher conducted a Pearson r Correlation test to determine a relationship between questionnaire mean values and secondary student assessment data. Results from the study outline frequency of responses, perceived value and expectancy mean values, and correlations between teacher motivation and secondary student assessment data. Responses outline concerns with CASE EoC assessments and varying levels of motivation. A significant relationship was determined between expectancy and secondary student assessment data. Recommendations for practice and implications of the findings are provided.

KEYWORDS: CASE curriculum, CASE End of Course assessments, teacher expectancy, perceived value, agricultural education

Andrew Lawrence Hauser

(Name of Student)

04/05/2021

Date

The “CASE” for Assessments: An Evaluation of CASE End of Course Assessments and Teacher Motivation

By

Andrew Lawrence Hauser

Dr. Rebekah B. Epps

Director of Thesis

Dr. Patricia Dyk

Director of Graduate Studies

04/05/2021

Date

DEDICATION

To my Lord and Savior, Jesus Christ for providing the courage needed to accomplish everything within this world. “Peace I leave with you; my peace I give you. I do not give to you as the world gives. Do not let your hearts be troubled and do not be afraid.”

John 14:27

ACKNOWLEDGMENTS

In reflecting on my time spent at the University of Kentucky, it has showed me the importance of pushing myself to greater heights. The goals achieved during this time would not have been accomplished without the relationships with a number of different individuals and I am blessed to have the opportunity to grow under their mentorship and guidance.

I know these individuals will continue to shape my academic and personal life. First, my advisor, committee chair, and teacher, Dr. Rebekah Epps. Dr. Epps has continually provided me opportunities to become a better teacher and writer. Her continual push for involvement in networking and personal growth has made my experience by enjoyable and beneficial. I will always value how much she has cared for myself and each of her students throughout the time I have known her. In following her example, I can make a positive impact on others as she has on me. Thank you for everything.

To Dr. Vincent, Dr. Dyk, and Dr. Rice, your involvement on my committee has enhanced my writing and understanding of research. Each of you are a valuable professional in my life and I am thankful for each of you being willing to answer questions at any time and guide me throughout this process. I would not have been able to find success without each of you. Your support throughout this journey has meant more to me than each of you know.

The Community and Leadership Development department at the University of Kentucky has provided a second home to me over the last two years. A home is not made without the people in it. Thank you to students who have allowed me to continue to grow alongside of them. The other graduate students who have provided guidance, friendly

conversation, and a laugh whenever needed. Also, faculty and staff who have enhanced my experience along the way.

Jacelyn, your support and guidance over the past two years has helped me more than you'll ever know. I am happy to have you as a part of my professional and personal life. Thank you for helping me through every stressful evening and encouraging me every step of the way. I could not have done it without you.

I owe a great deal of where I am to the support and love of my family. Thank you for always encouraging me to reach my goals and to aim high with each of them. You all have been there for me through everything, the good and the bad times. Even from several hours away, you were always able to put a smile on my face when needed and remind me God has a plan for me. I cannot thank you enough for everything you all have done for me. Mom, Dad, Jake, and Izzy, I love you all so much.

I am thankful not only for the people who aided me throughout this journey, but the journey itself. I have always been taught God has a plan for each of us. I am forever thankful for God and for making the University of Kentucky part of the plan he had for my life.

TABLE OF CONTENTS

ACKNOWLEDGMENTS iii
LIST OF TABLES vii
CHAPTER 1. Introduction 1
Curriculum for Agricultural Science Education Currently 8
Evaluation of CASE Curriculum 9
Definitions for this Study 11
Purpose of this Study 11
CHAPTER 2. Literature Review and Theoretical Framework 13
Introduction 13
Theoretical Framework 13
Attribution Theory 13
Expectancy-Value Theory 15
Motivation and Job Satisfaction of Teachers 18
Assessment 21
Assessment in Agricultural Education 25
CASE 26
CHAPTER 3. Methodology 30
Introduction 30
Instrument 31
Pilot Study 35
Validity 37
Reliability 37
Population 38
Data Collection 39
Open-Ended Question 41
Secondary Data 41
Data Analysis 42
Correlation 43
CHAPTER 4. Findings 47
Introduction 47
Findings 48

Definition of Keywords 63
Open-Ended Responses 63
CHAPTER 5. Conclusion, Recommendations, and Implications 70
Conclusions 73
Implications 82
Recommendations for CASE/Agricultural Education 83
Recommendations for CASE Teachers 85
Future Research 86
Teachers 86
Students 87
Format and Content 87
Limitations 88
Concluding Remarks 89
APPENDIX A. IRB Approval 91
APPENDIX B. Final Questionnaire 92
APPENDIX C. Survey Communications 100
APPENDIX D. CASE Permission to Obtain Student Assessment Scores 105
REFERENCES 106
VITA 123

LIST OF TABLES

Table 4.1 Perceived Value Frequencies 49

Table 4.2 Ability/Expectancy Item Frequencies and Number of responses 51

Table 4.3 Perceived Task Difficulty Frequencies and Number of Responses 52

Table 4.4 Attribution Frequencies and Number of Responses 53

Table 4.5 Frequency and Number of Responses for Expectancy Items 54

Table 4.6 Student achievement data 55

Table 4.7 Perceived Value Means, Standard Deviations, and Average EoC Scores..... 57

Table 4.8 Perceived Value Correlations 58

Table 4.9 Expectancy Means, Standard Deviations, and Average EoC Scores 59

Table 4.10 Expectancy Correlations 60

Table 4.11 Informing Practice Frequencies and Number of Responses 61

Table 4.12 Open-Ended Response Frequencies..... 62

Table 4.13 CASE Course Certifications 65

Table 4.14 Sex of Participants 66

Table 4.15 Age of Participants..... 67

Table 4.16 Number of years teaching CASE 68

Table 4.17 Number of years using CASE EoC Assessments 68

LIST OF FIGURES

Figure 1 CASE Pathways..... 3

Figure 2 Evolution of CASE Timeline 8

Figure 3 Expectancy Value Model 15

CHAPTER 1. INTRODUCTION

Introduction

The CASE project started as an initiative of the National Council for Agricultural Education (Chaplin, 2013). In September of 2007, over 60 agricultural teachers, agriculture industry professionals, post-secondary educators, and agricultural leaders met in Indianapolis, Indiana for the first curriculum planning meeting for CASE (Chaplin, 2013). Individuals met to outline key concepts and to initiate the writing process for Principles of Agricultural Science-Animal (ASA) and Principles of Agricultural Science-Plant (ASP) courses (Chaplin, 2013).

CASE aimed to provide rigorous content through activity, project, and problem-based instruction (Lambert et al., 2014). CASE also aligned to national agriculture, science, math, and English language arts standards within an agricultural curriculum (Lambert et al., 2014). CASE made the alignment because of the demand for instruction in writing, mathematics, and science (Doerfert, 2011). Prior to CASE, enhancement of writing, mathematics, and science often meant the sacrifice of CTE programs (Doerfert, 2011). Doerfert (2011) stated, "agricultural education has the obligation to show its curriculum can be used to meet the academic challenges of today's school system while preparing students for a career in the agriculture industry" (p.26). The statement aligns with CASE's project goal:

> The project goal is to implement a national curriculum for secondary agricultural education that provides a high level of educational experiences to enhance the rigor and relevance of agriculture, food, and natural resources (AFNR) subject matter. Besides elevating the rigor of AFNR knowledge and skills, CASE provides purposeful enhancement of science, mathematics, and English language arts understanding (NAAE, 2019, para. 1).

Agriculture is a broad field with various components. CASE identified the importance of each component and created pathways aligning with industry standards and student interests. In an effort to replicate the success of an existing curriculum, CASE referenced the Project Lead the Way (PLTW) curriculum in the beginning stages of CASE. Project Lead The Way (PLTW) documented the success of a four-year sequence within high school education programs (Adelson & Blais, 1998). CASE understood the importance of creating a sequence of courses to retain students and advance knowledge. The initial courses in 2007 included Principles of Agricultural Science- Animal (ASA) and Principles of Agricultural Science- Plant (ASP) (Chaplin, 2013). Eventually, these two courses evolved into the ten courses currently comprising the CASE model. The ten courses are split into four pathways for a student to complete over four years of high school. Pathways contain four to five courses and are specific to Animal Science, Plant Science, Agricultural Engineering (AE) or Natural Resources (NR) (Curriculum of Agricultural Science Education [CASE], 2021c). Figure 1 shows the pathways as outlined by CASE.

Figure 1

CASE Pathways

Pathway	Animal Science	Plant Science	Agricultural Engineering	Natural Resources
Introduction	Introduction to Agriculture, Food, and Natural Resources ↓	Introduction to Agriculture, Food, and Natural Resources ↓	Introduction to Agriculture, Food, and Natural Resources ↓	Introduction to Agriculture, Food, and Natural Resources ↓
Foundation	Principles of Agricultural Science- Animal ↓ ↓	Principles of Agricultural Science- Plant ↓ ↓	Agricultural Power and Technology ↓	Natural Resources and Ecology ↓
Specialization	Animal and Plant Biotechnology ↓ or Food Science and Safety ↓	Animal and Plant Biotechnology ↓ or Food Science and Safety ↓	Mechanical Systems in Agriculture ↓	Environmental Science Issues ↓
Capstone	Agricultural Research and Development	Agricultural Research and Development	Agricultural Research and Development	Agricultural Research and Development

Note. The figure shows the sequence of CASE Pathways. Adapted from *CASE Pathways.* (https:// https://www.case4learning.org/curriculum/pathways/). Copyright 2021 by CASE.

Students are encouraged to follow the pathways, if the school system offers, to ensure comprehension. CASE phased in courses not initially included within the 2007 structuring of CASE over time (B. Schloesser, personal communication, September 6, 2019). ASA and ASP courses were field-tested and implemented during the 2009-10 school year (Chaplin, 2013). CASE phased in the following courses between 2011 and 2014: Agriculture, Food, and Natural Resources (2011-12 school year); Animal and Plant Biotechnology (2012-13 school year); Natural Resources and Ecology (2013-14 school year); and Food Science and Safety (2014-15 school year) (Mensch, 2012; Chaplin, 2013).

To uphold the goal of CASE, instructors attend extensive professional development courses, known as CASE Institutes (CASE, 2019). Professional development is specific to each course and varies in length accordingly (CASE, 2021a). Typically, these courses range from 50 to 100 hours, spanning over ten days (CASE, 2021a). In the first eight years of CASE institutes, teachers cited the length of training as an issue. To address the course length, CASE began offering fast track CASE institutes in 2017. The fast track institute structure cut the time spent at an institute from ten to five days (CASE, 2017). Fast track institutes have criteria to be met to be considered eligible (CASE, 2017). Teachers must reflect the following information within an application provided by CASE to be eligible for a fast-track institute: 1) have at least one CASE certification, 2) have taught CASE in the classroom for two years, 3) show understanding of the CASE model, 4) cite reasons for attending a fast-track institute, and 5) show potential for positive contributions to the institute (CASE, 2017). Aside from the traditional and fast track institutes, CASE also provides a 4 to 6-hour professional development for the Agricultural Business Foundations (ABF) course called "BriefCASE" (CASE, 2021). ABF is an elective course designed to introduce students to business management. Students utilize skills gained in earlier CASE courses to be successful (CASE, 2019). Since participants build upon their skills learned in other institutes, ABF does not require a full-length institute. ABF Professional development can be offered as a workshop within a conference or as an entirely separate entity during other events (CASE, 2019). Teachers trained by CASE, called lead teachers, facilitate CASE Institutes (CASE, 2019b).

CASE has developed a network of teachers to facilitate and promote CASE. These teachers have varying teaching and agriculture experiences, which is valuable within

facilitation (CASE, 2019c). Teachers wanting additional roles within CASE can apply to be Lead or Master Teachers (CASE, 2019c). Lead teachers must be certified in the course area they are facilitating and have at least one year of experience teaching the curriculum (CASE, 2019c). Master teachers must have served as lead teachers for at least two years and have two or more CASE certifications (CASE, 2019c). The primary role of lead teachers is to facilitate CASE institutes but also participate in additional professional development, remain up to date on CASE changes, and test program quality (CASE, 2019c). Master teachers maintain the same responsibilities and serve as mentors for new lead teachers, promote CASE, and serve as the CASE resource for their region (CASE, 2019c).

Initially, there were hurdles to overcome in implementing the CASE curriculum. Specifically, finances were needed to administer and further develop the curriculum. CASE hired two individuals tasked with writing the curriculum, one person writing ASA and another writing ASP (B. Schloesser, personal communication, September 6, 2019). Additionally, a PLTW representative worked with the CASE curriculum writers to serve as a resource and editor of the curriculum (B. Schloesser, personal communication, September 6, 2019). Brad Schloesser, former CASE Program Manager, said, "justifying funds was an additional problem in implementing the curriculum." The initial investment of over one-million dollars was a combination of funds from 11 funding states and the National Association for Supervisors of Agricultural Education (NASAE). The states who pledged funds to initiate the curriculum wanted to know what they would obtain from their investment (B. Schloesser, personal communication, September 6, 2019). CASE provided benefits to the funding states by inviting individuals from funding states to be a part of

developing the curriculum and implementing curriculum in their states (B. Schloesser, personal communication, September 6, 2019).

The CASE team began fostering relationships with companies to develop classroom materials. CASE developed partnerships with Lab-Aids, Ward's Science, and Pearson. Lab-Aids has been working with secondary education for 50 years and provides teachers with access to science materials (Lab-Aids, 2019). Lab-Aids provides science material kits specific to the lessons CASE is instructing. Ward's Science prides itself on providing cutting-edge technology to the classroom (Ward's Science, 2019). Ward's Science also provides biological specimens needed to complete CASE laboratories. Pearson combines world-class educational content and assessment to enable effective teaching and personalized learning (Pearson, 2019). The relationships built with Lab-Aids, Ward's Science, and Pearson aid in providing a well-rounded and effective curriculum.

CASE had meetings to determine how to generate income in the early stages (B. Schloesser, personal communication, September 6, 2019). CASE knew their primary income would be from registration fees of teachers attending CASE Institutes (B. Schloesser, personal communication, September 6, 2019). In 2007, the CASE team decided to hold the first CASE Institute (B. Schloesser, personal communication, September 6, 2019). The initial million-dollar investment began to diminish by 2007 (B. Schloesser, personal communication, September 6, 2019). A meeting of teachers interested in CASE occurred in the summer of 2008 (B. Schloesser, personal communication, September 6, 2019).

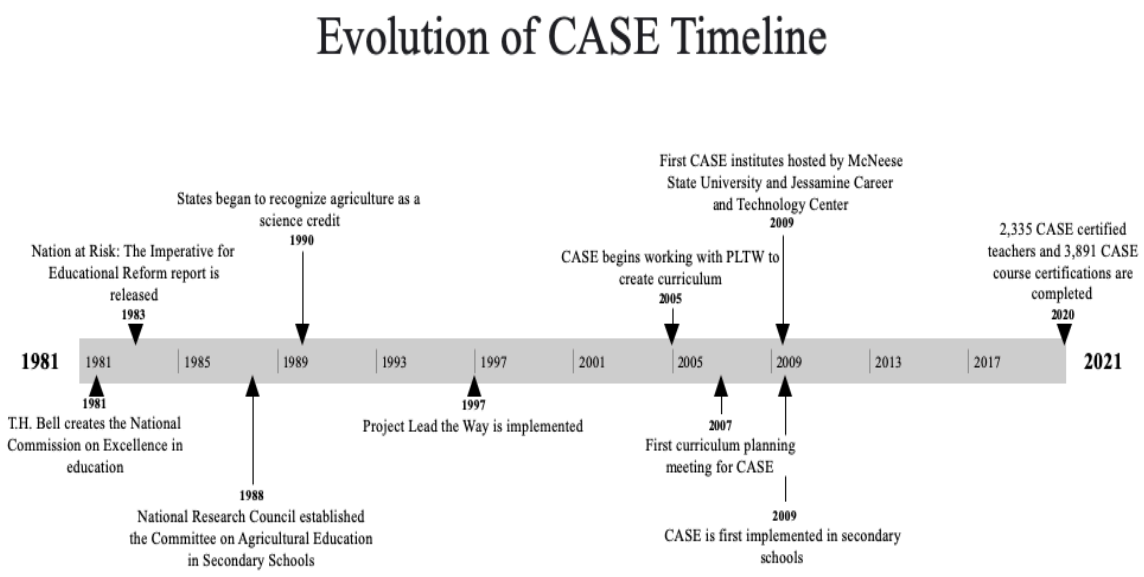
CASE invited teachers interested in continuing with the CASE curriculum to a meeting on August 6th, 2008 (Chaplin, 2013). This group would become known as the

"Teacher Leadership Team." Candidates who completed the coursework became CASE's first group of lead teachers. Six individuals were selected to lead the first CASE institutes hosted by McNeese State University and Jessamine Career and Technology Center in the summer of 2009 (Chaplin, 2013). Eleven teachers were present at the first Lead Teacher training (B. Schloesser, personal communication, September 6, 2019). With the model in place, CASE began implementing the curriculum in the 2009-10 school year.

During the 2009-10 school year, the curriculum's success led to an increase in the number of lead teachers the following year. The number of lead teachers increased from six to fourteen in 2010 (Chaplin, 2013). An increase in the number of lead teachers provided an opportunity to expand the number of states and students reached by the curriculum. The funding states had first rights to resources and hosting the CASE Institutes (B. Schloesser, personal communication, September 6, 2019). The structure of implementation for the CASE curriculum has hardly changed since the inception of CASE in 2007. After completing initial CASE institutes and seeing growth between years one and two, CASE set the goal of reaching 1,000 CASE teachers by 2017 (B. Schloesser, personal communication, September 6, 2019). Figure 2 shows the evolution of CASE.

Figure 2

Evolution of CASE Timeline



Curriculum for Agricultural Science Education Currently

Currently, CASE is present in forty-six states and the Virgin Islands (CASE, 2020a). The CASE project accomplished the goal of reaching 1,000 teachers by 2017. By the 2015-16 school year, 1,134 CASE certified teachers held 1,826 CASE course certifications (CASE, 2020b). By the 2019-2020 school year, 2,335 CASE certified teachers completed 3,891 CASE course certifications (CASE, 2020b). CASE has continued looking for ways to expand its network and appeal to larger audiences. As of 2021, the network includes 27 post-secondary institutions across the United States (CASE, 2021b). The institutions host CASE institutes, offer continuing education or graduate courses as professional development, and articulate college credit for CASE secondary

students who successfully meet CASE standards (CASE, 2021b). CASE utilizes the affiliate institutions for classroom and laboratory facilities, staff and logistical support, supplies for courses, and coordination of lodging and meals for the institute (CASE, 2018). By providing these resources, CASE continues to certify teachers and reach students.

Evaluation of CASE Curriculum

Within formal education, evaluation is a vital part of teaching and learning. Evaluation is one of the components in any curriculum and plays a role in determining what students have learned (Agrawal, 2004). Barnes et al. (2000) suggest the alignment between assessment and expectations influences classroom practices. Additionally, the rigor of assessment practices should match the school system's expectations and "reflect the range of performance specified in curriculum documents, syllabuses, or courses of study" (Barnes et al., 2000, p. 626). Alignment between expectations and assessments can avoid over-assessing certain concepts at the expense of other concepts (Webb, 1997).

CASE (2021d) values the importance of formative and summative assessment. There are assessment strategies built into the curriculum and the CASE Online platform. The curriculum builds upon student experiences. New material is introduced and related to previously learned material to improve student understanding. CASE uses strategic projects, reflection questions, and essential questions as methods of formative assessments. CASE formative assessment methods assess student knowledge during instruction.

Check for understanding quizzes, and CASE end of course (EoC) assessments are summative assessment strategies used to evaluate the CASE curriculum. Check for understanding quizzes are open-ended questions used to assess a deeper understanding from students. Check for understanding quizzes assess information learned from a lesson

or unit of instruction to gauge student achievement before moving to the next unit. EoC assessments are secure online tests aligned to course lesson concepts and cross-curricula subject matter. EoC assessments assess knowledge at the end of the course. Students who meet the national EoC assessment cut score obtain a certificate of completion from CASE. Also, performance can be correlated to specific academic standards if approved by the teacher and administration (CASE, 2019a).

