Utah State University

DigitalCommons@USU

8-2021

A Research Project to Investigate the Instructional Preferences of Alternatively Certified Career and Technical Education Teachers

Jessica Deceuster
Utah State University

Follow this and additional works at: https://digitalcommons.usu.edu/gradreports

Part of the Adult and Continuing Education Commons, Adult and Continuing Education and Teaching Commons, and the Vocational Education Commons

Recommended Citation

Deceuster, Jessica, "A Research Project to Investigate the Instructional Preferences of Alternatively Certified Career and Technical Education Teachers" (2021). *All Graduate Plan B and other Reports*. 1561.
https://digitalcommons.usu.edu/gradreports/1561

UtahStateUniversity
MERRILL-CAZIER LIBRARY

A RESEARCH PROJECT TO INVESTIGATE THE INSTRUCTIONAL

PREFERENCES OF ALTERNATIVELY CERTIFIED CAREER

AND TECHNICAL EDUCATION TEACHERS

by

Jessica Deceuster

A Plan-B project submitted in partial fulfillment
of the requirements for the degree

of

MASTER OF SCIENCE

in

Technology and Engineering Education

Approved:

Gary Stewardson, Ph.D.	Ed Reeve, Ph.D.
Major Professor	Committee Member

Steve Williams, Ed.S.
Committee Member

UTAH STATE UNIVERSITY
Logan, Utah

2021

ABSTRACT

A Research Project to Investigate the Instructional Preferences of Alternatively

Certified Career and Technical Education Teachers

by

Jessica Deceuster, Master of Science

Utah State University, 2021

Major Professor: Gary Stewardson, Ph.D.
Department: Applied Science, Technology, and Education

Industry career workers who have transitioned to teaching within the education sector have the knowledge base to develop "what" needs to be taught in Career and Technical Education (CTE) curriculum; however, they do not have adequate knowledge about instructional strategies or "how" the curriculum content should be taught. Therefore, the purpose of this project was to document the instructional strategies, techniques, and coursework that were taught through the Utah State University Career and Technical Education Academy, to CTE teachers who have transitioned from industry to education, and to assess how well the instructional strategies, techniques, and coursework transferred into the CTE teacher's classrooms.

(56 pages)

PUBLIC ABSTRACT

This project was completed to document the instructional strategies, techniques, and coursework that were taught through the Utah State University Career and Technical Education Academy to Career and Technical Education teachers who have transitioned from working in industry to teaching in education. The project assesses how well the instructional strategies, techniques, and coursework transferred into the Career and Technical Education teacher's classrooms.

ACKNOWLEDGMENTS

I would like to thank my committee for taking the time to work through this study with me. I would especially like to thank Dr. Stewardson for the time and effort he put in helping me, without which this would not have been possible.

I also thank my husband and five children for their support and encouragement in all my educational pursuits. Last, thank you Diet Dr. Pepper and Wiley Wallaby soft and chewy black licorice for getting me through those long typing days.

Jessica A. Deceuster

CONTENTS

LIST OF TABLES

Page

CHAPTER I

INTRODUCTION

Within education there are highly trained knowledgeable professionals who have obtained industrial experience and a unique knowledge base within the subjects they teach. Professionals in all disciplines possess a basic core knowledge of concepts and principles upon which higher order skills are built. There is a tacit assumption that expertise in practice will translate into proficiency in teaching (Mcleod, 2003). However, that is not always the case, many professionals transitioning to teaching need assistance through further education to learn useful teaching techniques. This is important in preventing teacher burnout and helping "the newest teachers succeed" (Joerger & Bremer, 2001).

Problem Statement

Currently there is not enough understanding of what teaching techniques Career and Technology Education (CTE) teachers without a formal teaching background utilize in their classroom or implement after formal teacher training. Therefore, research needs to be done to understand what elements of educational theories and practices are being implemented in the classrooms of CTE teachers who have transitioned or are transitioning from industry and what additional practices are being utilized successfully.

Purpose of the Project

The purpose of this project was to identify the instructional strategies and coursework that were taught through the Utah State University Career and Technical Education Academy (USU CTE Academy) to CTE teachers who have transitioned from industry to education, and to assess how well the instructional strategies and coursework transferred into the CTE teacher's classrooms while learning and participating as students in the USU CTE Academy. The project also identified if there were trends within CTE instructors and what the instructors actually implemented in their classrooms upon completion of the USU CTE Academy. Upon completion of this project, the USU CTE Academy will have a better knowledge and understanding of what concepts and techniques need to be expounded on and explored to a greater depth within the required academy coursework. The project addressed the following questions.