This study focused on CASE EoC assessments. The design of CASE EoC assessments aims to challenge the thinking of students (Fristoe, 2018). The assessments are primarily in a multiple-choice format and reflect the design of daily lessons. CASE EoC assessments provide a non-biased standardized test option for students to showcase what they have learned and for teachers to assess student understanding (Fristoe, 2018). Passing CASE EoC assessments and maintaining a high GPA can help obtain college credit from articulating institutions and a CASE student certification (CASE, 2019a).

Although there are benefits to teachers and students to utilize CASE EoC assessments, data shows minimal use of the assessments. According to CASE assessment data, there were 1,362 students assessed in the 2016-17 school year (CASE, 2020b). CASE EoC assessments assessed 1,362 of approximately 77,000 CASE students (1.7%) (CASE, 2020a). Paired with the low participation rate is a low level of student achievement. Data from the 2016-17 school year showed 686 of the 1,362 students (50.3%) passed the CASE EoC assessments. CASE professionals determined students need to earn a 60% on CASE EoC assessments to pass. Data from the 2016-17 school year expressed the need to explore the potential factor behind low assessment scores and low participation. This study aimed

to identify potential factors behind the low participation and level of student achievement related to teacher motivation and perceptions.

Definitions for this Study

CASE Lead Teacher: The primary role of lead teachers is to facilitate CASE institutes but also participate in additional professional development, remain up to date on CASE changes, and test program quality. Lead teachers must be certified in the course area they are facilitating and have at least one year of experience teaching the curriculum (CASE, 2019c).

CASE Master Teacher: Serve as mentors for new lead teachers, promote CASE, and serve as the CASE resource for their region. Master teachers must have served as lead teachers for at least two years and have two or more CASE certifications (CASE, 2019c).

CASE End of Course Assessments (EoC): Secure online tests aligned to course lesson concepts and cross-curricula subject matter. Students who meet the national EoC assessment cut score obtain a certificate of completion from CASE (CASE, 2020).

Purpose of this Study

Assessments are essential to measure learning outcomes and provide ease of scoring, and record results (Gronlund, 1998). The purpose of this study was to explore the effects teacher motivation has on student performance on CASE EoC assessments. To adhere to this purpose, the following research objectives were identified to help the researcher determine the relationship between teacher motivation and CASE EoC assessments:

RO1) Determine the value of CASE EoC assessments as perceived by CASE teachers

RO2) Determine CASE teacher's expectancy for student achievement on CASE EoC assessments

RO3) Evaluate student achievement scores on CASE EoC assessments

RO4) Determine the relationship between perceived value and student performance on CASE EoC assessments as indicated by CASE teachers

RO5) Determine the relationship between teacher expectancy and student performance on CASE EoC assessments as indicated by CASE teachers

RO6) Evaluate CASE EoC assessment format and cost

This thesis includes a literature review, theoretical framework, methods used in research, data analysis, and conclusions. CASE professionals can use the information obtained from this research to determine where resources should be directed and determine the effectiveness of CASE EoC assessments in the future.

CHAPTER 2. LITERATURE REVIEW AND THEORETICAL FRAMEWORK

Introduction

The CASE initiative began as a project of the National Council for Agricultural Education in 2007. CASE was implemented in high school agricultural education classrooms in the 2009-10 school year and has shown continual growth since then. Currently, CASE is present in 46 states and the Virgin Islands (CASE, 2020a). Over 77,000 agricultural education students learned through the CASE curriculum in the 2019-20 school year. The 77,000 students enrolled in CASE are assessed through formative and summative assessments. The purpose of this study was to explore the use of CASE EoC assessments and their effectiveness in evaluating student performance. This chapter provides a literature review of teacher motivation, assessment, assessment in agricultural education, CASE, and the theoretical framework for this study. This study was guided by attribution and expectancy-value theories as they relate to teacher motivation.

Theoretical Framework

Attribution Theory

Heider (1958) is credited as the founder of attribution theory. Attribution theorists are concerned with the perceived reasons why an event occurred (Heider, 1958; Jones et al., 1972; Kelley, 1967; Weiner, 1985; 1986). Attribution theory assumes individuals make attributions about behavior from external factors (cues and information in the environment) and internal knowledge (Pintrich & Schunk, 1996). As a researcher tries to assign reasonings for an event, the perceiver's central task is to establish the cause and effect

between variables (Heider, 1958). Behaviors attributed to internal factors are dispositional, and behaviors attributed to external factors are situational (Funder, 1982).

Feedback can directly influence an individual's attributions (Pintrich & Schunk, 1996). Individuals perceive performance on a task as situational or dispositional (Funder, 1982). A teacher who explains behavior situationally may blame poor exam performance on a student's lack of preparation, inattention to course material, or poor effort. However, a teacher who explains behavior dispositionally may blame poor exam performance on improper teaching methodologies, lack of teacher preparation, or inability to connect with students.

Brandt et al. (1975) experimented with 48 university students who served as the teachers for a study. Each "teacher" lectured for four minutes and then administered a test on the material. After grading the tests, the "teachers" evaluated their performance. The "teachers" who taught successful students rated their teachings higher than those who taught unsuccessful students and attributed student success to their teaching (dispositional). Research shows teachers consistently attribute poor performance to the student (situational) (Beckman, 1970). According to Brandt and Hayden (1974), student performance determines teacher attitudes.

Attribution theory was used in this study to determine if teachers attribute poor student performance on CASE End of Course assessments to situational or dispositional factors. There is a minimal literature base for how agricultural educators perceive assessments or attributing student performance to situational or dispositional factors. This thesis aimed to determine if teacher's attributions influenced student performance.

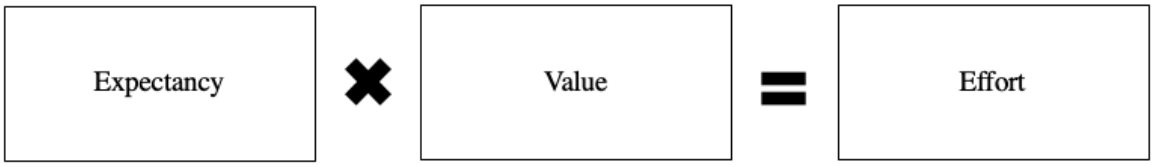
Expectancy-Value Theory

Atkinson (1957) initially defined expectancies as an individuals' belief success or failure follows their performance. Value is the relative attractiveness of succeeding or failing at a task (Wigfield, 1994). The Expectancy-Value theory says an individual's behavior depends on the perceived chance the behavior will lead to the goal (Weiner, 1992). The greater the belief of attaining the goal, the greater the motivational tendency to engage in the appropriate behavior to achieve this goal (Weiner, 1992). Individuals can be motivated or demotivated by the likelihood of achieving a goal (Carroll et al., 2013). Expectancies and values can influence achievement choices, performance, effort, and persistence (Wigfield & Eccles, 2000).

The product of expectancy x value model is effort (Brophy, 2004). Brophy (2004) claims effort is a product rather than a sum because both values are needed to produce the effort. Effort does not exist without expectancy and value. See Figure 3.

Figure 3

Expectancy Value Model



Note. Expectancy value model as interpreted by Brophy (2004)

Individuals do not invest effort into tasks if they do not value the outcomes. Additionally, an effort is not put into tasks if individuals will be unsuccessful even if they

put maximum effort into the task. If CASE teachers do not value CASE EoC assessments, they are likely to not value student achievement on the assessments.

Teachers need to develop a sense of understanding of behaviors to enhance student motivation (Wigfield & Eccles, 2000). Hofer (2006) explains the higher student value in a course a teacher establishes; the higher student motivation will be to perform well in the course. The expectancy x value model of motivation implies "teachers need to (a) help students appreciate the value of school activities and (b) make sure that students can achieve success in these activities if they apply reasonable effort." (Brophy, 2004, p.19).

In a study conducted by Velez and Cano (2008), researchers aimed to determine the relationship between teacher immediacy and student motivation. Teacher immediacy is the cues and verbal expressions used by teachers to develop within students a sense of like or dislike for a teacher. Results showed a correlation between teacher's nonverbal immediacy and expectancy-value motivation. Teachers continually use body language (eye contact, facial expressions, glances, gestures) without being aware of it. Velez and Cano (2008) claim this body language can communicate motivation or demotivation to students. Positive and consistent nonverbal language can create expectancies for success within students.

Lewin et al. (1944) developed a variation of the expectancy-value theory called the resultant valence theory. The resultant valence theory falls within the context of the study of the level of aspiration (Weiner, 1992). The level of aspiration is "the goal or standard that individuals set for themselves in a task, based on past experience and familiarity with the task" (Pintrich & Schunk, 1996, p. 70). According to Lewin et al. (1944), the sequence for a level of aspiration situation is as follows: 1) the last performance, 2) setting a level of

aspiration for new performance, 3) new performance, and 4) the psychological reaction to the new performance.

Abu-Hilal (2000) claims an individual's intentions (goal) influence the level of aspiration, and attitudes influence intentions (goal). Abu-Hilal (2000) conducted a study with high school students in the state of California. The study measured the attitudes toward four subjects (English, math, science, and social studies) prior to standardized testing. The instrument measured the student's attitudes toward the subject at the present time and attitudes toward the importance of the subject for the future. The study supported a significant influence of attitudes toward the subject on the level of aspiration. Students who indicated a higher level of aspiration achieved higher scores on the standardized tests. This study indicates attitudes toward a subject have less influence on student achievement than the level of aspiration.

Based on the sequence indicated by Lewin et al. (1944), teachers determine a level of expectancy based on a student's previous performance. This expectancy level helped determine the level of performance CASE teachers expect on end of course (EoC) assessments.

Historically, there is a connection between Attribution Theory and Expectancy theory. Jones et al. (1972) suggest attributions for past performance influence expectancies for future performance. Teas and McElroy (1986) claim expectancy estimates are made by individuals based upon attributions. Dispositional and situational factors influence high or low level of performance (Teas & McElroy, 1986). McMahan (1973) suggests an individual's new expectancy is dependent on prior expectancy, outcome, and attributions for the outcome.

Motivation and Job Satisfaction of Teachers

Bandura (1977) suggested most humans learn behavior through the influence of example. Teachers are an important part of the learning process, particularly for students who try to imitate or copy them (Alam & Farid, 2011). Teachers' morale has implications on the health of the teacher and the student's success (Lumsden, 1998). Student learning increases with the presence of effective teaching. Effective teaching is influenced by the presence of a motivated teacher. Additionally, job satisfaction is associated with teachers' intrinsic motivation (Shah et al., 2012). Studies investigated teacher motivation and its influence on student learning (Alam & Farid, 2011; Lumsden, 1998; Mertler, 2002; Sergiovanni, 1967; Shah et al., 2012).

Sergiovanni (1967) identifies important factors affecting the satisfaction and dissatisfaction of teachers. Interviews were conducted in this study to draw upon teacher experiences and determine the attitudes teachers have toward aspects of their job as they contribute to satisfaction and dissatisfaction. The study identifies recognition, achievement, and responsibilities as the main factors contributing to job satisfaction. The feeling they reached students or affected them in a positive way contributed to job satisfaction more than actual student success. Research determined recognition in the form of administrative and student feedback, gifts, incentives, and committee appointments positively influenced teacher job satisfaction. Responsibility is also a significant contributing factor to job satisfaction. However, responsibility in terms of what to teach is constricted by the required curriculum. Lastly, the study identified a positive student-teacher relationship is not enough to provide job satisfaction, but a negative one can lead to high dissatisfaction.

Studies have investigated the level of job satisfaction of agricultural educators. Scholars have analyzed job satisfaction and concluded agricultural educators are moderately satisfied with their jobs (Blackburn & Robinson, 2008; Bruening & Hoover, 1991; Castillo et al., 1999; Epps & Foor, 2015; Epps et al., 2009; Flowers & Pepple, 1988). Castillo et al. (1999) studied the job satisfaction of Ohio agricultural educators. Researchers wanted to specifically determine if age, experience, and gender affected job satisfaction. Within their study, none of the variables were significant in determining job satisfaction. Nevertheless, researchers for the Ohio study recommended researchers consider demographics in future studies (Castillo et al., 1999).

Studies conducted by Flowers and Pepple (1988) as well as Blackburn and Robinson (2008) specifically examined agricultural educators early in their careers as the sample for their studies. Flowers and Pepple (1988) define agricultural educators early in their careers as those with less than two years of teaching experience and conducted their study in Illinois. Specifically, they aimed to measure the morale of beginning agricultural educators. They measured ten morale factors exposed to while teaching. The researchers measured morale on the Purdue Teacher Opinionnaire. The researchers found none of the ten morale factors scored in the high morale range. However, job satisfaction reported the highest mean (Flowers & Pepple, 1988).

A similar study conducted by Blackburn and Robinson (2008) aimed to determine the self-efficacy and job satisfaction of beginning agricultural educators in Kentucky. Within this study, beginning teachers were defined as having less than six years of experience. Researchers grouped participants by experience, grouping teachers by one to two, three to four, and five to six years of experience. The Brayfield-Rothe Job Satisfaction

index was used as the instrument to determine job satisfaction (Blackburn & Robinson, 2008). This instrument used a five-point Likert-type scale to reflect job satisfaction. Data collection determined teachers with five to six years of experience as being most satisfied with their jobs. All three groups reported values supporting overall job satisfaction. Blackburn and Robinson (2008) concluded agricultural educators were satisfied with their jobs and implied they are prepared for the profession after certification. Further, the researchers inferred high levels of job satisfaction could be attributed to dissatisfied teachers leaving the profession before their fifth or sixth year of teaching.

Additionally, Epps and Foor (2015) compared the differences in job satisfaction and teacher efficacy of experienced and novice teachers. Their findings concluded experienced teachers (more than six years of experience) and novice teachers (less than six years of experience) maintained similar levels of job satisfaction. Results of their study support previous findings of agricultural educators being satisfied with their jobs. According to research, the higher levels of job satisfaction displayed by agricultural educators could be linked to higher levels of intrinsic motivation (Shah, et al., 2012).

Alam and Farid (2011) investigated the factors affecting the motivation of 80 secondary teachers in Rawalpindi City. The study including a 58-item questionnaire used to evaluate teacher motivation. The study's conclusions yielded four primary factors affecting teacher motivation: income status, importance in the society, self-confidence, and incentives and rewards for showing good results. Additionally, teachers in this study felt their students should be held accountable for low performance on assessments. This study suggests intrinsic and extrinsic factors influence teachers' motivation and support the importance of recognition (Sergiovanni, 1967) to teacher motivation.

Another study conducted by Mertler (2002) studied the job satisfaction and motivation of middle and high school teachers. Mertler (2002) administered a web-based teacher motivation and job satisfaction survey to 710 middle and high school teachers. Within the survey, teachers identified if they felt the teachers they worked with were motivated and identify the number of colleagues they would consider unmotivated. The study's results identified over three-fourths of teachers (77%) were satisfied with their jobs. Regarding motivation, respondents believed teachers are motivated. Additionally, the median response for the number of unmotivated teachers was 5-6 in their school. Mid-career teachers (31-35 years old) identified lower levels of motivation and job satisfaction. Conclusions from the study suggest possibly redesigning intrinsic and extrinsic performance incentives for teachers.

The literature supports intrinsic and extrinsic factors affecting the motivation of teachers. Additionally, job satisfaction is associated with the intrinsic motivation of teachers. Literature suggests agricultural educators are satisfied with their jobs, and jobs can positively influence teacher morale and motivation. Research also shows teachers believe students should be held accountable for low performance on assessments. In this study, teacher motivation and job satisfaction factors were evaluated to determine if there was a relationship between CASE teacher motivation and student achievement on CASE EoC assessments.

Assessment

Assessment in education is a mechanism of judgment (Taras, 2005). Assessment requires criteria and points of comparison to be interpreted by others (Taras, 2005). In terms of student learning, assessments are important and influence student-teacher

interaction (Gibbs & Simpson, 2004). However, assessments require teacher time and resources to be effective (Gibbs & Simpson, 2004).

Gronlund (1998) outlines the importance of aligning instruction to assessment and decisions teachers should make before, during, and after instruction regarding assessment. Additionally, Gronlund (1998) expresses the role of placement tests (pretests), formative assessment, and summative assessment. Pretests determine the skills needed and the skills already mastered by students before beginning instruction. Based on pretest results, teachers can make decisions to provide readiness experiences, proceed with planned instruction, or advance students to a higher level. Formative assessments assess student mastery of a limited portion of instruction and focus on measuring intended learning outcomes and improving student learning than assigning grades. Formative assessments assess students during instruction. Lastly, summative assessments measure student achievement of the intended outcomes for instruction. Summative assessments often determine if students should move to the next course or unit of instruction and the grade assigned to each student (Gronlund, 1998, p. 6-10).

Gronlund (1998) identifies multiple-choice, true-false, matching, interpretive exercise, short answer, and essay as points of comparison for written assessment. CASE uses conventional multiple-choice (Haladyna et al., 2002) testing as the criteria for end of course (EoC) assessments (Fristoe, 2018). Conventional multiple-choice questions have a question stem and options, or a sentence stem and the options complete the sentence. Research suggests students have a preferred method for their studies (Biggs, 1979; Marton & Säljö, 1976). Student methods are defined as a deep approach, focused on meaning and understanding, and a surface approach focused on recall and reproduction (Marton & Säljö,

1976; Biggs, 1979). Scouller (1998) suggests students primarily use surface methods to prepare for multiple-choice exams and perceive essays as needing more in-depth methods for preparation. Studies have shown evidence of the advantages and disadvantages of multiple-choice exams (Becker & Johnston, 1999; Bishop, 1990; Carneson et al., 2016; Croft et al., 2015; Douglas et al., 2012; Haladyna et al., 2002; Nicol, 2007)

Multiple-choice assessments often replace, or supplement constructed responses (Douglas et al., 2012). An increase in the number of students and the ability to reduce or eliminate bias has expanded the use of multiple-choice exams (Becker & Johnston, 1999). Carneson et al. (2016) identify ease of grading, a variance for cognitive levels, feedback on instruction effectiveness, adaption for students with poor reading skills, ease of obtaining statistics, ability to be administered frequently, and better coverage of content as advantages to using multiple-choice assessments. Additional advantages of multiple-choice assessments include efficient use of testing time (Bishop, 1990) and cost (Croft et al., 2015). The increase in computer network availability has increased the flexibility in the delivery of multiple-choice exams (Nicol, 2007).

Multiple-choice assessments also have disadvantages widely cited in the literature. Haladyna et al. (2002) stated, "Perceived overreliance on the multiple-choice format to measure the recall of knowledge instead of higher-level learning has resulted in disenchantment with multiple-choice testing" (p.310). Recall of information differs from retention of information and inhibits instructors from accomplishing their learning goal. Students study less for exams they know are multiple-choice (Kulhavy et al., 1975). Additionally, the teaching of partial and complete misinformation (Davis, 1964; Frary, 1980), guessing (Dufresne et al., 2002; Frary, 1980), cheating (Harpp & Hogan, 1993;

Wesolowsky, 1999), the difficulty of construction (Simkin & Kuechler, 2005), and lack of critical thinking (Martinez, 1999) are disadvantages to multiple-choice assessments. It was important to recognize the disadvantages of the current CASE end of course (EoC) assessment format in adequately assessing student knowledge and determining if teachers see value in changing the current assessment format.

CASE EoC assessments are non-biased standardized tests (CASE, 2020b). According to Crooks (1988), test anxiety is higher for standardized tests than for classroom tests. To offer a comparison, standardized tests are "tests (as of intelligence, achievement, or personality) whose reliability has been established by obtaining an average score of a significantly large number of individuals for use as a standard of comparison" (Merriam-Webster, 2021, para. 1). On the other hand, classroom tests can be defined as "evaluation based on activities that students undertake as an integral part of the educational programs in which they are enrolled." (Crooks, 1988, p. 439). Tests are often the measure of academic performance in a particular subject area. Cooper and Burger (1980) stated, "academic performance can be defined as the quality of performance in terms of tests and class exercises with academic content" (p. 96).

The use of conventional multiple-choice methods by CASE implies students are primarily using surface methods to prepare for the CASE EoC assessments. Research would suggest students are studying less than they would for other test formats. Multiple-choice exams often measure the information students recall and could create a negative teacher perception of the exams adequately assessing the curriculum.

Assessment in Agricultural Education

In 1990, amendments were made to the Carl D. Perkins Act requiring CTE programs to integrate course sequences, annually evaluate student achievement effectiveness, and encouraged academic credit for CTE courses (Coyle-Williams, 1991). Due to the legislation, states had to determine appropriate assessment procedures to evaluate their CTE programs (Belcher et al., 1996). However, studies within agricultural education often focus on the methods used for student learning rather than the assessment strategies used to evaluate students (Chiasson & Burnett, 2001; Enderlin & Osborne, 1992; Nolin & Parr, 2013; Ricketts et al., 2006). There is a deficit in the literature focused on the exams and strategies used to assess agricultural education students.

Previous research examined the effect agricultural education has on performance in science courses and on state and national standardized tests. Chiasson and Burnett (2001) studied the science achievement on standardized tests of students identified as agriscience students. It was determined students taught by integrating science principles into agriculture were higher achieving than those taught with a science-only approach. Additionally, researchers evaluated the effectiveness of a Biological Science Applications in Agriculture (BSAA) course versus a horticulture course (Enderlin & Osborne, 1992). The purpose of their study was to evaluate student achievement, attitudes, and thinking skill attainment. Researchers collected student grade point averages as a measurement tool to gauge achievement and tested students after each unit in this study. After the study, researchers found students showed an increase in science retention after being exposed to the BSAA curriculum (Enderlin & Osborne, 1992). Further research by Ricketts et al. (2006) indicated agricultural education students scored higher on the science portion of the Georgia High School Graduation Test than the state average for secondary students.

Research determined agricultural education positively influenced student performance on science standardized tests.

Additionally, Nolin and Parr (2013) investigated agricultural education's impact on high stakes standardized tests. The study aimed to determine if they could attribute higher achievement on the Alabama High School Graduation Examination (AHSGE) to the number of agriculture classes a student has taken. Results showed the likelihood to pass the AHSGE in all subject areas (biology, mathematics, language, social studies) increased with the number of agricultural education classes taken. However, researchers recognized variables outside of the study's control could be contributing factors to student success.

Research shows the ability for agricultural education to influence standardized test in other subject areas. There is a deficit in the literature on agricultural student's performance on agriculture specific standardized tests. Additionally, research was needed to determine agricultural educator's perception of agriculture specific standardized tests, specifically CASE EoC assessments.

CASE

The CASE initiative began in 2007 and has been present in agricultural education classrooms since the 2009-10 school year. The amount of literature surrounding CASE has increased over the last ten years. Currently, the literature surrounds self-efficacy, perceptions of students and teachers, integration of science principles, and experiences with the CASE Curriculum. A literature base is not present evaluating the assessment strategies of the CASE curriculum.

A focus in CASE literature has been the teacher perceptions of CASE. Carraway et al. (2015) studied the perceptions secondary science teachers had of the CASE curriculum.

The study found the science teachers were not well connected with agriculture but felt CASE accurately taught science concepts. Participants were confident they could teach the curriculum and willing to loan equipment to teachers to aid in instruction. The study concluded science teachers who scored higher in agricultural connectedness had more positive perceptions of implementing the CASE curriculum.

Additional research on the perceptions of beginning agricultural educators using the CASE curriculum showed beginning teachers value the ability to engage with the content, active learning experiences for students, the preparedness of the curriculum, and professional development (Anderson, 2018; Lambert et al., 2014). Lambert et al. (2014) identify the difficulty of making it through the entire course curriculum. Funds, time spent at professional development, lack of resources, and low student motivation also contributed to a negative perception of the CASE curriculum (Anderson, 2018). Within the context of CASE, research suggests student perceptions of the curriculum depend on the school, teachers, materials, students, and class size (Velez et al., 2015).

Availability of resources was an issue in research conducted by Wells et al. (2019) also. Their study examined the challenges faced by agricultural educators during their student teaching placement. With the increase in the number of educators using the CASE curriculum, it is important student teachers understand the curriculum. Student teachers indicated the availability of resources to teach the curriculum and access to the curriculum materials as a challenge. Some student teachers were certified in the curriculum, but others relied on access to the cooperating teachers' materials for reference. The challenges identified by current CASE teachers and student teachers could influence teacher motivation and affect student performance.

Integration of science principles into agricultural courses lead to the creation of the CASE curriculum. Research exists on the value and perception of science principles within the agricultural classroom regarding the CASE curriculum. Thompson and Warnick (2007) concluded agricultural educators and science educators positively perceive integrating science principles within agricultural education courses. Within the CASE courses, Pauley et al. (2019) determined CASE certified teachers have a higher perception of science knowledge and intention to teach science was higher than non-CASE certified teachers.

There is also a literature base for the effect of CASE on self-efficacy. Ulmer et al. (2013) investigate the science self-efficacy levels of CASE teachers during CASE institutes and then after teaching CASE. Research concluded CASE teachers gained science self-efficacy through the CASE institute and self-efficacy remained high throughout teaching the curriculum. The CASE institutes also had a positive influence on their science teaching expectancy beliefs. However, science teaching expectancy beliefs returned to the levels before the CASE institute after teaching the curriculum. Research to determine why science teaching expectancy beliefs decrease after teaching the curriculum and if low expectancy beliefs correlate with low student achievement is needed.

Additionally, Couts (2013) studied the effects of the CASE Animal Science curriculum on student self-efficacy levels. The study aimed to determine the areas where students displayed the most confidence within the animal science curriculum, and the effect CASE curriculum could have on student self-efficacy. The study showed high levels of student self-efficacy on 15 of the 35 items on the questionnaire. Identifying areas of low self-efficacy could aid teachers in improving instruction for increased achievement in those areas.

Literature supports students enrolled in CASE courses being more involved in experiential learning than traditional agricultural education students (Witt et al., 2014). Although the study did not show a discrepancy between students on-task in traditional versus CASE courses, CASE courses' engagement was higher than in traditional courses. Researchers determined level of engagement could potentially affect student achievement. Further research on how student engagement can directly influence student achievement is needed.

The literature review provides an account for how students and teachers perceive the CASE curriculum and confidence in teaching its components. Researchers have evaluated student engagement in the curriculum and have concluded it can affect student achievement. However, a need to explore student performance on end of course (EoC) assessments exists.

CHAPTER 3. METHODOLOGY

Introduction

The purpose of this study was to explore the effects teacher motivation had on student performance on CASE EoC assessments. To adhere to this purpose, the researcher identified the following research objectives to determine the relationship between teacher motivation and CASE EoC assessments:

RO1) Determine the value of CASE EoC assessments as perceived by CASE teachers

RO2) Determine CASE teacher's expectancy for student achievement on CASE EoC assessments

RO3) Evaluate student achievement scores on CASE EoC assessments

RO4) Determine the relationship between perceived value and student performance on CASE EoC assessments as indicated by CASE teachers

RO5) Determine the relationship between teacher expectancy and student performance on CASE EoC assessments as indicated by CASE teachers

RO6) Evaluate CASE EoC assessment format and cost

CASE teachers administer End of Course Assessments at the end of the year or course of instruction through the CASE Online platform. Although there are benefits to teachers and students to utilize CASE EoC assessments, data shows minimal use of the assessments. According to CASE assessment data, there were 1,362 students assessed in the 2016-17 school year (CASE, 2020b). CASE EoC assessments assessed 1,362 of approximately 77,000 CASE students (1.7%) (CASE, 2020a). Paired with the low participation rate is a low level of student achievement. Data from the 2016-17 school year showed 686 of the

1,362 students (50.3%) passed the CASE EoC assessments. The data shows the need to determine factors contributing to low participation and performance scores.

Instrument

The researcher used Quantitative analysis by implementing an internet-based questionnaire in this study. There are advantages and disadvantages to conducting online survey methods. The use of online methods expands the number of individuals and geographical distribution (Merit NIC, 1994). Pitkow and Recker (1995) cite ease of use, reliability, and low cost as advantages to online survey methods. Online surveys allow for creating surveys with higher validity, quick analysis, and fewer errors (Huffman, 2006). Additionally, online surveys can close the distance felt by mailing surveys and increase honest responses compared to in-person surveys (Smith, 1997). However, access to online surveys can cause limitations for some populations (Evans & Mathur, 2005). Furthermore, technology errors and incomplete responses/surveys can be potential disadvantages of online surveys (Roztocki, 2001). For this study, the researcher used a modified motivation questionnaire conducted using the Qualtrics platform. Critical for increased response rates, Qualtrics has desktop and mobile capabilities (Dillman et al., 2014). User-friendliness, current use by the University of Kentucky, data analysis capabilities, and the participants' geographical distance led to the use of the Qualtrics platform.

The researcher developed the 28-item questionnaire utilizing items from the Self and Task Perceptions in the Domain of Mathematics questionnaire developed by Eccles and Wigfield (1993), items from the Strategy and Attribution Questionnaire developed by Nurmi et al. (1995), and items developed by the researcher. The questionnaire design aimed to determine CASE teacher's perception of task value and expectancy. Secondary

assessment data and survey data were analyzed to "describe and measure the degree or association (or relationship) between two or more variables or sets of scores" (Creswell & Creswell, 2018, p. 12).

Schwarz and Oyserman (2001) outline five steps participants go through when completing a questionnaire. Participants must 1) understand the question, 2) recall information from memory, 3) make inferences for answers, 4) put answers in the questionnaire format, and 5) hesitate to report honestly. The researcher reviewed the items to ensure the understanding of the participant matches the intention of the researcher. Research recommends researchers easily word items to get the desired outcomes (Bradburn et al., 2004).

The researcher developed the CASE End of Course Assessment Teacher Motivation Questionnaire employed in this study by modifying items from the Self and Task Perceptions in the Domain of Mathematics Questionnaire and the Strategy and Attribution Questionnaire. The items reflected within the original questionnaires were modified to reflect agricultural education and the CASE curriculum. The numbering of questions, precoding, formatting questions on a page/screen, single-column formatting, consistency of scales, and grouping of questions are important elements of a successful questionnaire (Bradburn et al., 2004). Groups of items respondents will see on the same page are grouped by themes to keep participants from inferring unintended connections or correlations (Couper et al., 2001; Tourangeau et al., 2004). The CASE End of Course Assessment Teacher Motivation Questionnaire has five sections. The researcher developed the first and second sections from the Self and Task Perceptions Questionnaire and Strategy and Attribution Questionnaire, respectively. The third section was unique to this research

study and developed by the researcher. The fourth section of the CASE End of Course Assessment Teacher Motivation Questionnaire asked for demographic information to determine the age, experience, and sex. Items created by the researcher relate to teacher's feelings toward CASE EoC assessment format and cost. Lastly, an open-ended question allowing participants to share any additional thoughts they may have regarding End of Course (EoC) assessments comprised the fifth section.

Task value items on the CASE End of Course Assessment Teacher Motivation Questionnaire helped the researcher determine the participant's perceived value of CASE EoC assessments and the CASE curriculum. According to the Expectancy-Value theory of motivation, an activity's perceived value contributes to the effort exerted. If an individual does not perceive an activity to have value, lower levels of effort can result. Task value levels indicated by teachers on items 1 through 8 of the CASE End of Course Assessment Teacher Motivation Questionnaire contributed to satisfying research objectives 1 and 2.

Items 9-24 of the questionnaire determined the level of student performance a CASE teacher expected from students enrolled in a CASE course and EoC assessments and aimed to satisfy research objectives 3 and 4. Expectancy also has an influence on effort according to expectancy-value theory. With this theory in mind, it was important to determine how a CASE teacher expects students to perform in the course and on the EoC assessments.

All items on the CASE End of Course Assessment Teacher Motivation Questionnaire employed a 5-point Likert-type scale. Participants responded to the items on the following scale: 1= strongly disagree, 2= disagree, 3= neutral, 4= agree, 5= strongly agree. The CASE End of Course Assessment Teacher Motivation Questionnaire used the

same order of questions as the original questionnaires. Maintaining the order of items when modifying questionnaires is supported by research (Bradburn et al., 2004). The researcher developed items to determine teacher expectancies, values, and attribution and grouped items by the following constructs: perceived task values, expectancy/task difficulty, and attribution.

The final construct of the CASE End of Course Assessment Teacher Motivation Questionnaire, informing practice, was developed to determine teacher's feelings about End of Course (EoC) assessments to directly inform the practice and provide suggestions for change in the future. Items 25-28 were unique to this study. Reliability values for the CASE End of Course Assessment Teacher Motivation Questionnaire were determined through the use of a pilot study. A pilot study was used to ensure the instrument was appropriate and easy to understand (Van Teijlingen & Hundley, 2010) for participants prior to taking the risk with the larger study population (N=100).

Demographic items included current CASE certifications, gender, age-range, and years teaching CASE. The researcher used Qualtrics close-ended and free-response methods to determine demographic information. The close-ended methods include selections from a drop-down menu, multiple-choice, and check all that apply. The free-response questions determined years taught and years using CASE EoC assessments. Demographic information helped determine if these factors contribute to higher or lower levels of motivation regarding CASE EoC assessments.

Reliability values for the Strategy and Attribution Questionnaire and the Self and Task Perceptions in the Domain of Mathematics Questionnaire were reported within their respective studies. Nurmi et al. (1995) and Eccles and Wigfield (1993) established

reliability values for their questionnaires using Cronbach's alpha coefficient. The Strategy and Attribution Questionnaire developed by Nurmi et al. (1995) tested above .70 for nine of the ten constructs. Nurmi et al. (1995) do not provide a Cronbach's alpha value for the entire instrument, just the individual constructs. As for the Self and Task Perceptions in the Domain of Mathematics Questionnaire developed by Eccles and Wigfield (1993), the Cronbach's alpha values for all items were between .62 and .92. The Cronbach's alpha coefficient ranges between 0 and 1. Internal consistency of items is greater the closer they are to one. George and Mallery (2003) outlined the following as rules for Cronbach's alpha: "_ > .9 – Excellent, _ > .8 – Good, _ > .7 – Acceptable, _ > .6 – Questionable, _ > .5 – Poor, and _ < .5 – Unacceptable" (p. 231).

Pilot Study

The researcher tested the CASE End of Course Assessment Teacher Motivation Questionnaire's reliability through the use of a pilot study. Reliability for the CASE End of Course Assessment Teacher Motivation Questionnaire was determined using the Cronbach alpha coefficient. The researcher conducted the pilot study online using the Qualtrics platform, reflecting the platform used in the final study. Creswell & Creswell (2018) recommend the usage of pilot testing to "improve questions, format, and instructions" (p. 154). The questionnaire was pilot tested by CASE certified lead teachers (n=14) who have experience with the CASE curriculum. The final study population (N=100) did not include the 14 individuals invited to participate in the pilot study.

The researcher distributed the pilot study via email. The pilot study sample (n=14) were current lead teachers for the CASE curriculum. A CASE professional provided emails for CASE lead teachers to invite them to the pilot study. School emails were the primary

communication method with teachers to respond to the CASE End of Course Assessment Teacher Motivation Questionnaire. The researcher embedded the questionnaire link within the email inviting them teachers to participate in the pilot study. Dillman et al. (2014) suggested including a URL linking participants to the questionnaire in the email invitation. The link opened the CASE End of Course Assessment Teacher Motivation Questionnaire for ease of participant completion. Including a link to the questionnaire increases the convenience to respond (Dillman et al., 2014).

The researcher personalized each email requesting participation in the pilot study to each teacher. Research suggests personalized emails are 8% more likely to elicit a response than impersonalized emails (Heerwegh, 2005). Additionally, the email contained language to create rapport and allow teachers to know they were one of a small number selected to participate in the pilot study. Participants perceive an activity as more valuable if they know the opportunities are only available to a selected group (Cialdini, 1984).

The researcher sent the pilot study sample an initial email inviting them to the study on August 24th, 2020 and gave recipients two weeks to respond to the questionnaire. Dillman et al. (2014) recommended a follow-up email be sent within seven days of the initial email to elicit more responses. Participants in the pilot study received two follow-up emails from the researcher. The researcher sent the first follow-up email on August 31st, 2020 and the second on September 3rd, 2020. Dillman et al. (2014) recommended sending two follow-up emails if the first yields a significant increase in participation.

The initial email elicited three responses, and the researcher identified them as early respondents. The first follow-up yielded one response, and the second added four additional responses. Of the 14 CASE Lead teachers contacted to participate in the pilot

study, eight teachers responded. Six (n=6) of the eight teachers provided usable responses analyzed to establish reliability. The other two responses were not complete enough to be included in the analysis. The pilot study had a 57% response rate. Web survey response rates commonly range from 25-70% (Fincham, 2008).

Validity

A committee of experts evaluated the CASE End of Course Assessment Teacher Motivation Questionnaire for face, and content validity as the items were modified to reflect the study population. The committee of experts consisted of CASE lead teachers, CASE professionals, and university faculty who are members of the graduate student's thesis committee.

Reliability

The Qualtrics software recorded responses from the pilot study. After data collection, the researcher downloaded data into SPSS. The researcher used SPSS version 27 to analyze pilot study data and establish the instrument's reliability. Negatively worded items were reverse coded within SPSS to correct any negative Cronbach's alpha values. The researcher computed five variables representing the five constructs and 31-items within the CASE End of Course Assessment Teacher Motivation Questionnaire. Cronbach's Reliability was tested across the five variables and yielded an acceptable Cronbach's alpha coefficient. Reliability of the CASE End of Course Assessment Teacher Motivation Questionnaire tested .701 on Cronbach's alpha. Creswell and Creswell (2018) identify Cronbach's alpha values between .7 and .9 as optimal values for use.

The researcher established reliability values for each construct of the CASE End of Course Assessment Teacher Motivation Questionnaire. The constructs yielded the following reliability values: task value- .754, attribution- .600, expectancy/task difficulty- .789, and informing practice- .687. After analyzing each construct's reliability values, the researcher removed item numbers 17, 20, and 31 from the questionnaire before the final study. The informing practice and expectancy/task difficulty constructs yielded higher reliability values without these items. CASE EoC assessment teachers completed a 28-item CASE End of Course Assessment Teacher Motivation Questionnaire for the final study. Appendix B includes the final version of the CASE End of Course Assessment Teacher Motivation Questionnaire.

Population

This study's target population included agricultural educators who are currently CASE certified and have experience using CASE end of course (EoC) assessments. CASE teachers who have used EoC assessments reported student scores on the assessments at the end of each course to CASE personnel through the CASE Online system. When CASE teachers order CASE assessments or reported student scores, CASE teacher's names are recorded into the CASE Online system. CASE professionals provided all of the names of teachers who have used CASE EoC assessments to the researcher.

After evaluating the list of teachers, the researcher identified 100 teachers as having used the assessments during the 2018-2020 school years. The population included all of the 2018-2020 CASE online teachers on the list provided to the researcher. The researcher had full access to the population within the realm of teachers responding to the questionnaire. The researcher obtained names and email addresses from the list provided

by CASE personnel. Email addresses were used to contact teachers and invite participants to participate in the study.

Data Collection

The researcher collected data after receiving approval to conduct the study from the University of Kentucky Institutional Review Board (IRB), which advises all research conducted with human subjects. The IRB approval for protocol number 58060 is included in Appendix A. Participants within the population completed the CASE End of Course Assessment Teacher Motivation Questionnaire comprised of demographic and Likert-type questions. The researcher sent an email to the study population inviting them to take part in the study.

Participant's nonresponse rate is a downfall of online survey methods as cited in the literature. Nonresponse error is “the difference between the respondents and the entire sample” (Kaczmirek, 2008, p.7). Manfreda et al. (2008) determined online surveys had an 11% lower response rate than surveys distributed with different methods. To address the issue, the researcher embedded a link to the Qualtrics survey within the email invitation. Dillman et al. (2014) recommend an easily accessed survey link be included in the invitation to participate in the research study to increase response rates.

The researcher wrote the initial email inviting CASE teachers to participate, and a CASE professional forwarded the email to recipients. When the email is from a reputable source, response rates increase. Familiarity with CASE could help increase response rates. The researcher used their university email (@uky.edu) to send emails to the participants (Dillman et al., 2014). Dillman et al. (2014) recommended sending emails from the same email throughout the distribution process.