1. What instructional strategies are taught in the USU CTE Academy program courses?

2. What instructional strategies and coursework transfer into the CTE teacher's classroom?

3. What other instructional strategies CTE teachers use that they feel are successful?

4. What improvements could be implemented in the USU CTE Academy courses?

Need of the Project

The project examined approximately 15 CTE teachers enrolled in the USU

CTE Academy. The USU CTE Academy offers courses designed to teach educational instructional strategies. These courses need to be evaluated in order to know and understand what pedagogical and teaching techniques are being understood and used by the CTE teachers during and after the class coursework is completed. This knowledge and understanding will lend insight into which pedagogical and learning techniques learned appear most useful to the CTE teachers. What improvements could be implemented in the USU CTE Academy courses? What other instructional strategies CTE teachers use that they feel are successful? This knowledge will lend direction for improvements in future USU CTE Academy classes.

The American Institutes for Research began studying how to best meet the needs of CTE teachers and what CTE teachers really want to learn in 2014. The information collected showed that the two most important areas that CTE teachers want to improve is:

1. How to better design authentic or simulated learning experiences requiring real-world use of industry-specific technologies.

2. How to best align curriculum, instruction, assessment, and evaluation (Green & Moore, 2016).

This study is one example that shows the lack of formal instructional strategies many CTE teachers experience in the classroom.

In 2007-2008, the James Irvine Foundation funded the American Youth Policy forum to explore the best way to reform CTE programs and the way CTE teachers are supported, the best practices to develop teacher learning, and how policy makers can better support these programs. The James Irvine Foundation

concluded that because most colleges of education do not focus on CTE, there is

a shortage of qualified CTE teachers. As a result, many schools rely on industry

experts to bring technical knowledge and skills into the classroom to supplement

a lack of focus on CTE courses (Brand, 2008). Therefore, once these industry

experts enter the classroom, they need professional development. The need for

the project was based on the following factors.

1. CTE teachers desire to learn how to be better teachers.

2. Research has shown a need for industry professionals in CTE
   classrooms but also a need to professionally develop those individuals.

Assumptions

The following assumptions were made in the pursuit of this project.

1. The participants will respond to the interview questions in an honest
   and candid manner.

2. The inclusion criteria of the participants are appropriate and therefore,
   assures that all participants have all experienced the same or a similar
   experience with the interview.

3. Participants have a sincere interest in participating in the research and
   do not have any other motives.

Limitations

The following limitations were included in the project.

1. This project will be limited to USU CTE Academy students who have
   transitioned from industry to education.

2. Interview techniques to question participants were through Zoom.

Definition of Key Terms

Career and Technical Education: Educational programs that specialize in the skilled trades, applied sciences, modern technologies, and career preparation.

Instructional Strategies: The method and practice of teaching.

Utah State University Career and Technical Education Academy (USU CTE ACADEMY): A program to provide professional development and teaching strategies for technical college teachers seeking to gain a degree.

CHAPTER II

REVIEW OF LITERATURE

Introduction

Industry career workers who have transitioned or are transitioning to teaching within the education sector have the knowledge base to develop "what" needs to be taught in CTE curriculum; however, they do not have adequate knowledge about instructional strategies or "how" the curriculum content should be taught. Therefore, the purpose of this project was to document the instructional strategies and coursework that were taught through the USU CTE Academy, to CTE teachers who have transitioned from industry to education, and to assess how well the instructional strategies and coursework transferred into the CTE teacher's classrooms. Insight gained through this project will be beneficial to improve the curriculum in the newly established USU CTE Academy.

The purpose of this review of literature is to explore the 2006 Carl D. Perkins CTE Improvement Act, what the Utah State Board of Education has found to be important in teaching CTE, as well as what professional learning CTE teachers find useful in their CTE classrooms.

Findings

CTE Improvement Act

The 2006 Carl D. Perkins CTE Improvement Act was signed into law with the intention of strengthening the focus on responsiveness to the economy (Threeton, 2007). This act promotes the development of activities and services which integrate academic and career and technical instruction in order to prepare students for high-skill, high-wage, or high-demand occupations in current or emerging professions (Dortch, 2012).

Currently, the Perkins Act continues to emphasize the importance of integrating academics into CTE programs and classrooms. Educational activities as outlined in the Perkins Act include, providing individuals rigorous content that aligns with the state's academic standards, relevant professional technical knowledge, skills, and proficiency, receiving an industry recognized credential, certificate, or degree, providing competency-based learning, as well as, higher-order reasoning, and problem-solving skills, providing skills in employability, and finally, knowledge in entrepreneurships (Dortch, 2012).