Within the initial email was a video created by the researcher to introduce themself and the study. Dillman et al. (2014) recommended a certain amount of personalization to legitimize your request and show it is from a real person. Dillman et al. (2014) write: "A connection between the researcher and the participants is necessary for social change" (p.329). Additionally, the researcher sent four follow-up emails to complete the CASE End of Course Assessment Teacher Motivation Questionnaire across three weeks. Dillman et al. (2014) advise reminder emails for web surveys be sent relatively quickly, sending two reminders within the first two weeks. It is important to send reminders after participants have had time to respond, but before participants forget about the initial email (Dillman et al., 2014). A common theme among researchers is the first follow-up email should be sent within a week of the survey's initial distribution (Dillman, 2014). The researcher sent emails to participants during the morning as web surveys sent before work hours yield higher response rates (Trouteaud, 2004). The email schedule for this study is shown below:

1. October 1st, 2020 (8:00 a.m. EST)- Initial invitation email
2. October 5th, 2020 (8:00 a.m. EST)- First follow- up email
3. October 8th, 2020 (8:00 a.m. EST)- Second follow-up email
4. October 14th, 2020 (8:00 a.m. EST)- Third follow-up email
5. October 21th, 2020 (8:00 a.m. EST)- Final follow-up email

Couper et al. (2007) claimed two follow-up emails are ideal. Dillman et al. (2014) suggest sending a third and fourth reminder email if the first two yield significant results. The researcher analyzed the number of responses from the first two follow-up emails and determined additional follow-up emails should be sent. A copy of survey communications is included in Appendix C.

There were 23 (24.7% response rate) participants who completed the CASE End of Course Assessment Teacher Motivation Questionnaire after the initial invitation (Oct. 1st) to participate in the study. The first two follow-up emails added 16 responses, eight from the first follow-up email (Oct. 5th) and eight from the second follow-up email (Oct. 8th). The 16 additional responses warranted a third and fourth follow-up email. The researcher analyzed data of early and late respondents for significant differences before compiling the final data set.

Open-Ended Question

The final question of the CASE End of Course Assessment Teacher Motivation Questionnaire asked participants to provide "Additional comments/concerns regarding CASE End of Course Assessments." The question was in an open-ended free-response format. The responses to the questions were analyzed to establish categories. After establishing categories, the researcher conducted a frequency analysis to determine where to place each response. Categories helped the researcher know what text elements to check for frequency (Mayring, 2014). Through analyzing the free-response question, the researcher determined seven categories to organize responses. A keyword labeled each category. Keywords determined for this study were: Expensive, Time, Useless, Format, Ineffective, Not Used, Difficult to use. The researcher analyzed responses for keywords and counted responses within the category with the corresponding keyword.

Secondary Data

The secondary data analysis was an important component of this study to determine if a relationship exists between student achievement scores and the results from

the CASE End of Course Assessment Teacher Motivation Questionnaire. The definition of secondary data for use in this study was "the further analysis of an existing dataset with the aim of addressing a research question distinct from that for which the dataset was originally collected and generating novel interpretations and conclusions (Hewson, 2006, p.274)". A significant advantage of secondary data is the access to high-quality data sets at free or minimal cost to the researcher (Smith, 2008). The secondary data used within this thesis was the collection of student assessment scores from previous CASE EoC assessments. Secondary data was provided to the researcher by CASE personnel with the permission of the CASE director. Permission to obtain CASE EoC assessment scores is outlined in Appendix D.

All data provided by CASE personnel was aggregate data. Individual student data were not collected for use in this thesis. Data were only identified by the course subject matter. Individual identifying information was not collected from participants in this study. The cover letter of the questionnaire provided to participants outlined the intended use of questionnaire results to determine a relationship between teacher motivation and student assessment scores. The relationship drawn between teacher motivation factors (expectancy and value) aimed to satisfy research objectives 4 and 5.

Data Analysis

Data imported from the CASE End of Course Assessment Teacher Motivation Questionnaire and data collected from CASE personnel were imported to SPSS version 27 for final data analysis. Items from the CASE End of Course Assessment Teacher Motivation Questionnaire were analyzed for frequencies. Quantitative data were collected from SPSS to draw conclusions and develop findings.

The researcher completed final data collection from the CASE End of Course Assessment Teacher Motivation Questionnaire on October 23, 2020, and recorded responses from 55 participants (n=55). Data were analyzed according to the research objectives identified for the study to develop the findings for this study. The researcher analyzed data within the four constructs of the questionnaire. Items one through eight were analyzed individually for frequencies of responses for the Perceived Task Value Items. Items 9 through 24 were analyzed individually for frequencies of responses for Expectancy-Related Items. For items 20 and 21, both within the attribution construct, responses were reverse coded to account for the negative wording within the items. The calculation of relative frequencies determined the overall frequencies for each response within each construct. Dividing the observed frequency of each response by the total number of responses determines relative frequency (Sage, 2018). The researcher tabulated values and presented them in tables by construct.

Correlation

A CASE professional provided secondary student assessment data. CASE professionals provided the final secondary student assessment data on January 31, 2021. The final secondary student assessment data included cumulative scores for all students who had taken CASE EoC assessments during the 2018-19 and 2019-20 school year. Student EoC assessment scores were recorded in an Excel spreadsheet by CASE course as it is the method of organization provided by CASE professionals. Upon collection of data, scores were uploaded into SPSS version 27 and mean values were determined. The researcher established a mean score for each course. After establishing a mean for each course, the researcher averaged each course's mean scores to produce an overall mean for

CASE EoC assessment scores from the 2018-2020 school year. In addition to the CASE EoC assessment scores, the researcher determined the number of classes and students assessed during the 2018-19 and 2019-20 school years from the secondary data.

The researcher used secondary data collected from CASE professionals to determine if there was a relationship between the perceived task value and expectancy items on the CASE End of Course Assessment Teacher Motivation Questionnaire and CASE EoC assessment student scores. The Pearson r Correlation Coefficient was used to determine if there was a relationship between teacher motivation responses from the study population and CASE EoC assessment scores. The Pearson r Correlation Coefficient is "a numerical statement of the linear relationship between two variables" (Sprinthall, 2007, p. 282). The two variables, in this case, are the means from task value items and means from CASE EoC assessment student scores and the means from expectancy items and means from CASE EoC assessment student scores. Before running a Pearson r Correlation, the researcher determined mean values for the CASE End of Course Assessment Teacher Motivation Questionnaire items. All responses from the CASE End of Course Assessment Teacher Motivation Questionnaire were downloaded into SPSS and analyzed for means. The researcher used the means from the CASE End of Course Assessment Teacher Motivation Questionnaire to determine if a relationship was present. The mean for task value items was determined from the CASE teacher's responses to items 1-8 of the CASE End of Course Assessment Teacher Motivation Questionnaire. The expectancy mean was determined from the CASE teacher's responses to items 9-24 of the CASE End of Course Assessment Teacher Motivation Questionnaire.

After means were determined, CASE EoC assessment teacher responses were grouped by course certification as the CASE EoC assessment student scores were separated by course. Groups were established using the “select cases” function of SPSS version 27 and then selecting each course. The researcher repeated this process for each of the seven courses currently assessed using CASE EoC assessments. After grouping teachers by course, the researcher established mean values for task value items (1-8) and teacher expectancy items (9-24) for each course. Means were tabulated for the teachers in each of the seven courses. The seven means were paired with the CASE EoC assessment student scores from each course to determine a relationship.

After the teacher motivation means from each course were established, the researcher imported mean values into a new SPSS datasheet. Within the new SPSS datasheet, the researcher entered the CASE EoC assessment student score means for each course in the row with the corresponding course's teacher motivation means. After the researcher entered all data into the datasheet, data were analyzed using the Pearson r Correlation Coefficient. The researcher completed two Pearson r Correlation tests, one to determine a relationship between task value items and CASE EoC assessment student scores and the other to determine a relationship between expectancy items and CASE EoC assessment student scores. The Pearson r Correlation Coefficient produces a single value to show if there is a relationship (Sprinthall, 2007). Single values produced are between 1 and -1; 1 expresses a perfect positive correlation while -1 expresses a perfect negative correlation (Sprinthall, 2007). Zero expresses no correlation, and the closer to 1 or -1, the more accurate the prediction from the data (Sprinthall, 2007). Results from the Pearson r Correlation Coefficient in this study were expressed as values between 1 and -1. Once the

values were computed, significance was determined. For this study, alpha level .05 was used as it is standard for academic practice (Sinclair et al., 2013). Overall means and Pearson r Correlation values are recorded in tables within chapter 4.

CHAPTER 4. FINDINGS

Introduction

The purpose of this study was to explore the effects teacher motivation have on student performance on CASE End of Course assessments. To adhere to this purpose, the researcher developed the following research objectives:

RO1) Determine the value of CASE EoC assessments as perceived by CASE teachers

RO2) Determine CASE teacher's expectancy for student achievement on CASE EoC assessments

RO3) Evaluate student achievement scores on CASE EoC assessments

RO4) Determine the relationship between perceived value and student performance on CASE EoC assessments as indicated by CASE teachers

RO5) Determine the relationship between teacher expectancy and student performance on CASE EoC assessments as indicated by CASE teachers

RO6) Evaluate CASE EoC assessment format and cost

The researcher used the online CASE End of Course Assessment Teacher Motivation Qualtrics Questionnaire to collect data. The researcher divided the CASE End of Course Assessment Teacher Motivation Questionnaire into three motivational constructs: perceived task values, expectancy/task difficulty, and attribution and included constructs for teacher demographics and informing practice. The motivational constructs were designed to adhere to the research objectives. The questionnaire was distributed via email to 100 CASE End of Course (EoC) assessment teachers identified by a CASE professional and the researcher. Of the 100 emails provided by the CASE professional, 93

were active and usable for this study (*n*=93). The study yielded a 59% response rate as 55 of the 93 teachers returned questionnaires. Of the 55 responses, 51 responses (55%) were usable for the study. The response rate was well within the 25-70%, as indicated by Fincham (2008).

Findings

RO1) Determine the value of CASE EoC assessments as perceived by CASE teachers

The first objective of this study was to determine the perceived value of CASE EoC assessments. Items 1 through 8 on the CASE End of Course Assessment Teacher Motivation Qualtrics Questionnaire were designed to satisfy objective one. The questionnaire items and the reported the frequencies and number of responses (*n*= 51) are listed in the table below.

Table 4.1 shows the frequencies and number of responses (*n*= 51) for items 1 through 8 of the CASE End of Course Assessment Teacher Motivation Questionnaire.

Table 4.1

Perceived Value Frequencies

Perceived Value Items	*f* (%)				
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
In general, I find teaching CASE very interesting	0 (0)	0 (0)	3 (5.9)	25 (49.0)	23 (45.1)
I enjoy teaching CASE	0 (0)	0 (0)	2 (3.9)	15 (29.4)	34 (66.7)
I find the amount of effort it takes to prepare students for CASE EoC assessments is worthwhile	0 (0)	3 (5.9)	25 (49.0)	16 (31.4)	7 (13.7)
I feel having students pass CASE EoC assessments is very important	4 (7.8)	3 (5.9)	22 (43.1)	14 (27.5)	8 (15.7)
I feel it is important to make it through all of the CASE curriculum	5 (9.8)	15 (29.4)	12 (23.5)	15 (29.4)	4 (7.8)
I feel CASE EoC assessments are important to the effectiveness of instruction	5 (9.8)	13 (25.5)	13 (25.5)	16 (31.4)	4 (7.8)
I feel CASE EoC assessments are useful in improving my instruction	4 (7.8)	7 (13.7)	23 (45.1)	13 (25.5)	4 (7.8)
I feel CASE EoC assessments are useful in adequately assessing my students	3 (5.9)	11 (21.6)	23 (45.1)	9 (17.6)	5 (9.8)
Total Responses	21 (5.1)	52 (12.7)	123 (30.1)	123 (30.1)	89 (21.8)

Note. $n = 51$ usable responses

Upon analysis of Table 4.1, 94.1% of participants agreed or strongly agreed CASE is interesting. Additionally, 96.1% of participants agreed or strongly agreed they enjoy teaching CASE. Table 4.1 evaluated the perceived value of CASE and showed 43.1% of participants had neutral feelings about the importance of students passing CASE EoC assessments. Of the study participants, 45.1% were neutral to the effectiveness of CASE EoC assessments adequately assessing students and improving their instruction.

RO2) Determine CASE teacher's expectancy for student achievement on CASE EoC assessments

This study's second objective was to determine the expectancy for student achievement on CASE EoC assessments as indicated by CASE teachers. Items 9- 24 aimed to determine the level of expectancy towards student achievement on EoC assessments. The researcher measured teacher expectancy on three constructs: expectancy, perceived task difficulty, and attribution. Tables 4.2, 4.3, and 4.4 reflect the frequency of responses and number of responses (*n*) on each of these constructs.

Table 4.2

Ability/Expectancy Item Frequencies and Number of responses

Ability/ Expectancy Items	*f* (%)				
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Based on previous classes, I expect students to perform well on CASE EoC assessments	3 (5.9)	6 (11.9)	21 (41.2)	19 (37.3)	2 (3.9)
I feel students will perform well in my CASE course this year	2 (3.9)	4 (7.8)	11 (21.6)	30 (58.8)	4 (7.8)
Within my past experiences, my students have performed well on CASE EoC assessments	1 (1.8)	6 (11.8)	23 (45.1)	21 (41.2)	0 (0)
Within my past experiences, my students have performed well within CASE courses	0 (0)	1 (2.0)	5 (9.8)	34 (66.7)	11 (21.6)
I communicate a high level of expectation for CASE EoC assessments to students	1 (1.8)	4 (7.8)	22 (43.1)	19 (37.3)	5 (9.8)
I communicate a low level of expectation for CASE EoC assessments to students	14 (27.5)	13 (25.5)	21 (41.2)	3 (5.9)	0 (0)
Total Responses	21 (6.9)	34 (11.1)	103 (33.6)	126 (41.2)	22 (7.2)

Note. n=51 usable responses

After analyzing Table 4.2, 47.1% of participants agreed they communicate a high level of expectancy on EoC assessments. Additionally, 41.2% of participants felt students have performed well on CASE EoC assessments or will perform well on CASE EoC

assessments in the future. As a construct, 146 of the responses agreed or strongly agreed with the items.

The second construct aimed at measuring expectancy was the Task Difficulty construct. Frequencies and number of responses for Task Difficulty are listed in Table 4.3.

Table 4.3

Perceived Task Difficulty Frequencies and Number of Responses

Task Difficulty Items	*f* (%)				
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Compared to other courses, CASE is difficult for students	1 (2.0)	14 (28.0)	12 (24.0)	20 (40.0)	3 (6.0)
Compared to other assessment strategies, CASE EoC assessments are difficult for students	0 (0)	8 (16.0)	23 (46.0)	13 (26.0)	6 (12.0)
Compared to other assessments, students have to try hard to do well on CASE EoC assessments	0 (0)	6 (12.0)	23 (46.0)	15 (30.0)	6 (12.0)
Compared to other courses, I have to try hard to prepare students for CASE EoC assessments	1 (2.0)	7 (14.0)	28 (56.0)	11 (22.0)	3 (6.0)
Total Responses	2 (1.0)	35 (17.5)	86 (43.0)	59 (29.5)	18 (9.0)

Note. n = 50 usable responses

Perception of how hard students have to try on EoC assessments and how hard participants have to try to prepare students for EoC assessments was largely neutral; 86 responses were neutral within the task difficulty construct. Additionally, 46% of participants feel the CASE curriculum is difficult for students. Only 37 responses disagreed or strongly disagreed with the items in the construct.

The final construct used to measure teacher expectancy was the Attribution construct. The frequencies and number of responses are shown in Table 4.4.

Table 4.4

Attribution Frequencies and Number of Responses

Attribution Items	*f* (%)				
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
When I get ready to start teaching, I am usually certain I will succeed in it	0 (0)	3 (6.0)	6 (12.0)	34 (68.0)	7 (14.0)
If difficult tasks are before me, I notice I do not really try	1 (2.0)[a]	0 (0)[a]	1 (2.0)[a]	30 (60.0)[a]	18 (36.0)[a]
Success on EoC assessments depends little on one's knowledge and abilities	2 (4.0)[a]	4 (8.0)[a]	18 (36.0)[a]	20 (40.0)[a]	6 (12.0)[a]
Careful preparation of students for exams leads to good results	1 (2.0)	8 (16.0)	9 (18.0)	23 (46.0)	9 (18.0)
I often believe that studying has an effect on one's success on an exam	0 (0)	1 (2.0)	4 (8.0)	36 (72.0)	9 (18.0)
Success within courses depends on oneself	0 (0)	2 (4.0)	9 (18.0)	22 (44.0)	17 (34.0)
Total Responses	4 (1.0)	18(6.0)	47 (16.0)	165 (55.0)	66 (22.0)

Note. n = 50 usable responses

[a]Items 20 and 21 were reverse coded during analysis to account for negative wording

An analysis of Table 4.4 showed 82% of participants agreed or strongly agreed they would succeed in teaching when they begin. Additionally, 90% of participants agreed or strongly agreed studying influences success on an exam. Regarding CASE EoC assessments, 52% of participants felt success depends on a student's knowledge and

abilities. For the Attribution construct, 231 responses agreed or strongly agreed with the items.

To compile the data and offer a visual representation of the expectancy items, the frequencies for each construct are listed together in Table 4.5.

Table 4.5

Frequency and Number of Responses for Expectancy Items

Expectancy Items	*f* (%)					
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Total
Ability/Expectancy Related Items	21 (6.9)	34 (11.1)	103 (33.6)	126 (41.2)	22 (7.2)	306
Task Difficulty Items	2 (1.0)	35 (17.5)	86 (43.0)	59 (29.5)	18 (9.0)	200
Attribution Items	4 (1.0)	18 (6.0)	47 (16.0)	165 (55.0)	66 (22.0)	300
Overall	27 (3.3)	87 (10.8)	236 (29.3)	350 (43.4)	106 (13.2)	806

After analyzing table 4.5, nearly one-half (43.0%) of participants remained neutral on task difficulty items. Participants were more decisive about attribution items, as only 16.0% remained neutral and 55.0% agreed with attribution items. Of the 306 responses collected for ability/expectancy-related items, 41.2% agreed with the statements. A total of 806 responses were collected within the expectancy construct.

RO3) Evaluate student achievement scores on CASE EoC assessments

Secondary data collected from CASE professionals provides the context for student achievement scores. Student achievement scores, number of classes evaluated by EoC assessments, and number of students who were assessed are outlined in Table 4.6.

Table 4.6

Student achievement data

Course	2018-19 Average (%)	2018-19 Number of Classes Assessed	2018-19 Number of Students	2019-20 Average (%)	2019-20 Number of Classes Assessed	2019-20 Number of Students
Introduction to Agriculture, Food, and Natural Resources (AFNR)	67.49[a]	20	386	70.59[a]	15	325
Principles of Agricultural Science-Animal (ASA)	69.89[a]	31	473	69.50[a]	12	140
Principles of Agricultural Science-Plant (ASP)	59.33[a]	19	243	74.20[a]	4	33
Agricultural Power and Technology (APT)	77.46[a]	5	61	53.97[a]	3	5
Natural Resources and Ecology (NRE)	65.00[a]	2	13	N/A[a]	0	0
Animal and Plant Biotechnology (APB)	66.47[a]	8	77	63.97[a]	5	39
Food Science and Safety (FSS)	70.59[a]	12	118	62.27[a]	5	35
Totals	68.03[a]	97	1371	65.75[a]	44	577

Note. ESI, ARD, and ABF do not have End of Course Assessments.

[a]CASE defines 60% as passing.

After analyzing data from table 4.6, there was a decrease in the average score on EoC assessments from the 2018-19 school year (68.03%) to the 2019-20 school year

(65.75%). Also, fewer classes were assessed using EoC assessments in the 2019-20 school year (44) than in the 2018-19 school year (97). Corresponding with a lower number of classes assessed, only 577 students were assessed using EoC assessments in the 2019-20 school year versus 1,371 students assessed in the 2018-19 school year. Overall, student achievement scores, the number of classes assessed, and the number of students assessed decreased in each area when comparing the 2018-19 school year to the 2019-20 school year.

RO4) Determine the relationship between perceived value and student performance on CASE EoC assessments

This study's fourth objective was to determine the relationship between perceived value and student performance on CASE EoC assessments. Perceived value means, standard deviations, and average EoC student scores for the 2018-2020 school years are presented in Table 4.7. Table 4.8 shows the correlations between perceived value and average EoC student scores for the 2018-2020 school years.

Table 4.7

Perceived Value Means, Standard Deviations, and Average EoC Scores

Course	Task Value Mean	Standard Deviation	2018-2020 Average EoC Score (%)
Introduction to Agriculture, Food, and Natural Resources (AFNR)	3.54	.622	69.04
Principles of Agricultural Science-Animal (ASA)	3.49	.602	69.70
Principles of Agricultural Science- Plant (ASP)	3.59	.686	66.77
Agricultural Power and Technology (APT)	3.55	.618	65.00
Natural Resources and Ecology (NRE)	4.02	.544	65.72
Animal and Plant Biotechnology (APB)	3.97	.578	66.43
Food Science and Safety (FSS)	3.88	.642	65.22

Note. Mean values are between 0 and 4.

An analysis of perceived value means after the researcher grouped teachers by CASE certification showed all means were above three and the mean for Natural Resource (NRE) teachers was above 4. NRE teachers showed the highest mean (4.02), while ASA teachers showed the lowest mean (3.49). NRE teachers indicated the lowest variation in mean as it produced the lowest standard deviation value (.544), while ASP teachers produced the highest standard deviation (.686).

Table 4.8

Perceived Value Correlations

Correlations		Task Value Mean	2018-2020 Average EoC Scores
Task Value Mean	Pearson Correlation	1	-.568
	Sig. (2-tailed)		.183
2018-2020 Average EoC Scores	Pearson Correlation	-.568	1
	Sig. (2-tailed)	.183	

Note. Correlation is not significant at the 0.05 level (2-tailed)

After running the Pearson r Correlation test, the test yielded a value of -.568, which was interpreted as a moderate negative correlation. Using the alpha (α) value of 0.05 and a table of significance, these data were determined to be not significant.

RO5) Determine the relationship between teacher expectancy and student performance on CASE EoC assessments

This study's fifth objective was to determine the relationship between expectancy and student performance on CASE EoC assessments. Expectancy means, standard deviations, and average EoC student scores for the 2018-2020 school years are presented in Table 4.9. Table 4.10 shows the correlations between perceived value and average EoC student scores for the 2018-2020 school years.

Table 4.9

Expectancy Means, Standard Deviations, and Average EoC Scores

Course	Expectancy Mean	Standard Deviation	2018-2020 Average EoC Score (%)
Introduction to Agriculture, Food, and Natural Resources (AFNR)	3.47	.250	69.04
Principles of Agricultural Science-Animal (ASA)	3.46	.249	69.70
Principles of Agricultural Science- Plant (ASP)	3.44	.237	66.77
Agricultural Power and Technology (APT)	3.34	.240	65.00
Natural Resources and Ecology (NRE)	3.43	.195	65.72
Animal and Plant Biotechnology (APB)	3.43	.264	66.43
Food Science and Safety (FSS)	3.42	.206	65.22

Note. Mean values are between 0 and 4.

After the researcher grouped teachers by CASE certification, an analysis of expectancy mean values showed all mean values were above three, but none of the mean

values were above 3.50. AFNR teachers showed the highest mean (3.47), while APT teachers showed the lowest mean (3.34). NRE teachers indicated the lowest standard deviation (1.95), while APB teachers indicated the highest standard deviation (.264).

Table 4.10

Expectancy Correlations

Correlations		Expectancy Mean	2018-2020 Average EoC Scores
Expectancy Mean	Pearson Correlation	1	.757
	Sig. (2-tailed)		.049
2018-2020 Average EoC Scores	Pearson Correlation	.757	1
	Sig. (2-tailed)	.049	

Note. Correlation is significant at the 0.05 level (2-tailed)

After running the Pearson r Correlation test, the test produced a value of .757 which was interpreted as a high positive correlation. Using the alpha (α) value of 0.05 and a table of significance, these data were determined to be significant.

RO6) Evaluate CASE End of Course (EoC) assessment format and cost

Research objective 6 aimed to evaluate CASE teacher's perception of the EoC assessment format and cost. Items 23-26 were designed to satisfy research objective 6 and labeled as "Informing Practice". Table 4.11 displays the frequencies and number of responses (*n*) for the Informing Practice construct.

Table 4.11

Informing Practice Frequencies and Number of Responses

Informing Practice Items	$f(\%)$				
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
The multiple-choice format is appropriate for the content	3 (6.1)	12 (24.5)	11 (22.4)	20 (40.8)	3 (6.1)
CASE should explore a different EoC assessment format	1 (2.0)	2 (4.1)	20 (40.8)	17 (34.7)	9 (18.4)
The format of the exam effects student achievement	1 (2.0)	4 (8.2)	14 (28.6)	25 (51.0)	5 (10.2)
The cost of EoC assessments influence teacher use[a]	2 (4.1)	6 (12.2)	6 (12.2)	19 (38.8)	16 (32.7)
Total Responses	7 (3.6)	24 (12.2)	51 (26.0)	81 (41.3)	33 (16.8)

Note. n = 49 usable responses

[a]Assessments are $8-15 depending on the course material

After reviewing the Informing Practice construct, 40.8% of CASE teachers felt the multiple-choice format is appropriate for EoC assessments. However, 34.7% of CASE teachers agree the EoC assessment format should be changed. An additional 18.4% of teachers strongly agree the format should be changed. In addressing the effect assessment format has on student achievement, 51% of teachers agreed the assessment format affects student achievement. Lastly, the cost of assessments was addressed by the informing practice construct. Responses indicated 71.5% agree (38.8%) or strongly agree (32.7%) cost influenced teachers deciding if they will use CASE EoCs.

The final open-ended question providing "additional comments on CASE and CASE End of Course Assessments" aided in further satisfying research objective 6. Open-

ended responses were categorized by keywords and frequencies of keywords were determined from an evaluation of responses. At the completion of the analysis, the responses were displayed in a frequency table. The frequencies reflected the number of responses representative of each category. Frequencies of key words are shown in Table 4.12.

Table 4.12

Open-Ended Response Frequencies

Keyword	*f (%)*
Ineffective	1 (3.1)
Not Used	1 (3.1)
Difficult to use	2 (6.3)
Time	5 (15.6)
Format	5 (15.6)
Expensive	6 (18.8)
Useless	12 (37.5)
Total Frequency of Keywords	32 (100.0)[a]

Note: n= 27 usable responses.

[a]Frequencies outnumber responses as some responses represent more than one category.

Frequencies of responses indicated six teachers felt CASE EoC assessments are too expensive or cost was a contributing factor to use of EoC assessments. Time and format were contributing factors to EoC assessment use as shown by five responses within each category. The largest number of responses (n=12) related to EoC assessments not having any value or being useless to teachers. Additionally, a small number of responses (n=4)

claimed EoC assessments were ineffective (n=1), EoC assessments were difficult to use (n=2) or do not currently use EoC assessments.

Definition of Keywords

Expensive- Responses indicated issues with the cost of CASE End of Course assessments

Time- Responses related to an inadequate amount of time to teach CASE End of Course assessment material

Useless- Responses focused on CASE EoC assessments having low value or being invalid

Format- Responses indicated the format of CASE EoC assessments were not an adequate measure of knowledge

Ineffective- CASE EoC assessments are not an effective measure of student achievement

Not Used- Responses indicated CASE teachers do not currently use CASE EoC assessments

Difficult to Use- Responses express difficulties with the CASE EoC assessment login procedure

Open-Ended Responses

Aside from categorizing responses for keywords to provide frequencies for a statistical representation, selected responses are included to reinforce the findings. Of the responses, 37.5% indicated CASE EoC Assessments are useless to them. Further expanding on this statistic, one teacher wrote “I don't use the End of Course Assessments because the passing of the exam doesn't "mean" anything”. Another is quoted as saying “I find it to be an invalid exam to compare when using that data to compare to other schools/states”. Additionally, participants indicated CASE EoC Assessments “are not deep knowledge or understanding of the content” and “some course eoc are impossible to pass and others are too easy”.

To provide context to responses categorized as expensive, time, and format the following responses are included. Participants added the following about CASE EoC assessments “the expense is not worth it to me” and “stopped using them due to the cost and loss of funding to cover the cost”. Also, time was addressed as participants added “I honestly don’t have enough time to get through all the content, so would not even think about using the assessment”. Lastly, format was expressed as an issue with CASE EoC assessments as one teacher stated, “The current multiple-choice format is not consistent with my state's standardized assessments. It relies on pure memorization where most of the others are more skill-based. CASE EOC Exams need COMPLETE overhaul!”. Open-ended responses assisted researchers in developing conclusions, implications, and recommendations from this thesis.

CASE teacher demographic information

The researcher also collected data to describe the demographic information of the participants. The last five questions on the questionnaire aimed to describe demographics, asking CASE EoC assessment teachers to indicate their CASE certifications, sex, age, years teaching CASE, and years using CASE EoC assessments. The data was analyzed, and frequencies were determined to describe the demographics of the participants. Frequencies for each of the demographic questions are displayed in Tables 4.13, 4.14, 4.15, 4.16, and 4.17.

Table 4.13 shows the number of teachers (*n*) certified in each CASE course as indicated by the questionnaire.

Table 4.13

CASE Course Certifications

CASE Certification	Number of Teachers	% of the Population
Introduction to Agriculture, Food, and Natural Resources (AFNR)	42	76.4%
Principles of Agricultural Science-Animal (ASA)	37	67.3%
Principles of Agricultural Science-Plant (ASP)	35	63.6%
Agricultural Power and Technology (APT)	11	20.0%
Natural Resources and Ecology (NRE)	9	16.4%
Animal and Plant Biotechnology (APB)	12	21.8%
Food Science and Safety (FSS)	12	21.8%
Mechanical Systems in Agriculture (MSA)	1	1.8%
Environmental Science Issues (ESI)	6	10.9%
Agricultural Research and Development (ARD)	15	27.3%
Agricultural Business Foundations (ABF)	21	38.2%
Total Certifications	201[a]	

Note. n = 49 usable responses

[a] Certifications outnumber teachers as some teachers are certified in multiple areas.

After analyzing Table 4.13, the largest percentage of population (76.4%) are certified in Introduction to Agriculture, Food and Natural Resources (AFNR). However,

only one teacher indicated being certified in Mechanical Systems in Agriculture (MSA). Overall, the participants (*n*=49) hold 201 CASE certifications collectively.

Further describing the demographics of the participants, Table 4.14 shows the sex of the participants in this study. Participants indicated they were male, female, or preferred not to answer.

Table 4.14

Sex of Participants

Sex	Number of Teachers	% of the Population
Male	11	22.4%
Female	36	73.5%
Prefer not to answer	2	4.1%
Total	49	100%

Note. n = 49 usable responses

A majority of participants (73.5%) reported their sex as female. Of the 55 participants, 47 participants indicated their sex. Two participants selected "prefer not to answer" and six participants did not answer the question. A total of 49 participants reported an answer for "what is your sex?".

Table 4.15 is a visual representation of the age range of participants. The number of participants within each age range is shown in Table 4.15.

Table 4.15

Age of Participants

Age Range	Number of Teachers	% of the Population
25-34 years old	18	36.7%
35-44 years old	15	30.6%
45-54 years old	11	22.4%
55-64 years old	5	10.2%
Prefer not to answer	6	12.2%
Total	49	100%

Note. n = 49 usable responses

Data from Table 4.15 shows the largest percentage of participants (36.7%) are between 25 and 34 years old. The smallest percentage of participants (10.2%) are between 55 and 64 years of age. Six of the 49 participants (12.2%) chose not to disclose their age.

The final demographic information requested from the questionnaire prompted teachers to indicate the number of years teaching CASE and the number of years using CASE End of Course Assessments. Frequencies from each of these items are shown in Tables 4.16 and 4.17.

Table 4.16

Number of years teaching CASE

Years Teaching CASE	Number of Teachers	% of the Population
1-3	6	12.2%
4-8	26	53.1%
9+	17	34.7%
Total	49	100%

Note. n = 49 usable responses

Table 4.16 shows a majority of teachers have been teaching CASE for 4-8 years. The smallest number of teachers are beginning to teach CASE, only six teachers indicated they have been teaching CASE for 1-3 years. Six teachers did not respond with the number of years they have been teaching CASE.

Table 4.17

Number of Years using CASE End of Course Assessments

Years using CASE EoC's	Number of Teachers	% of the Population
0	14	28.6%
1-3	14	28.6%
4-8	18	36.7%
9+	3	6.1%
Total	49	100%

Note. n = 49 usable responses

Table 4.17 shows most CASE teachers have been using CASE End of Course (EoC) assessments for four to eight years. Additionally, an identical number of participants (n=14) have either never used EoC assessments or have been using them for one to three years. Not all participants (n=49) indicated the number of years they have used CASE EoC's.

CHAPTER 5. CONCLUSION, RECOMMENDATIONS, AND IMPLICATIONS

This chapter draws conclusions from the collection of data adhering to the purpose of this study. The purpose of this study was to explore the effects teacher motivation have on student performance on CASE End of Course assessments. By conducting this study, the researcher determined the perceived value of CASE End of Course (EoC) assessments, level of expectancy, relationships between teacher motivation and CASE EoC assessment student scores, and CASE EoC assessment teacher demographic data. The researcher surveyed CASE EoC assessment teachers through a closed-end CASE End of Course Assessment Teacher Motivation Questionnaire to determine levels of teacher motivation. The researcher used responses from the questionnaire to establish frequencies and mean values. A Pearson r Correlation test was used to determine a relationship between mean values from the CASE End of Course Assessment Teacher Motivation Questionnaire and CASE EoC assessment student scores. Conclusions can help CASE to determine the next steps in the implementation of CASE EoC assessments. In evaluating the findings, the researchers developed conclusions from each of the defined research objectives. The research objectives were as follows:

RO1) Determine the value of CASE EoC assessments as perceived by CASE teachers

RO2) Determine CASE teacher's expectancy for student achievement on CASE EoC assessments

RO3) Evaluate student achievement scores on CASE EoC assessments

RO4) Determine the relationship between perceived value and student performance on CASE EoC assessments as indicated by CASE teachers

RO5) Determine the relationship between teacher expectancy and student performance on CASE EoC assessments as indicated by CASE teachers

RO6) Evaluate CASE EoC assessment format and cost

Research suggests attribution, expectancy, and task value influence student performance. Attribution theory focuses on the perceived reasons for why an event occurred (Heider, 1958). Teachers consistently attribute poor performance to the student (Beckman, 1970), and teacher attitudes are determined by student performance (Brandt & Hayden, 1974). Expectancy is the likelihood a performance will be followed by success or failure (Atkinson, 1957), and task value is the attractiveness of succeeding or failing at a task (Wigfield, 1994). Expectancy combined with task value equals effort (Brophy, 2004). Individuals can be motivated or demotivated by the likelihood of finding success (Carroll et al., 2013). Teachers determine a level of expectancy based on a student's previous experience (Lewin et al., 1944).

Evidence of poor student assessment scores and the influence teacher motivation has on student achievement led the researcher to develop this study's purpose. The purpose of this study was to explore the effects teacher motivation has on student performance on CASE End of Course assessments. The findings show how teacher motivation influences CASE EoC assessments, recommendations for practice, implications, and future research.

Instrument

The researcher developed the 28-item CASE End of Course Assessment Teacher Motivation Questionnaire to determine CASE teachers' perception of task value and expectancy level. After development, the researcher distributed the questionnaire to CASE Lead teachers as part of a pilot study. The pilot study determined the reliability of the

instrument. The instrument produced an acceptable Cronbach's alpha value of .701. The researcher distributed the final version of the instrument distributed to CASE EoC assessment teachers. All survey data was analyzed using SPSS version 27 and then presented in frequency tables.

Secondary Data

A CASE professional provided secondary assessment data to aid in determining a relationship between CASE EoC assessment student scores and teacher motivation. All data provided by CASE personnel was aggregate data. Data were only identified by course subject matter. A CASE professional provided cumulative scores for students who had taken CASE EoC assessments during the 2018-19 and 2019-20 school year to the researcher. Secondary data was provided to the researcher with permission of the CASE director.

Correlation

The researcher used the Pearson r Correlation Coefficient to determine the relationship between teacher motivation and CASE EoC assessment student scores. CASE teacher motivation mean values and CASE EoC assessment student scores were grouped by CASE course subject matter before a Pearson r Correlation test was completed using SPSS version 27. The Pearson r Correlation test provided a value between 1 and -1 (Sprinthall, 2007). Once the values were computed, significance was determined. This study used alpha level .05 as it is standard for academic practice (Sinclair et al., 2013).

Conclusions

The researcher analyzed findings from each research objective and the researcher developed conclusions from the data. Conclusions assisted the researcher in presenting recommendations for practice and implications.

RO 1) Determine the value of CASE EoC assessments as perceived by CASE teachers

The perceived value construct yielded results to draw the following conclusions. Per the sample, CASE teachers enjoy teaching CASE and find the CASE curriculum interesting. However, CASE teachers expressed different agreement levels when asked if it was important to make it through the curriculum. An equal percentage (29.4%) agreed and disagreed with this statement, while 23.5% chose to remain neutral. When asked about the importance of students passing EoC assessments, nearly half (49.0%) expressed neutral feelings, while 45.1% felt it was important students passed. Additionally, 31.4% felt EoC assessments are important to the effectiveness of instruction. However, over one-half disagree (25.5%) or are neutral (25.5%) to CASE EoC assessments being important to the effectiveness of instruction. Additionally, participants were largely neutral (45.1%) when asked if EoC Assessments were useful in improving instruction. Finally, CASE teachers remained neutral (45.1%) when asked if CASE EoC assessments adequately assess their students.

Based upon the results from the perceived value construct, the following conclusions can be drawn. 1) CASE teachers value the CASE curriculum, but do not hold CASE EoC assessments in the same regard, 2) it can be concluded CASE teachers do not feel strongly about the importance of making it through the entire curriculum, 3) having students pass CASE EoC assessments is not a high priority, 4) CASE teachers feel EoC

assessments are important, but are not sure if they improve instruction, and 5) the population has mixed emotions about if CASE EoC assessments adequately assess students. Overall, it can be concluded the population does not perceive EoC Assessments to have a high value.

RO2) Determine CASE teacher's expectancy for student achievement on CASE EoC assessments

Six items made up the ability/expectancy construct. The results from the items are outlined as follows. Over half (66.6%) of CASE teachers feel students will do well in their future CASE courses and 88.3% claimed students have performed well in their previous courses. When asked if they expected students to perform well on CASE EoC assessments, 41.2% agreed, while an additional 41.2% remained neutral. Similar results were indicated when asked if students have performed well on CASE EoC assessments in the past, as 41.2% agreed and 45.1% remained neutral. Lastly, 47.1% of teachers claim they communicate a high level of expectation for CASE EoC assessments where only 5.9% claim to communicate a low level of expectation for CASE EoC assessments. A large number of teachers (43.1%) chose to remain neutral when asked if they communicated a high level of expectation for CASE EoC assessments and 41.2% remained neutral when asked if they communicated a low level of expectation for CASE EoC assessments.

Based upon the results from the ability/expectancy construct, the following conclusions can be drawn. 1) CASE teachers are more confident students will achieve within the CASE course than on CASE EoC assessments, 2) a level of expectation for achievement on EoC assessments is not communicated to students, and 3) based upon the population, expectation for future success aligns with how well students have performed

in the past. Overall, the population reflected a higher level of expectancy for the CASE course than for CASE EoC assessments. There were 14 (28.6%) participants who indicated never using CASE EoC assessments which could contribute to higher levels of expectancy for CASE courses than CASE EoC assessments.

Perceived task difficulty included four items to address how CASE teachers viewed the difficulty of CASE EoC assessments. The population had differing feelings on the difficulty of the CASE curriculum as 48% felt CASE is difficult for students, 20% were neutral, and 30% claimed CASE was not difficult for students. As for the EoC assessments, 38% felt CASE EoC assessments are more difficult than other assessment strategies, 46% were neutral, and 16% refuted this statement. Participants were also asked if their students have to try hard to perform well on CASE EoC assessments and if they have to try hard to prepare students for EoC assessments. Based on the population, 42% agreed students have to try hard, but 46% remained neutral. Teachers were even more undecided about how hard they needed to try to prepare students for CASE EoC assessments as 56% remained neutral, while 28% claimed thy have to try hard to prepare students.

Based upon the results from the Perceived Task Difficulty items, the researcher offers the following conclusions. 1) CASE EoC assessment teachers vary when assessing the difficulty of a CASE Course, 2) CASE teachers are not comfortable expressing the level of difficulty of CASE EoC assessments, 3) CASE teachers are not sure if CASE students try hard to do well on CASE EoC assessments, and 4) CASE teachers neither agreed or disagreed with having to try harder to prepare students for CASE EoC assessments than other assessments. To conclude, CASE teachers were uncertain of the level of difficulty for students or to prepare for CASE EoC assessments.