With the renewal of the Perkins legislation, every state in the U.S. has a responsibility to integrate the academic activities as outlined. Thus, transferring the academic role and responsibility of CTE teachers to align and integrate these educational activities into CTE curriculum and instructional strategies.

Utah State Board of Education CTE

The Utah State Board of Education supports the idea that a hands-on approach to teaching CTE courses is more effective with many students than reading or listening to lectures alone (Career and Technical Education, 2020). This is done through work-based learning and labs that give students the opportunity to participate in job shadowing, internships, field studies, and career fairs. In turn, these work-based experiences help prepare most young people to enter the world of work within the technical industry. Student skill completion is measured by core standards and competencies needed to be successful in the workforce and Utah CTE programs provide state-wide competency-based student assessments (Career and Technical Education, 2020).

Professional Learning CTE Teachers Want

The American Institute of Research began studying what CTE teachers want to learn in order to improve their teaching effectiveness in 2015. The top five combined priorities of CTE teachers for professional learning include, (1) designing authentic or simulated learning experiences requiring real-world use of industry-specific technologies; (2) aligning curriculum, instruction, assessment, and evaluation; (3) improving business and industry engagement; (4) motivating students; and (5) incorporating critical thinking and problem-solving skills (Green & Moore, 2016). When considering the specific focus of what CTE teachers want to be learning, the top five priorities listed above provide a base for professional development programs to begin teaching.

Research on the needs and concerns of beginning CTE teachers resulted in the development of the Teacher Proximity Continuum (TPC). Richard M. Joerger and Christine D. Bremer at the University of Minnesota used the information provided by the TPC and identified categories that should be emphasized in CTE teacher induction programs. Part of their research concluded that CTE teachers need instructional strategy guidance in organizing and designing effective lessons, organizing facilities for effective learning, determining the scope, sequence, and pace of courses, using alternative teaching methods, and establishing support from organizations (Wonacott, 2002). Similarly, the Southern Regional Education Board (SREB) has concluded that "business and industry professionals can 'turn on' students to school and careers" (SREB High Schools That Work, 2014). Therefore, SREB and the National Research Center for Career and Technical Education designed a research-based induction model entitled, Preparing CTE Teachers for Today's Students program. The programs assist new Career Technical teachers in making a successful transition from industry to teaching. While the business and industry professionals participate in the program, the program's focus is on these topics; instructional planning, instructional strategies, classroom assessment, classroom management, and developing authentic assignments that use 21st-century technology (SREB High Schools That Work, 2014).

Discussion

The U.S. Federal Government, through the Perkins Act and federal funding, have brought attention to the economic importance of CTE throughout the country. With the development and passing of the Perkins Act, it is also clear the type of content and rigor the government would like to see within CTE programs. The Utah State Board of Education has also made it clear through the Pathways program the intent and goals of CTE within the state of Utah. Because of the American Institute of Research, there is a clearer understanding of what CTE teachers want to learn in order to improve their teaching effectiveness. It is known what the federal government wants, what the state of Utah wants, and what CTE teachers want. What we do not know is what CTE teachers are actually implementing from their pedagogical instruction to their classrooms. What instructional strategies being learned are actually being understood, developed, and implemented in CTE classrooms. Are CTE teacher programs delivering what the Federal Government through the Perkins Act and Utah Pathways Programs intend CTE teachers to implement as instructional strategies? How effective is the USU CTE Academy instruction?

CHAPTER III

METHODS

Many industry professionals who have transitioned or transitioning to teaching CTE need assistance through further education. This project explored what instructional strategies and teaching techniques CTE teachers actually use within their classroom's. The following research questions were answered.

1. What instructional strategies are taught in the USU CTE Academy program courses?

2. What instructional strategies and coursework transfer into the CTE teacher's classroom?

3. What other instructional strategies CTE teachers use that they feel are successful?

4. What improvements could be implemented in the USU CTE Academy courses?

Research Design

The project used a qualitative phenomenological model, this was done with interview questions. A pilot of the interviewing process and questions were implemented first to ensure the interview process and questions for the research participants and the data being collected provided the information needed. Students in the USU CTE Academy not transitioning from industry were used to pilot the process and questions.

Upon completion of the Fall 2020 semester, the USU CTE Academy advisor contacted the students through email (see Appendix B) asking if they

would be willing to participate in a research project involving a Zoom interview. Those students willing to participate scheduled an interview at their convenience.