Results for the attribution construct can be summarized as follows. CASE teachers expressed confidence in their ability to teach as 82% agreed they were certain they will succeed teaching before beginning to teach. Responses indicated 96% of teachers do not really try when difficult tasks are before them. Over half of the population (52%) agreed with the statement "success on EoC assessments depends little on one's knowledge and abilities". Additionally, 64% of participants agreed careful preparation for exams will lead to good results and studying was valued by the population as 90% agreed studying has an effect on one's success on an exam. Finally, 78% of the population indicated success in a course depends upon oneself.

The following conclusions were drawn from the attribution construct. 1) CASE teachers are confident in their success as teachers, 2) the population does not exert the same effort through difficult tasks, 3) CASE teachers feel knowledge and abilities have an effect on EoC assessment success, 4) the population claimed to attribute student success to both teacher preparation and studying, and 5) CASE teachers feel students must own their learning to have success in a course.

Findings from the attribution construct are consistent with attribution theory. Although teachers are confident with the curriculum, teachers indicated success on the assessments was dependent on the student. This is consistent with attribution theory as teachers often attribute poor results to the student (Beckman, 1970).

RO3) Evaluate student achievement scores on CASE EoC assessments

Findings from evaluating student achievement scores suggest a decrease in use of CASE EoC assessments. This finding aligns with the population's perception of CASE EoC assessments having a low value. Additionally, low overall mean scores could be

contributed to the population's low priority for having student's pass EoC assessments. A number of other factors could contribute to low overall student assessment scores. When assessing CASE EoC assessment use during the 2018-19 and 2019-20 school year, less than half the number of the student's assessed in 2018-19 (1,371 students) were assessed in 2019-20 (577 students). Fewer low assessment scores are needed to lower the overall mean when less students are assessed. However, neither year had an overall mean above 70% which can lead researchers to conclude a large number of students are not performing well on CASE EoC assessments.

When evaluating the use of EoC assessments and student achievement scores, it is important to note the onset of the Coronavirus pandemic as a contributing factor in changing the educational climate and influencing the CASE curriculum, CASE teachers, and CASE EoC assessments. During March of 2020, most schools transitioned to virtual instruction. The CASE curriculum is not designed to be implemented virtually and some teachers likely made the decision to not assess students using CASE EoC assessments for the 2019-20 school year. Further addressing this point, many CASE teachers continued teaching virtually as the 2020-21 school year began which could influence a CASE teacher's decision to begin using CASE EoC assessments. Lastly, budgetary cuts due to the Coronavirus pandemic in the 2019-2020 school year and into the 2020-21 school year could be a contributing factor in the funds available to order CASE EoC assessments.

RO4) Determine the relationship between perceived value and student performance on CASE EoC assessments as indicated by CASE teachers

The results from the Pearson r Correlation test suggest there is not a relationship between perceived task value and CASE EoC assessment scores within the realm of the

study population. Higher mean values of perceived value items did not yield higher CASE EoC assessment student scores. Also, lower mean values did not produce lower CASE EoC assessment student scores. Based on the findings, CASE teacher's perception of task value does not influence CASE EoC assessment scores.

The data from the Pearson r Correlation test indicated there was not a significant relationship at α level 0.05 between the mean for task value items and CASE EoC assessment student scores. The expectancy-value relationship outlines the importance of perceived value as it contributes to a level of effort (Brophy, 2004). Theory would suggest low perceived value would lead to low assessment scores. Although the findings do not align with the expectancy-value relationship, the importance of perceived value should not be discounted as previous research claims the higher student value in a course a teacher establishes; the higher student motivation will be to perform well in the course (Hofer, 2006).

Contributing factors to the insignificant relationship could be a result of a small population and the time frame used for student assessment scores. A larger population would provide more data points to offer a more accurate relationship and potentially find a significant relationship. If student achievement scores were higher or lower during a different time frame, a differing relationship could result.

RO5) Determine the relationship between teacher expectancy and student performance on CASE EoC assessments as indicated by CASE teachers

Findings from the Pearson r Correlation test suggest a relationship between teacher expectancy and CASE EoC assessment scores. Higher mean values on expectancy related items corresponded with higher CASE EoC assessment student scores. The Pearson r

Correlation value of .757 suggests a high positive correlation. It can be concluded from the data, as a teacher's level of expectancy increases, student achievement scores will also increase.

The data from the Pearson r Correlation test indicated a significant relationship at α level 0.05 between teacher expectancy and CASE EoC assessment student scores. This finding aligns with the Expectancy-Value theory. Findings showed a relationship between expectancy and student assessment scores. Research suggests expectancies can influence achievement choices, performance, effort, and persistence (Wigfield & Eccles, 2000).

The size of the population and time frame of student scores could influence significance. A larger sample size could reinforce the relationship indicated by the study population or yield an insignificant relationship. Differing CASE EoC assessment student scores could alter a linear relationship produced from the analysis of the study data.

When analyzing objectives 4 and 5 together, researchers found it odd there was a relationship between CASE teacher expectancy and CASE EoC assessment student scores, but not between CASE teacher's perceived task value and CASE EoC assessment student scores. These differing relationships could be explained by the size and feelings of the population. A larger population would provide more data points and may yield similar correlation tests to one another. The feelings of a differing population could provide differing means and a differing relationship to CASE EoC assessment student scores.

The timeframe in which teachers provided survey responses could influence the mean values for teacher motivation constructs. Teachers provided responses during the Coronavirus pandemic, which could have altered their feelings about CASE EoC assessments and level of motivation. If this study were conducted at a different time,

teachers may provide different answers and a different relationship between values could be determined.

RO6) Evaluate CASE EoC assessment format and cost

For the purpose of this thesis and the applicability of practice, CASE EoC assessment teachers indicated their feelings about the format of CASE EoC assessments and cost of assessment. Results showed 40.8% of participants agreed the multiple-choice format is appropriate while 22.4% were neutral and an additional 24.5% disagreed the multiple-choice format is appropriate. However, 53.1% agreed or strongly agreed CASE should explore a different CASE EoC assessment format. Additionally, over half (61.2%) of CASE EoC assessment teachers agree or strongly agree the format of CASE EoC assessments effect students. When addressing the cost of EoC assessments, 71.5% agree or strongly agree the cost influences the use of EoC assessments.

The following conclusions can be drawn from responses regarding format and cost of EoC assessments. 1) CASE EoC assessment teachers have conflicting views on the format of EoC assessments, 2) CASE EoC assessment teachers feel CASE should explore a different CASE EoC assessment format, 3) CASE EoC assessment teachers feel students are affected by the format of CASE EoC assessments, and 4) cost has an influence on CASE teacher's decision to use CASE EoC assessments.

CASE teacher demographic information

This study describes the demographics of CASE EoC assessment teachers. In describing demographics, the researchers collected responses to determine the CASE certifications the teachers currently hold, age range, sex, number of years teaching the CASE curriculum, and the number of years using CASE EoC assessments. The data

indicated 201 CASE certifications across the 49 participants, the largest number being certified in Introduction to Agriculture, Food, and Natural Resources (AFNR) (76.4%), Principles of Agricultural Science- Animal (ASA) (67.3%), and Principles of Agricultural Science- Plant (ASP) (63.6%). This could be expected as AFNR, ASA, and ASP are the three original and longest running courses. The population is largely female (73.5%) and over half (67.3%) of the population is under 44 years of age. Additionally, CASE EoC assessment teachers are experienced in the CASE curriculum as 87.8% of the population have taught the CASE curriculum for at least four years. However, the same level of experience was not reflected in the number of years using CASE EoC assessments as 28.6% have been using CASE EoC assessments for less than three years and an additional 28.6% indicated the teachers have never used CASE EoC assessments.

The demographic data lead researchers to conclude the following. 1) Most CASE EoC assessment teachers are certified in more than one area of the CASE curriculum, 2) CASE EoC assessment teachers are largely female, 3) younger teachers (less than 44 years of age) are more likely to be engaged in the CASE curriculum and CASE EoC assessments, and 4) CASE EoC assessment teachers have been teaching the CASE curriculum for longer than they have used CASE EoC assessments.

Participants offered additional comments through an open-ended question at the conclusion of the questionnaire. From these responses, the following conclusions can be drawn. 1) CASE teachers indicate the CASE EoC assessments are too expensive, 2) CASE teachers feel there is not adequate time to teach the material for student success on EoC assessments, 3) parts of the population feel CASE EoC assessments are useless, 4) CASE teachers indicate the format of CASE EoC assessments hinder student success, and 5)

CASE EoC assessments were described as ineffective and difficult to use. Overall, CASE teachers expressed issues to be addressed as CASE EoC assessments are used in the future.

From summarizing and analyzing the data collected, participants indicated a need for CASE EoC assessments to better align with the CASE curriculum. CASE teachers expressed some of the assessments are impossible to pass where others are too easy for students. When CASE teachers determine what scores they expect from students, it is often based on previous student assessment scores. However, participants attribute success to both student and teacher preparation. Previous studies indicated teachers will often attribute low student assessment scores to the student and high student assessment scores to the teacher (Alam & Farid, 2011; Beckman, 1970; Brandt et al., 1975).

Implications

Implications of this study are derived from the results of the study and conclusions drawn by the researchers. It will be difficult for students to pass a comprehensive assessment if students are not taught the entirety of the curriculum. CASE teachers do not hold passing CASE EoC assessments in high regard and as a result, CASE assessment scores will remain low. Additionally, CASE teachers are unsure if CASE EoC assessments adequately assess students or improve their instruction. Finally, not all teachers communicate a high level of expectancy for achievement on CASE EoC assessments which suggests teachers may not exert maximum effort (Brophy, 2004). Research suggests low value leads to low effort which leads to low achievement. The low value of passing CASE EoC assessments, lack of communication for high achievement, and uncertainty of the assessments could explain the low CASE EoC assessment scores as it mirrors the relationship (low value → low effort= low achievement) outlined above.

Recommendations for CASE/Agricultural Education

After taking the data into consideration, a number of recommendations can be made to CASE and the agricultural education practice. CASE teachers express a concern about the ability to make it through the entirety of the curriculum. CASE should consider allowing CASE EoC assessments to be broken up for teachers to only assess students on what they have been taught or creating the CASE EoC assessments from a select number of units to ensure teachers can get through all of the content. If teachers are able to construct the assessments themselves, perceived value will likely increase. Additionally, level of expectancy will likely increase if teachers are confident in the assessment. Confidence in the assessment could demand teachers to increase effort in preparing students. Theory suggests effort will increase if expectancy and value also increase (Brophy, 2004). It is important to explore ways to increase achievement on CASE EoC assessments as they influence the A-F ratings assigned to schools in certain states based on assessment performance. However, the researcher notes, CASE teachers creating the assessments could compromise the difficulty of assessments if they are given the final decision on content and recommends including CASE professionals, business leaders, and industry professionals in making final content decisions.

CASE teachers claim CASE EoC assessments are not useful to them. CASE should consider making connections with local school boards to determine industry credentialing or college credit satisfied by completion of a CASE EoC assessment. A credential valuable to local industry or college credit for future studies could assist in employment and develop an additional reason to use CASE EoC assessments. Creating a committee of current and past CASE teachers who have used CASE EoC assessments to voice concerns and provide ideas would be a valuable next step to making CASE EoC assessments more useful to

teachers. Within this committee, CASE professionals, CASE teachers, business leaders, and industry professionals could work together to reformat assessments, determine the need for CASE EoC assessments, and determine how to best convey the importance of assessments to other CASE teachers.

The researcher selected the population for this study by using the list of all CASE teachers who were on CASE's EoC assessment teacher list for the 2018-19 and 2019-20 school years. However, after collecting responses, 14 teachers indicate they had never used CASE EoC assessments but were included on the list. For more accurate data collection in the future, CASE should modify their system of keeping records to reflect CASE teachers who have used CASE EoC assessments. A change in the system would produce more accurate numbers and a more appropriate contact list for inquiries.

CASE EoC assessments are still only used by a small percentage of teachers. According to the list provided by CASE professionals, CASE EoC assessments were only ordered by 49 teachers for the 2019-20 school year. There could be a number of factors contributing to the low number of teachers ordering CASE EoC assessments, but CASE should publicize the assessments to ensure teachers are aware of the opportunity and express the importance of using CASE EoC assessments to evaluate their teaching. Currently, CASE EoC assessments are not a part of CASE institutes. CASE should use institutes to promote CASE EoC assessments and train CASE teachers on how to use the CASE EoC assessments. Additionally, CASE should consider rewarding teachers for class performance on CASE EoC assessments. A reward component could be something for teachers to strive for and offer a source of extrinsic motivation for teachers and students.

Teachers expressed issues with the CASE EoC assessment format. Some of these issues were addressed when explaining teachers could not make it through the entire curriculum but added the multiple-choice format is not appropriate for all students. One teacher claimed CASE EoC assessments should be a measure of growth rather than pass-fail. Responses provided by CASE teachers lead the researchers to believe CASE should explore changing the CASE EoC assessment format.

Further, CASE should address the cost of assessments. Within the "informing practice" construct, CASE teachers claimed the cost of CASE EoC assessments influence teacher use, and it was further reflected in the "additional comments" section as teachers added CASE EoC assessments are "too expensive". Currently, CASE EoC assessments cost $8.00-15.00 per student depending on the course. CASE should explore options of decreasing the price of assessments and/or provide options for teachers to seek funding from their communities, through grants, or educational funding.

Recommendations for CASE Teachers

Based off of the population, CASE teachers have concerns with CASE EoC assessments. CASE teachers should have communication with administrators and CASE professionals to determine if CASE EoC assessments should be used in their classroom. CASE teachers should determine if CASE EoC assessments are used to enhance their classroom or if they are used to meet requirements set by a school district or state mandates.

CASE teachers should ensure CASE EoC assessments are valuable to student learning. An exploration of a student incentive for performing well on CASE EoC assessments may increase student and teacher motivation. Additionally, teachers should share successful practices used in the classroom to increase teacher motivation and student

performance on CASE EoC assessments. CASE teachers who have found success with CASE EoC assessments should advocate for other CASE teachers to use CASE EoC assessments.

CASE teachers within the population expressed interest in exploration of a different CASE EoC assessment format. The researcher would suggest CASE teachers share their methods for assessing the CASE curriculum if they do not currently use CASE EoC assessments with other CASE teachers. Sharing assessment practices could lead to changes in CASE EoC assessments and increase levels of teacher motivation.

Future Research

Teachers

There is research left to be conducted around CASE, particularly CASE EoC assessments. The researcher suggests conducting a version of this study using qualitative methods. Interviews with teachers to determine specific concerns and suggestions not included within this study would be valuable to the profession. There is a small percentage of CASE teachers using CASE EoC assessments. Therefore, research should be conducted to determine how CASE teachers are choosing to evaluate their curriculum. Additionally, the entire CASE teacher population should be surveyed about their awareness of CASE EoC assessments to communicate with state leaders and determine how they should be used.

Additionally, this study examined teacher motivation in regard to CASE EoC assessments, but the researcher believes it would be valuable to conduct a study to determine CASE teachers' level of job satisfaction compared to agricultural educators who

do not use the CASE curriculum or CASE EoC assessments. Further, research should be conducted to determine if there is a correlation between CASE teacher's age and use of CASE EoC assessments and between CASE teacher's age and level of experience. Finally, formal research should be conducted focused on the format of CASE EoC assessments. A collection of responses from CASE teachers could guide CASE on a more user-friendly and more widely used EoC assessment.

Students

Future research should be conducted examining the students who are being assessed using CASE EoC assessments. Research should be conducted to determine CASE student's perceived value and level of expectancy for CASE EoC assessments. Additional information is needed to determine how students with Individualized Educational Plans (IEP) or 504 plans perform on CASE EoC assessments and results could influence the format of the assessments. Additionally, student demographic information needs to be collected to determine the effectiveness of CASE EoC assessments for English Language Learners (ELL) and the accommodations CASE currently provides for these students. Finally, the socioeconomic status of students, particularly students with free and reduced lunch should be examined to determine if these factors have an influence on assessment performance and use.

Format and Content

Further research should be conducted in regard to format of assessments and the influence of teacher motivation on assessments. A review of CASE teachers assessment methods could provide direction on how to reformat CASE EoC assessments. Additionally, research should be conducted to determine if there is a similar correlation between teacher

motivation and state mandated assessments. On a similar note, there would be value in determining if a teacher's level of motivation differs between mandated assessments and assessments selected by teachers. Further, research focused on employing a differential item functioning (DIF) analysis to items on CASE EoC assessments should be conducted. Presence of DIF would indicate bias on an assessment as the contents of the assessment evaluate students of varying groups differently (Akanwa et al., 2020). Presence of DIF within CASE EoC assessments could be a contributing factor to student performance and should be studied.

Limitations

As with any research, there are limitations from the design of the study and the population surveyed. This study was limited by the identification of the population. Within the CASE database, they have record of teachers who use the CASE Online system and have ordered CASE EoC assessments, but the database does not always reflect the teachers who have used CASE EoC assessments. The database was used to identify the population, so a limitation to this study was not all of the CASE teachers had used CASE EoC assessments and could skew their responses. Additionally, due to there being a limited number of CASE teachers using CASE EoC assessments, there was a small population and sample size which can limit the accuracy of conclusions.

Further limitations include a lack of previous research on CASE EoC assessments or summative assessment within agricultural education to aid in drawing conclusions. Additionally, research was conducted after teachers had administered the CASE EoC assessments. Therefore, CASE teachers were aware of student performance prior to participating in the study. CASE teacher's prior knowledge of student performance could

have influenced their level of motivation indicated by the questionnaire, thus influencing the high correlation between expectancy and student performance. Finally, there is limited access to data linking CASE EoC assessments to the CASE teacher, making it difficult to make a correlation between teacher motivation and student achievement on CASE EoC assessments aside from using group mean values.

Concluding Remarks

Motivation has an impact on the effort an individual exerts into a task. Brophy (2004) claims effort is exerted when there is a level of expectancy and value. In conducting this study, researchers were able to determine CASE teacher's level of expectancy for student performance on CASE EoC assessments and the perceived value of CASE EoC assessments. Researchers then determined if there was a relationship between motivational factors (expectancy and value) and CASE EoC assessment student scores. CASE teachers also provided thoughts and concerns regarding CASE EoC assessments. After conducting this study, it's important to ask, what does this study mean for CASE, CASE teachers, and the Agricultural Education profession?

Assessments are important to evaluating education. Summative assessments measure student achievement of the intended outcomes for instruction. Summative assessments often determine if students should move to the next course or unit of instruction and the grade to be assigned to each student (Gronlund, 1998). CASE EoC assessments are a measure of student outcomes and are important to the CASE curriculum. However, CASE teachers express issues with CASE EoC assessments and do not express a high level of value for CASE EoC assessments. The findings suggest a level of uncertainty for the CASE EoC assessments adequately assessing the CASE curriculum.

Additionally, passing CASE EoC assessments is not a priority for teachers. If a different system of evaluation were developed between CASE and CASE teachers, perceived value from CASE teachers and CASE professionals could increase.

From the population, this study indicated a relationship between a teacher's level of expectancy and CASE EoC assessment student scores. These findings would suggest CASE professionals should explore ways to increase a teacher's level of expectancy. For CASE teachers, if they communicate higher levels of expectancy, particularly on CASE EoC assessments, higher student assessment scores could result. This study provides more knowledge on the impact teacher motivational factors have on student assessment data.

The comments and concerns shared by teachers provided researchers with insight on how CASE teachers view CASE EoC assessments and evaluation of curriculum. Teachers expressed a need for assessments to be meaningful and easy to use. This information provides CASE professionals with grounds to make changes to meet the needs of teachers. The agricultural education profession can consider these needs when developing future standardized assessments.

The CASE curriculum is important and valuable to CASE teachers. CASE teachers express an enjoyment for teaching the curriculum. However, CASE EoC assessments are not viewed under the same light. As the CASE curriculum continues to be implemented in schools and students are evaluated, this study can offer insight in making decisions regarding CASE EoC assessments.

APPENDIX A. IRB APPROVAL

University of Kentucky | Office of Research Integrity
IRB, RDRC

XP Initial Review

Approval Ends:	IRB Number:
6/2/2021	58060

TO: Andrew Hauser, Bachelor of Science
Community & Leadership Develop
PI phone #: [redacted]

PI email: Andrew.Hauser@uky.edu

FROM: Chairperson/Vice Chairperson
Nonmedical Institutional Review Board (IRB)
SUBJECT: Approval of Protocol
DATE: 6/4/2020

On 6/3/2020, the Nonmedical Institutional Review Board approved your protocol entitled:

The effects of agricultural teacher motivation on CASE End of Course assessment achievement scores

Approval is effective from 6/3/2020 until 6/2/2021 and extends to any consent/assent form, cover letter, and/or phone script. If applicable, the IRB approved consent/assent document(s) to be used when enrolling subjects can be found in the "All Attachments" menu item of your E-IRB application. [Note, subjects can only be enrolled using consent/assent forms which have a valid "IRB Approval" stamp unless special waiver has been obtained from the IRB.] Prior to the end of this period, you will be sent a Continuation Review (CR)/Administrative Annual Review (AAR) request which must be completed and submitted to the Office of Research Integrity so that the protocol can be reviewed and approved for the next period.

In implementing the research activities, you are responsible for complying with IRB decisions, conditions and requirements. The research procedures should be implemented as approved in the IRB protocol. It is the principal investigator's responsibility to ensure any changes planned for the research are submitted for review and approval by the IRB prior to implementation. Protocol changes made without prior IRB approval to eliminate apparent hazards to the subject(s) should be reported in writing immediately to the IRB. Furthermore, discontinuing a study or completion of a study is considered a change in the protocol's status and therefore the IRB should be promptly notified in writing.

For information describing investigator responsibilities after obtaining IRB approval, download and read the document "PI Guidance to Responsibilities, Qualifications, Records and Documentation of Human Subjects Research" available in the online Office of Research Integrity's IRB Survival Handbook. Additional information regarding IRB review, federal regulations, and institutional policies may be found through ORI's web site. If you have questions, need additional information, or would like a paper copy of the above mentioned document, contact the Office of Research Integrity at 859-257-9428.

APPENDIX B. FINAL QUESTIONNAIRE

Questionnaire Cover Letter

Welcome to the CASE End of Course Assessment Teacher Motivation Questionnaire!

Researchers at the University of Kentucky are inviting you to take part in a questionnaire about the motivation behind teachers utilizing CASE End of Course Assessments, teachers' perceptions of the assessments, and potential changes to the assessments for the future.

You will be asked a series of questions to help us understand:

- Perceived value of CASE EoC assessments
- CASE teachers' expectancy for student achievement on CASE EoC Assessments
- The influence teacher motivation has on student performance on CASE EoC Assessments

You are being invited to take part in this study because you have been identified as a CASE Teacher using CASE End of Course Assessments. Your experiences and thoughts will be valuable in exploring changes to the format of CASE EoC assessments.

The survey/questionnaire will take about 10 minutes to complete.

Your response to the questionnaire is confidential which means no names will appear within research documents or be used in presentations or publications.

We hope to receive completed questionnaires from about 100 people, so your answers are important to us. Of course, you have a choice about whether to complete the questionnaire, but if you do participate, you are free to skip any questions or discontinue at any time.

If you have questions about the study, please feel free to ask; my contact information is given below. If you have complaints, suggestions, or questions about your rights as a research volunteer, contact the staff in the University of Kentucky Office of Research Integrity at 859-257-9428 or toll-free at 1-866-400-9428.

Thank you in advance for your assistance with this important project.

Sincerely,

Andrew Hauser
Community and Leadership Development Department, University of Kentucky
PHONE:[redacted]
E-MAIL: alha344@uky.edu

Informed Consent

You can access the consent information for this study at the link below:

IRB Consent

Do you agree to take part in this study?

Motivation of Teacher using CASE End of Course Assessments

Below are a series of statements relating to your feelings about the CASE curriculum, teaching, and student assessment. Please indicate how strongly you agree or disagree with each statement on the scale to the right of each statement.

Perceived Task Value

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. In general, I find teaching CASE very interesting	O	O	O	O	O
2. I enjoy teaching CASE	O	O	O	O	O
3. I find the amount of effort it takes to prepare students for CASE EoC assessments is worthwhile	O	O	O	O	O
4. I feel having students pass CASE EoC assessments is very important	O	O	O	O	O
5. I feel it is important to make it through all of the CASE curriculum	O	O	O	O	O
6. I feel CASE EoC assessments are important to the effectiveness of instruction	O	O	O	O	O
7. I feel CASE EoC assessments are useful in improving my instruction	O	O	O	O	O
8. I feel CASE EoC assessments are useful in adequately assessing my students	O	O	O	O	O

Below are a series of statements relating to your feelings about the CASE curriculum, teaching, and student assessment. Please indicate how strongly you agree or disagree with each statement on the scale to the right of each statement.

Ability/ Expectancy-Related Items

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
9. Based on previous classes, I expect students to perform well on CASE EoC assessments	O	O	O	O	O
10. I feel students will perform well in my CASE course this year	O	O	O	O	O
11. Within my past experiences, my students have performed well on CASE EoC assessments	O	O	O	O	O
12. Within my past experiences, my students have performed well within CASE courses	O	O	O	O	O
13. I communicate a high level of expectation for CASE EoC assessments to students	O	O	O	O	O
14. I communicate a low level of expectation for CASE EoC assessments to students	O	O	O	O	O

Below are a series of statements relating to your feelings about the CASE curriculum, teaching, and student assessment. Please indicate how strongly you agree or disagree with each statement on the scale to the right of each statement.

Perceived Task Difficulty Items

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
15. Compared to other courses, CASE is difficult for students	O	O	O	O	O
16. Compared to other assessment strategies, CASE EoC assessments are difficult for students	O	O	O	O	O
17. Compared to other assessments, students have to try hard to do well on CASE EoC assessments	O	O	O	O	O
18. Compared to other courses, I have to try hard to prepare students for CASE EoC assessments	O	O	O	O	O

Below are a series of statements relating to your feelings about the CASE curriculum, teaching, and student assessment. Please indicate how strongly you agree or disagree with each statement on the scale to the right of each statement.

Attribution

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
19. When I get ready to start teaching, I am usually certain I will succeed in it	O	O	O	O	O
20. If difficult tasks are before me, I notice I do not really try	O	O	O	O	O

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
21. Success on CASE EoC assessments depends little on one's knowledge and abilities	O	O	O	O	O
22. Careful preparation of students for exams leads to good results	O	O	O	O	O
23. I often believe that studying has an effect on one's success on an exam	O	O	O	O	O
24. Success within courses depends on oneself	O	O	O	O	O

Below are a series of statements relating to your feelings about the CASE curriculum, teaching, and student assessment. Please indicate how strongly you agree or disagree with each statement on the scale to the right of each statement.

Informing Practice

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
25. The multiple choice format is appropriate for the content	O	O	O	O	O
26. CASE should explore a different EoC assessment format	O	O	O	O	O
27. The format of the exam effects student achievement	O	O	O	O	O
28. The cost of EoC assessments influence teacher use	O	O	O	O	O

Please select all that apply from the menu below.

Current CASE certification(s) (select all that apply):

- ☐ Introduction to Agriculture, Food and Natural Resources (AFNR)
- ☐ Principles of Agricultural Science- Animal (ASA)
- ☐ Principles of Agricultural Science- Plant (ASP)
- ☐ Agricultural Power and Technology (APT)
- ☐ Natural Resources and Ecology (NRE)
- ☐ Animal and Plant Biotechnology (APB)
- ☐ Food Science and Safety (FSS)
- ☐ Mechanical Systems in Agriculture (MSA)
- ☐ Environmental Science Issues (ESI)
- ☐ Agricultural Research and Development (ARD)
- ☐ Agricultural Business Foundations- Brief CASE (ABF)

Please select the answer that best applies.

What is your sex?

- ○ Male
- ○ Female
- ○ Prefer not to answer

Please select the answer that best applies from the drop down menu.

Age

Please type your answer in the space below.

Years have you taught CASE, including 2020:

Please type your answer in the space below.

Years you have used CASE End of Course (EoC) assessments, including 2020:

Please indicate any additional feedback you would like to include regarding CASE or CASE End of Course (EoC) assessments in the space below.

Additional comments/concerns regarding CASE End of Course Assessments

Powered by Qualtrics

APPENDIX C. SURVEY COMMUNICATIONS

Hello:

Congratulations! Due to your leadership and successes using the CASE curriculum, you have been selected to participate in a CASE research study. You are 1 of 100 teachers from across the country to be selected for this study.

To learn more about the researcher and the study, please see the video below:
My name is Andrew Hauser and I am a graduate student in the Community and Leadership Development Department, specializing in agricultural education, at the University of Kentucky. I am writing to invite you to participate in a CASE research study. This research study is designed to examine teacher motivation on CASE End of Course (EoC) Assessments. I will be using your responses for my thesis research.

Your responses to this questionnaire will be confidential. This 28-item questionnaire will only take ten minutes to complete, and could benefit you and your students in the future. Please find the link to the questionnaire below. If you wish to participate, please complete the questionnaire by **Friday, October 23rd, 2020.**

Link: https://uky.az1.qualtrics.com/jfe/form/SV_8BcIbGkgZYh0GH3

I am happy to answer any questions you may have or further discuss this study with you. You may contact me via email or by calling (XXX)XXX-XXXX**.**

Thank you in advance!

--
Andrew Hauser
Teaching Assistant **I** Agricultural Education
Garrigus Building Room 307
(XXX)XXX-XXXX **I** alha344@uky.edu

Hello!

I hope you are having a great school year!

Last week, you should have received an email inviting you to participate in a CASE research study. Your commitment to CASE and the agricultural education profession will make you a great asset to this study. All you need to do is complete a short questionnaire.

I hope you are able to provide insights about the CASE curriculum by participating in this study. This 28-item questionnaire should take less than 10 minutes to complete. You can be directed to the questionnaire by following the link below:

Link: https://uky.az1.qualtrics.com/jfe/form/SV_8BcIbGkgZYh0GH3

If you have already completed the questionnaire, thank you for your insight and I appreciate your help!

Participation in this research study will help to inform the agricultural education practice and suggest improvements for the way we assess CASE students. Participation in the research study is voluntary and I appreciate your consideration.

If you have any questions, would like to discuss this study, or have trouble accessing the questionnaire, please contact the researcher, Andrew Hauser, via email or by calling (XXX)XXX-XXXX**.**

Thank you in advance!

--
Andrew Hauser
Teaching Assistant **I** Agricultural Education
Garrigus Building Room 307
(XXX)XXX-XXXX **I** alha344@uky.edu

Hello!

I hope this email finds you well! Earlier this week, I sent an email requesting your participation in a CASE research study. You can learn more about the researcher and the study by watching this short video.

If you choose to participate, please follow the link below.

Link: https://uky.az1.qualtrics.com/jfe/form/SV_8BcIbGkgZYh0GH3

Participation in the research study will take no more than 10 minutes to complete and will provide further insights from teachers in regard to CASE assessments. If you have already completed the questionnaire, I thank you for your time and appreciate your help!

If you have any questions, would like to discuss this study, or have trouble accessing the questionnaire, please contact me via email or by calling (XXX)XXX-XXXX**.**

Sincerely,
Andrew
--
Andrew Hauser
Teaching Assistant **I** Agricultural Education
Garrigus Building Room 307
(XXX)XXX-XXXX **I** alha344@uky.edu

Hello:

Over the past two weeks, you should have received a few emails regarding participation in a CASE research study. We need your help to best inform CASE and the agricultural education practice! To fill out the questionnaire, click on the link below:

Link: https://uky.az1.qualtrics.com/jfe/form/SV_8BcIbGkgZYh0GH3

The questionnaire will take no more than 10 minutes to complete and all responses are confidential. If you have already participated, thank you for your help!

If you have any questions, would like to discuss this study, or have trouble accessing the questionnaire, please contact the researcher, Andrew Hauser, via email or by calling (XXX)XXX-XXXX**.**

Sincerely,

--
Andrew Hauser
Teaching Assistant **l** Agricultural Education
Garrigus Building Room 307
(XXX)XXX-XXXX **l** alha344@uky.edu

Hello:

Good morning! I hope your school year is going well and you are continuing to have success! Over the past few weeks you have received emails requesting participation in a CASE research study. **This Friday, October 23rd, is the final day to participate!**

If you choose to participate, please follow the link below.

Link: https://uky.az1.qualtrics.com/jfe/form/SV_8BcIbGkgZYh0GH3

Participation in the research study will take no longer than 10 minutes to complete and can provide valuable information to assisting CASE and the profession. If you have already completed the questionnaire, I appreciate your response and thank you for your help!

If you have any questions, would like to discuss this study, or have trouble accessing the questionnaire, please contact the researcher, Andrew Hauser, via email or by calling (XXX)XXX-XXXX**.**

Sincerely,

--
Andrew Hauser
Teaching Assistant **|** Agricultural Education
Garrigus Building Room 307
(XXX)XXX-XXXX **|** alha344@uky.edu

APPENDIX D. CASE PERMISSION TO OBTAIN STUDENT ASSESSMENT SCORES

CASE

May 27, 2020

Andrew Hauser
University of Kentucky
Graduate Student

Dear Andrew:

I am writing to confirm that Sara Cobb, CASE Digital Learning/Certification Coordinator has access and authority to provide cumulative scores for the purpose of your study on 'the relationship between teacher motivation and CASE End of Course assessments.' Annual cumulative national CASE Pre-Assessment and End-of-Course Assessment data is tallied and posted on the CASE website by course. Per local and state guidelines, teachers utilize assessment scores to assess student learning.

As a result of your study, we look forward to seeing results that reflect the impact that teacher motivation has on student performance and end of course assessment adoption. The results could assist in communicating the importance of measuring outcomes through end of course assessments, as well as the impact of delivering CASE courses using project- and inquiry-based teaching techniques. The study will also reflect the impact and results of the intense professional development teachers receive through CASE Institutes since they experience the courses firsthand just as their will students do.

We look forward to your study.

Sincerely,

Nancy J. Trivette
CASE Director

Curriculum for Agricultural Science Education © Year Document Name – Page 1

REFERENCES

Abu-Hilal, M. M. (2000). A structural model of attitudes towards school subjects, academic aspiration and achievement. *Educational Psychology*, *20*(1), 75-84.

Adelson, G., Blais, R. (1998). Project lead the way-a model program for initiating, funding and maintaining a successful pre-engineering program in the nation's high schools. *Frontiers in Education,* 3, 1161-1165. 10.1109/FIE.1998.738599

Agrawal, M. (2004). Curricular reform in schools: the importance of evaluation. *Journal of curriculum studies*, *36*(3), 361-379.

Alam, M.T. & Farid, S. (2011). Factors effecting teacher motivation. *International Journal of Business and Social Science, 2(1),* 298-304. 10.1108/IJEM-04-2014-0057

Anderson, Katelyn Marie, "Beginning teachers perceptions of curriculum for agricultural science education training and classroom implementation" (2018). *Graduate Theses and Dissertations*. 16784. https://lib.dr.iastate.edu/etd/16784

Atkinson, J.W. (1957). Motivational determinants of risk-taking behavior. *Psychological Review, 64,* 359-372. https://doi.org/10.1037/h0043445

Akanwa, U. N., Agommuoh, P., & Ihechu, P. K. (2020). Differential item functioning method as an item bias indicator for big data assessment in the 21st century. *Journal of The Nigerian Academy Of Education*, *16*(1).

Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review, 84,* 191-215. https://doi.org/10.1037/0033-295X.84.2.191

Barnes, M., Clarke, D., & Stephens, M. (2000). Assessment: the engine of systematic curricular reform?. *Journal of curriculum studies, 32*(5), 623-650.

Becker, W.E., & Johnston, C. (1999). The relationship between multiple-choice and essay response questions in assessing economics understanding. *Economic Record, 75(231)*, 348–357. https://doi.org/10.1111/j.1475-4932.1999.tb02571

Beckman, L. (1970). Effects of students' performance on teachers' and observers' attributions of causality. *Journal of Educational Psychology*, *61,* 76-82. https://doi.org/10.1037/h0028821

Belcher, G., McCaslin, N.L., & Headley, W.S. (1996). Implications of performance measures and standards for evaluation and assessment in agricultural education. *Journal of Agricultural Education, 37(4),* 1-7. 10.5032/jae.1996.04001

Biggs, J.B. (1979). Individual differences in study processes and the quality of learning outcomes, *Higher Education, 8*, 381-394. https://www.jstor.org/stable/3446151

Bishop, R.L. (1990). Multiple-choice questions. *Arcadia University,* 83-87. https://doi.org/10.1017/S0252921100086474

Blackburn, J. & Robinson, S. (2008). Assessing teacher self-efficacy and job satisfaction of early career agriculture teachers in Kentucky. *Journal of Agricultural Education*, 49 (3), 1-11. 10.5032/jae.2008.03001

Bradburn, N.M., Sudman, S., & Wansink, B. (2004). *Asking questions: the definitive guide to questionnaire design-for market research, political polls, and social and health questionnaires*. Jossey-Bass.

Brandt, L., & Hayden, M. (1974) Male and female teacher attitudes as a function of students' ascribed motivation and performance levels. *Journal of Educational Psychology, 66,* 309-314. https://doi.org/10.1037/h0036497

Brandt, L.J., Hayden, M.E., & Brophy, J.E. (1975). Teachers' attitudes and ascription of causation. *Journal of Educational Psychology, 67(5),* 677-682. https://doi.org/10.1037/0022-0663.67.5.677

Brookhart, S.M. & Durkin, D.T. (2003). Classroom assessment, student motivation, and achievement in high school social studies classes. *Applied measurement in education, 16(1)*, 27-54. https://doi.org/10.1207/S15324818AME1601_2

Brophy, J. (2004). *Motivating students to learn* (2nd Edition). Lawrence Erlbaum Associates.

Bruening, T.H., Hoover, T.S. (1991). Personal life factors as related to effectiveness and satisfaction of secondary agricultural teachers. *Journal of Agricultural Education*, *32* (4), 37-43. 10.5032/jae.1991.04037

Carneson, J., Delpierre, G., & Masters, K. (2016). *Designing and managing multiple-choice questions* (2nd Edition).

Carraway, C., Ulmer, J., Burris, S., & Irlbeck, E. (2015). Exploring science teachers' perceptions of the curriculum for agricultural science education. *Western AAAE Research Conference Proceedings, 34,* 193-206.

Carroll, B.C., Orthner, D.K., Behnke, A., Smith, C.M., Day, S., & Raburn, M. (2013). Integrating life skills into relationship and marriage education: the essential life

skills for military families program. *Family Relations, 62(4),* 559-570. https://doi.org/10.1111/fare.12027

Castillo, J.X., Conklin, E.A., Cano, J. (1999). Job satisfaction of Ohio agricultural education teachers. *Journal of Agricultural Education,* 40(2), 19-27. https://doi: 10.5032/jae.1999.02019

Chiasson, T. C., & Burnett, M. F. (2001). The influence of enrollment in agriscience courses on the science achievement of high school students. *Journal of Agricultural Education*, 42(1), 61-71. https://10.5032/jae.2001.01061.

Cialdini, R. B. (1984). *Influence: The new psychology of modern persuasion*. Quill.

Cooper, H.M. & Burger, J.M. (1980). How teachers explain students' academic performance: A categorization of free response academic attributions. *American Educational Research Association, 17(1),* 95-109. https://doi.org/10.3102/00028312017001095

Couper, M.P., Kapteyn, A., Schonlau, M., & Winter, J. (2007). Noncoverage and nonresponse in an internet survey. *Social Science Research, 36,* 131-148. https://doi.org/10.1016/j.ssresearch.2005.10.002

Couper, M. P., Traugott, M. W., & Lamias, M. J. (2001). Web survey design and administration. *Public opinion quarterly*, *65*(2), 230-253.

Couts, M. (2013). Student perceived self-efficacy as it relates to the case agricultural science-animal curriculum. [Master's Thesis, Texas Tech University]. http://hdl.handle.net/2346/50292

Coyle-Williams, M. (1991). The 1990 Perkins amendments: No more "business as usual". *TASP Brief, 3(1),* 2-5.

Creswell, J.W. & Creswell, J.D. (2018). *Research design: Qualitative, quantitative, and mixed method approaches* (5th Edition). Sage Publications, Inc.

Croft, M., Guffy, G., & Vitale, D. (2015). Reviewing your options: The case for using multiple-choice test items. *ACT,* 1-6.