Participants controlled the setting of their environment because the interviews were done via Zoom. With the consent of the participant, the Zoom interview was recorded. If the participant did not want to be recorded, written transcripts were used. The participants had the option to answer or not answer any questions and had the option to withdraw from the study at any time. With these options in place, participants did not feel anxiety or that the questioning format utilized was invasive.

Population and Sample

The population for this project included students enrolled in the USU CTE Academy from Summer 2020 to Spring 2021. The population for this project included students who had transitioned from careers in industry to careers in various aspects of education—primarily instructors and teachers. There were 15 students enrolled in the Academy, 12 students met the necessary research criteria and were asked to participate in an interview, 7 students agreed to participate in an interview. From this population, willing students participated in an individual interview.

Instrument

In this project, 11 questions (see Appendix A) were utilized to interview the

participants. The questions were open-ended allowing the participants to answer freely in their own terms. Questions about educational background, industry experience, and teaching experience were asked, as well as the interview questions that were developed for this project by Jessica Deceuster and Gary Stewardson.

Data Collection

Following approval by USU's Institutional Review Board (IRB), the project consisted of an individual interview with each participant. The interview was recorded with the interviewees consent. The interviews were informal. Face-to-face interviewing was the preferred method; however, in light of the Covid-19 pandemic, video conferencing via Zoom was used. After the completion of the interview, a transcript was typed, and the recording was deleted. The name of the interviewee was given an identification number to retain privacy on the transcript. The participant was referred to by the given number for the remainder of the research. Once all the interviews were completed, the data were analyzed and reported in the final Plan-B project. After a successful defense of the project, the transcripts were deleted along with the identifying key.

Data Analysis

A grid was prepared to gather the data provided in the interview. A coding system was designed to review and categorize the open-ended question

responses into broad categories. The interview responses were reviewed for similarities and differences within the data that were collected and reported through the interview process. The review process included reading each transcription and highlighting every statement thought to be necessary for understanding what was being taught at the USU CTE Academy and what was transferring into the participant's classroom. Information regarding educational background and years spent in industry and teaching were also coded and analyzed. Participant responses regarding ideas that the participant used in their classroom that was not taught at the Academy were categorized as standalone responses because each response was unique.

CHAPTER IV

RESULTS

Introduction

The purpose of this project was to identify the instructional strategies and coursework that were taught through the USU CTE Academy to CTE teachers who had transitioned from industry to education. The project assessed how well the instructional strategies and coursework transferred into the CTE teacher's classrooms while learning and participating as students in the USU CTE Academy.

There were four main questions that the project was centered around, questions 1-3 will be addressed individually in this chapter; question 4 will be addressed in Chapter IV. The questions being addressed were as follows.

1. What instructional strategies are taught in the USU CTE Academy program courses?

2. What instructional strategies and coursework transfer into the CTE teacher's classroom?

3. What other instructional strategies CTE teachers use that they feel are successful?

4. What improvements could be implemented in the USU CTE Academy courses?

Also, in this chapter the participant interview summaries are included. The summaries report the participant's educational background, industry experience, and teaching background. This is followed by the survey participants' reasons for enrolling in the USU CTE Academy, what their expectations were, and what skills

they expected to learn. Finally, the researcher will report if/how fellow Academy participants connected or collaborated with one another while attending the USU CTE Academy. The question regarding participants connecting or collaborating was not part of the core research questions; however, it did lead to interesting insights and a recommendation for the USU CTE Academy and therefore will be included in the results.

The Setting

Organization

The CTE program, for which the participants were selected from, was a USU program. The following information about the setting was taken from the CTE Teaching Academy website (see: https://caas.usu.edu/avte/programs/cte-academy). The program was designed to improve current teacher knowledge and skills in fields specific to teaching in CTE. The 18-credit certificate program focused primarily on improving participants' understanding of the pedagogy required to teach CTE content. There were six courses included in the USU CTE Academy program as follows:

- Methods of Teaching and Learning: Levels 1-3 (3)
- Methods of Teaching and Learning: Levels 4-6 (3)
- Curriculum and Program Development (3)
- Evaluation and Assessment (3)
- Teaching with Technology (3)
- Classroom and Laboratory Management (3)

Faculty

The USU CTE Academy program included two full-time faculty and one part-time graduate student instructor. Each faculty member taught a specific course(s) as needed each semester. When the program was introduced in the Summer of 2020 there was one full-time faculty member who managed the first set of courses offered. Beginning in the Fall of 2020, two other faculty members were included to teach and develop courses. Jessica Deceuster was the part-time graduate student instructor and the author of this Plan-B Project, she taught the Teaching with Technology course.