Crooks, T.J. (1988). The impact of classroom evaluation practices on students. *Review of Educational Research, 58(4),* 438-481. https://doi.org/10.3102/00346543058004438

Curriculum for Agriculture Science Education (CASE). (2019). Agricultural business foundations course description. https://www.case4learning.org/CASE/document-server/?cfp=CASE/assets/File/public/course-info/ABF_Course_Description.pdf

Curriculum for Agriculture Science Education (CASE). (2021). BriefCASE. https://www.case4learning.org/about-case/professional-development-philosophy/

Curriculum for Agriculture Science Education (CASE). (2019a). CASE implementation guide. https://www.case4learning.org/CASE/document-server/?cfp=CASE/assets/File/public/about/Implementation_Guide.pdf

Curriculum for Agricultural Science Education (CASE). (2021a). CASE Institutes. https://www.case4learning.org/professional-development/case-institute

Curriculum for Agricultural Science Education (CASE). (2021b). CASE affiliate institutions. https://www.case4learning.org/professional-development/affiliate-institutions/#:~:text=Affiliate%20institutions%20are%20colleges%20and,are%20Master%20and%20Lead%20Teachers

Curriculum for Agricultural Science Education (CASE). (2018). CASE affiliate institution role and responsibilities. https://www.case4learning.org/professional-development/affiliate-institutions/#:~:text=Affiliate%20institutions%20are%20colleges%20and,are%20Master%20and%20Lead%20Teachers

Curriculum for Agricultural Science Education (CASE). (2021c). *CASE Program of Study Pathways* [Figure]. https://www.case4learning.org/curriculum/pathways/

Curriculum for Agricultural Science Education (CASE). (2021d). Curriculum philosophy. https://www.case4learning.org/about-case/curriculum-philosophy/

Curriculum for Agricultural Science Education (CASE). (2017). Fast track ASA CASE institute application information. https://www.case4learning.org/aout-case/professional-development-philosophy/

Curriculum for Agricultural Science Education (CASE). (2019b). Lead and master teacher manual. https://www.case4learning.org/CASE/document-server/?cfp=CASE/assets/File/public/events/CASE_Lead_and_Master_Teacher_Manual.pdf

Curriculum for Agricultural Science Education. (CASE). (2019c). Who makes a strong CASE lead teacher? https://www.case4learning.org/CASE/document-server/?cfp=CASE/assets/File/public/events/CASE_Lead_and_Master_Teacher_Manual.pdf

Chaplin, M. (2013). Evaluation of motivation and professional development of curriculum for agricultural science education (CASE) lead and master teachers. [Master's Thesis, Texas Tech University]

Davis, F.B. (1964) *Educational measurements and their interpretation.* Wadsworth.

Dillman, D.A. & Bowker, D.K. (2001). The Web questionnaire challenge to survey methodologies. In *Dimensions of Internet Science.* Pabst Science Publishers, 159-178.

Dillman, D.A., Smyth, J.D., & Christian, L.M. (2014) *Internet, phone, mail, and mixed-mode surveys: The tailored design method.* John Wiley & Sons, Inc.

Doerfert, D. L. (Ed.) (2011). National research agenda: American Association for Agricultural Education's research priority areas for 2011-2015. Lubbock, TX: Texas Tech University, Department of Agricultural Education and Communications.

Douglas, M., Wilson, J., & Ennis, S. (2012). Multiple-choice question tests: a convenient, flexible and effective learning tool? A case study. *Innovations in Education and Teaching International*, *49*(2), 111-121.

Dufresne, R. J., Leonard, W. J., & Gerace, W.J. (2002). Making sense of students' answers to multiple-choice questions. *The Physics Teacher, 40*, 174–180.

Eccles, J.S. & Wigfield, A. (1993) In the mind of the actor: The structure of adolescents' achievement task values and expectancy-related beliefs. *Society for the Personality and Social Psychology, 21(3),* 215-225. https://doi.org/10.1177/0146167295213003.

Enderlin, K. J., & Osborne, E. W. (1992). Student achievement, attitudes, and thinking skill attainment in an integrated science/agriculture course. *Proceedings of the*

Nineteenth Annual National Agricultural Education Research Meeting, St. Louis, MO.

Epps, R. B. & Foor, R. M. (2015). Relationships between teacher efficacy and job satisfaction among novice and experienced secondary agricultural educators. *Association for Career and Technical Education Research, 40* (2), 125-139. https://doi.org/10.5328/cter40.2.125.

Epps, R. B., Foor, R. M., & Cano, J. (2009). Relationship between teacher efficacy and job satisfaction among secondary agricultural educators. Proceedings of the North Central Region Conference of the American Association for Agricultural Education, 169-179.

Evans, J. R., & Mathur, A. (2005). The value of online surveys. *Electronic Networking Applications and Policy, 15(2),* 195-219. https://doi.org/10.1108/10662240510590360.

Fincham, J.E. (2008). Response rates and responsiveness for surveys, standards, and the journal. *American Journal of Pharmaceutical Education, 72(2)*, 1-2. https://doi.org/10.5688/aj720243.

Flowers, J. & Pepple, J. (1988). Assessment of the morale of beginning vocational agriculture teachers in Illinois. *Journal of the American Association of Teacher Educators in Agriculture, 29(2)*, 2-6. https://doi.org/10.5032/iaatea.1988.02002.

Frary, R.B. (1980). The effect of misinformation, partial information, and guessing on expected multiple-choice test item scores. *Applied Psychological Measurement, 4(1),* 79-90. https://doi.org/10.1177/014662168000400109.

Fristoe, A. (2018, March 7). Rev up the agricultural science rigor with CASE end of course assessments. NAAE Communities of Practice. https://communities.naae.org/community/prodev/case/blog/2018/03/07/rev-up-the-agricultural-science-rigor-with-case-end-of-course-assessments

Funder, D.C. (1982). On the accuracy of dispositional versus situational attributions. *Social Cognition, 1(3),* 205-222. https://doi.org/10.1521/soco.1982.1.3.205.

George, D., & Mallery, P. (2003). SPSS for Windows step by step: A simple guide and reference. 11.0 update (4th ed.). Allyn & Bacon.

Gibbs, G. & Simpson, C. (2004). Does your assessment support your students' learning? *Journal of Teaching and learning in Higher Education,* 1-10.

Gronlund, N.E. (1998). *Assessment of student achievement* (6th edition). Allyn and Bacon.

Haladyna, T.M., Downing, S.M., & Rodriguez, M.C. (2002). A review of multiple-choice item-writing guidelines for classroom assessment. *Applied Measurement in Education, 15(3),* 309-334. https://doi.org/ 10.1207/S15324818AME1503_5.

Harpp, D.N. & Hogan, J.J. (1993) Crime in the classroom- detection and prevention of cheating on multiple-choice exams, *Journal of Chemical Education 70(4)*, 306-311. https://doi.org/10.1021/ed070p306

Heerwegh, D. (2005). Effects of personal salutations in email invitations to participate in a web survey. *Public Opinion Quarterly*, 69 (4), 588–598. https://doi.org/10.1093/poq/nfi053

Heider, F. (1958). *The psychology of interpersonal relations.* John Wiley.

Hewson, Claire (2006). Secondary Analysis. In: *The Sage Dictionary of Social Research Methods.* Sage Publications, Inc.

Hofer, B. K. (2006). Motivation in the College Classroom. In W. J. McKeachie & M. Svinicki (Eds.). McKeachie's Teaching tips: Strategies, research, and theory for college and university teachers. (pp. 140- 150). Houghton Mifflin.

Huffman, I. (2006). *Online questionnaire software advantages/disadvantages.* [Master's Thesis, University of North Carolina].

Jones, E.E., Kanouse, D.E., Kelley, H.H., Nisbett, R.E., Valins, S., & Weiner, B. (Eds.). (1972). *Attribution: Perceiving the causes of behavior.* General Learning.

Kaczmirek, L. (2008). *Human-survey interaction: usability and nonresponse in online surveys*. [Doctoral Dissertation, University of Mannheim], https://ub-madoe.bib.unimannheim.de/2150/

Kelley, H.H. (1967). Attribution theory in social psychology. In D. Levine (Ed.), *Nebraska Symposium on Motivation.* University of Nebraska Press.

Kulhavy, R.W., Dyer, J.W., Silver, L. (1975) The effects of notetaking and test expectancy on the learning of text material, *The Journal of Educational Research, 68(10),* 363-365.

Lab-Aids. (2019). Who We Are. https://lab-aids.com/who-we-are

Lambert, M. D., Velez, J. J., & Elliott, K. M. (2014). What are the teachers' experiences when implementing the Curriculum for Agricultural Science Education? *Journal of Agricultural Education*, *55*(4), 100–115. https://doi.org/10.5032/jae.2014.04100

Lewin, K., Dembo, T., Festinger, L., Sears, P.S. (1944). Level of aspiration. *Personality and the Behavior Disorders: A Handbook Based on Experimental and Clinical Research*. The Ronald Press, 333-378.

Lumsden, L. (1998). Teacher morale. *ERIC Digest, 120,* 1-7.

Manfreda, K., Bosnjak, M., Berzelak, J., Haas, I., & Vehovar, V. (2008). Web surveys versus other survey modes: a meta-analysis comparing response rates. *International Journal of Market Research, 50 (1),* 79–104. https://doi.org/10.1177/147078530805000107.

Manzo, A. N. & Burke, J. M. (2012). Increasing response rate in web-based/internet surveys. In *Handbook of Survey Methodology for the Social Sciences.* Springer Science + Business Media.

Martinez, M.E. (1999). Cognition and the question of test item format. *Educational Psychologist, 34(4),* 207-218. https://doi.org/10.1207/s15326985ep3404_2

Marton, F., and R. Säljö. 1976. On qualitative differences in learning – 1: Outcome and process. *British Journal of Educational Psychology* 46: 4–11.

Mayring, P. (2014). Qualitative content analysis: theoretical foundation, basic procedures and software solution.

McMahan, I. D. (1973). Relationships between causal attributions and expectancy of success. *Journal of Personality and Social Psychology*, *28*(1), 108.

Mensch, M. (2012). Design and philosophy. http://www.case4learning.org/about-case/vision.html

Merit NIC. (1994). NSFNET Statistics. gopher://nic.merit.edu:7043/11/nsfnet/statistics/1994

Merriam-Webster. (2021). Standardized Test. In *Merriam-Webster.com dictionary*. Retrieved January 4, 2020, from https://www.merriam-webster.com/dictionary/semantics

Mertler, C.A. (2002). Job satisfaction and perception of motivation among middles and high school teachers. *American Secondary Education, 31(1),* 43-53. https://www.jstor.org/stable/41064589

National Association for Agricultural Educators (NAAE) (2019). Curriculum for agricultural science education (CASE). https://2019naaeconvention.sched.com/miranda.chaplin

Nicol, D. (2007). E-assessment by design: using multiple-choice tests to good effect. *Journal of Further and Higher Education, 31(1),* 53-64. https://doi.org/10.1080/03098770601167922.

Nolin, J.B. & Parr, B. (2013). Utilization of a high stakes high school graduation exam to assess the impact of agricultural education: a measure of curriculum integration. *Journal of Agricultural Education, 54(3),* 41-53. https://doi.org/ 10.5032/jae.2013.03041

Nurmi, J.E., Salmela-Aro, K., & Haavisto, T. (1995). The strategy and attribution questionnaire: Psychometric properties. *European Journal of Psychological Assessment, 11(2)*, 108-121. https://doi.org/10.1027/1015-5759.11.2.108.

Pauley, C.M., McKim, A.J., Curry Jr., K.W., McKendree, R.B., & Soreson, T.J. (2019). Evaluating interdisciplinary teaching: Curriculum for agricultural science education. *Journal of Agricultural Education, 60*(1), 158-171. https://doi.org/10.5032/jae.2019.01157

Pearson. (2019). Our company. Retrieved from: https://www.pearson.com/corporate#our-company

Pintrich, P.R. & Schunk, D.H. (1996). *Motivation in Education.* Printice-Hall, Inc.

Pitkow, J.E. & Recker, M.M. (1995). Using the web as a survey tool: results from the second WWW user survey. *GVU Technical Report, 94(40),* 1-12. https://doi.org/10.1016/0169-7552(95)00018-3

Privitera, G. J. (2018). Summarizing Data: Frequency Distributions in Tables and Graphs. In *Statistics for the behavioral sciences* (pp. 33–74). SAGE.

Ricketts, J.C., Duncan, D.W., & Peake, J.B. (2006). Science achievement of high school students in complete programs of agriscience education. *Journal of Agricultural Education, 47(2),* 48-55. https://doi.org/10.5032/jae.2006.02048.

Roztocki, N. (2001). Using internet-based surveys for academic research: opportunities and problems. *American Society of Engineering Management (ASEM) National Conference,* 1-6.

Schwarz, N., & Oyserman, D. (2001). Asking questions about behavior: Cognition, communication, and questionnaire construction. *The American Journal of Evaluation*, *22*(2), 127-160.

Scouller, K. (1998). The influence of assessment method on students' learning approaches: Multiple-choice examination versus assignment essay. *Higher Education, 35(4)*, 453-472. https://www.jstor.org/stable/3448270.

Sergiovanni, T. (1967). Factors which affect satisfaction and dissatisfaction of teachers. *The Journal of Educational Administration, 5(1),* 66-82. https://doi.org/10.1108/eb009610.

Shah, J.M., Rehman, M.U., Gulnaz, A., Huma, Z., Riaz, A. (2012). *Job Satisfaction and Motivation of Teachers of Public Educational Institutions, 3(8),* 271-281.

Simkin, M.G. & Kuechler, W.L. (2005). Multiple-choice tests and student understanding: What is the connection? *Decision Sciences Journal of Innovative Education, 3(1),* 73-97. https://doi.org/10.1111/j.1540-4609.2005.00053.x.

Sinclair, J., Taylor, P. J., & Hobbs, S. J. (2013). Alpha level adjustments for multiple dependent variable analyses and their applicability–a review. *Int J Sports Sci Eng, 7*(1), 17-20.

Smith, C.B. (1997). Casting the net: surveying an internet population. *Journal of Computer-Mediated Communication, 3(1)*. https://doi.org/10.1111/j.1083-6101.1997.tb00064.x.

Smith, E. (2008). *Using secondary data in educational and social research*, Open University Press.

Sprinthall, R. (2007). *Basic statistical analysis (8th ed.).* Pearson Allyn & Bacon.

Taras, M. (2009). Summative assessment: the missing link for formative assessment. *Journal of Further and Higher Education, 33(1),* 57-69. https://doi.org/ 10.1080/03098770802638671.

Teas, R. K., & McElroy, J. C. (1986). Causal attributions and expectancy estimates: A framework for understanding the dynamics of salesforce motivation. *Journal of Marketing*, *50*(1), 75-86.

Tourangeau, R., Couper, M.P., & Conrad. (2004). Spacing, position, and order: Interpretive heuristics for visual features of survey questions. *Public Opinion Quarterly, 68*, 368–393. https://doi.org/10.1093/poq/nfh035.

Trouteaud, A. R. (2004). How you ask counts: A test of Internet-related components of response rates to a web-based survey. *Social Science Computer Review, 22*, 385–392. https://doi.org/10.1177/0894439304265650

Thompson, G.W. & Warnick, B.K. (2007). Integrating science into the agricultural education curriculum: Do science and agricultural teachers agree? *Journal of Agricultural Education, 48(3)*, 1-12. https://doi.org/ 10.5032/jae.2007.03001

Ulmer, J.D., Velez, J.J., Lambert, M.D., Thompson, G.W., Burris, S., & Witt, P.A. (2013). Exploring science teaching efficacy of CASE curriculum teachers: A post-then-pre assessment, *Journal of Agricultural Education, 54(4),* 121-133. https://doi.org/ 10.5032/jae.2013.04121.

Van Teijlingen, E., & Hundley, V. (2010). The importance of pilot studies. *Social research update*, *35*(4), 49-59.

Velez, J. J., & Cano, J. (2008). The relationship between teacher immediacy and student motivation. *Journal of Agricultural Education*, *49*(3), 76-86.

Velez, J. J., Lambert, M. D., & Elliott, K. M. (2015). Perceptions of Critical Thinking, Task Value, Autonomy and Science Lab Self-Efficacy: A Longitudinal Examination of Students' CASE Experience. *Journal of Agricultural Education*, *56*(2), 204-216.

Ward's Science. (2019). 150 years of innovation in education. Retrieved from: https://wardsci.com/www.wardsci.com/images/Wards_timeline.pdf

Webb, N. L. (1997). Criteria for Alignment of Expectations and Assessments in Mathematics and Science Education. Research Monograph No. 6.

Weiner, B. (1985). An attribution theory of achievement motivation and emotion. *Psychological Review, 92*, 548-573.

Weiner, B. (1986). *An attributional theory of motivation and emotion.* Springer-Verlag.

Weiner, B. (1992). *Human motivation: Metaphors, theories, and research.* Sage Publications, Inc.

Wells, T., Hainline, M.S., & Smalley, S.W. (2019). Identifying challenges pre-service teachers encountered when teaching curriculum for agricultural science education (CASE) coursework during student teaching. *Journal of Agricultural Education, 60(3),* 128-140. https://doi.org/10.5032/jae.2019.03128

Wesolowsky, G.O. (1999). Detecting excessive similarity in answers on multiple-choice exams. *McMaster University,* 1-21.

Wigfield, A. (1994). Expectancy- value theory of achievement motivation: A developmental perspective. *Educational Psychology Review, 6(1),* 49-78. https://www.jstor.org/stable/23359359.

Wigfield, A. & Eccles, J. (2000) Expectancy- value theory of achievement motivation. *Contemporary Educational Psychology, 25,* 68-81. https://doi.org/10.1006/ceps.1999.1015.

Witt, P.A., Ulmer, J.D., Burris, S., Brashears, T., & Burley, H. (2014). A comparison of student engaged time in agriculture instruction. *Journal of Agricultural Education, 55(2),* 16-32. https://doi.org/10.5032/jae.2014.02016.

VITA

Andrew Lawrence Hauser

EDUCATION

University of Kentucky Expected: May 2021
Master of Science in Community and Leadership Development

West Virginia University May 2019
Bachelor of Science in Agricultural and Extension Education

WORK EXPERIENCE

University of Kentucky 2019-2021
Teaching Assistant

James River High School 2019
Agricultural Educator

West Virginia University Small Farms Center 2018
Student Worker

Dell Ridge Farms 2010-2019
Co-Manager

PRESENTATIONS, PUBLICATIONS, AND POSTERS

Posters

Defining your Role: Facilitating Experiential Education. 2021
Hauser, A.L., Markham, J.D., Barajas, G., Hawk, A. L., Julian, H. A., Hickman, C. M., Rojas, T. E., Leake, A. W., Prince, D. T., & Hains, B.
Presented at: National Association of Agricultural Education

Keeping the "Tech" in Career and Technical Education 2021
Andrew Hauser & Rebekah B. Epps
Presented at: The Southern Association of Agricultural Scientists

Distance Makes the Heart Grow Fonder: Collaborating at a Distance via Nearpod 2021
Andrew Hauser & Rebekah B. Epps
Presented at: The Southern Association of Agricultural Scientists
National Association of Agricultural Education

The "Fun" in Fundraisers: Fundraisers that Stick 2021
Jacelyn D. Nesmith, Andrew Hauser, & Stacy K. Vincent

Presented at: The Southern Association of Agricultural Scientists
National Association of Agricultural Education

"No Words": A Non-Narrative Approach to Education 2020
Jacelyn D. Nesmith, Andrew Hauser, & Rebekah B. Epps
Presented at: The Southern Association of Agricultural Scientists
National Association of Agricultural Education

Creating Great Educators Using Maker Education 2020
Andrew Hauser, Jacelyn Nesmith, & Rebekah B. Epps
Presented at: The Southern Association of Agricultural Scientists
North American Colleges and Teachers of Agriculture

Not Horsin' Around: Learning Mathematics the Horse Way 2020
Juliana Gardner, Jacelyn D. Nesmith, Andrew Hauser, & Rebekah B. Epps
Presented at: The Southern Association of Agricultural Scientists

Historical Review of the Curriculum for Agricultural Science Education (CASE) 2020
Andrew Hauser & Rebekah B. Epps
Presented at: North American Colleges and Teachers of Agriculture

Papers

Experiential Education within the Student Teaching Experience: 2021
An Analysis of the Literature
Andrew L. Hauser & Dr. Bryan Hains

Historical Review of the Curriculum for Agricultural Science Education (CASE) 2020
Andrew Hauser & Rebekah B. Epps
Presented at: The Southern Association of Agricultural Scientists