Students

The USU CTE Academy program had an open-enrollment admission policy during the Fall, Spring, and Summer semesters. There were no requirements that needed to be met in order to apply and/or participate in the program.

The program had seen minimal growth beginning with 13 students in the Summer of 2020 and increasing to 15 students in the Fall of 2020. At the time of the project the program was less than a year old. All students came from Davis County located in Northern Utah.

Summary of the Participants

The interview participants had varying degrees of industrial experience and varying degrees of teaching experience. Areas of industrial experience

included cosmetology, master esthetics, nursing, automotive technician, service manager, English teacher, and medical assistant. The years spent working in industry ranged from 12-31 years with an average of 20 years spent in industry.

The subject matters that the participants had teaching experience included automotive, master esthetician, medical assisting, nursing skills, human growth and development, obstetrics, and finally, workplace communication and job-seeking skills. The years spent teaching in a public school system ranged from 4 to 18 with the average time spent teaching among the participants 8 years.

The interview participants also had varying degrees of education. Areas of education included Bachelor of Business Administration, Bachelor of Science, Bachelor of English, Bachelor of Science in Nursing, Bachelor of Science in Public Health, Associate of General Studies, ASE Certified Master Technician, a licensed Cosmetologist, and a licensed Master Esthetician. Four participants were using the USU CTE Academy classes to work on their Master's. One participant was using the USU CTE Academy classes to work on her bachelors.

The Interview Process

Following the signing of the consent form, 7 of the 15 USU CTE Academy students who had completed two semesters of the program participated in open-ended interviews during the beginning of their third semester of the program. The participants had completed five of the six courses offered. The only class that had not been completed yet by the participants was the Classroom Management

Course. In light of the Covid-19 pandemic, all interviews were completed via Zoom. Notes were taken during the interview and the interview was recorded with the consent of the participant.

The interview questions included but were not limited to, the participants industry experience, educational background, and how many years they had spent teaching. The participants were also asked what instructional strategies learned at the USU CTE Academy were applied to the participants classroom and what instructional strategies learned did the participant plan to implement in their classroom. The interview participants were asked their reason for enrolling in the USU CTE Academy, what their expectations were, and what skills they expected to learn. Last, participants were asked if they connected or collaborated with one another and if the participants had any ideas not covered at the Academy that they had utilized successfully in their classroom.

Interview Results Based on Research Questions 1-3

Research Question #1

Research Question 1 asked, *"What Instructional Strategies are Taught in the USU CTE Academy Program Courses"?* To answer this question, the Academy instructor's syllabi were first analyzed, and a list of instructional strategies being used was developed. In addition, students who were part of the interview process provided additional insight into what instructional strategies were being taught. The student's input also provided understanding of what

instructional strategies were transferring into their classrooms.

Research question #1 was not asked directly to the participants. The responses for this question were drawn from the participant's interviews based on instructional strategies that were mentioned during the interview while speaking in the context of instructional strategies learned at the USU CTE Academy.

Assessment and curriculum design were mentioned the most by the participants as instructional strategies that were taught and therefore learned at the Academy. Assessment was mentioned by every participant and curriculum design was mentioned by four participants. Twenty-first century skills were the second most mentioned instructional strategy, specifically, Canvas, Google Sites, Quizlet and virtual reality. Last, how to engage students, project-based learning, differentiated instruction and classroom management were mentioned once or twice by the participants.

The following list of instructional strategies were taken from the USU CTE Academy syllabi and display what instructional strategies are being taught.

- Align learning objectives with instruction and assessment
- Explain and demonstrate principles of effective assessment in its variety of forms
- Explain foundational theories and concepts of assessment (e.g., validity, reliability, fairness, measurement, evaluation, grading, etc.)
- Demonstrate the use of various formative and summative assessment strategies
- Demonstrate the use of traditional, performance-based and alternative assessments

- Demonstrate the ability to differentiate assessment based on learning differences among students

- Differentiate between various grading schemes and identify benefits and weaknesses of each

- Develop curriculum including scope and sequencing of instruction, unit planning, and daily lesson design

- Organize instruction, learning materials, and learning activities to effectively teach agriculture and technology education

- Demonstrate teaching strategies and methods in the secondary agricultural education and technology and engineering education classrooms

- Conduct well-planned instructional activities that result in positive and productive learning environments

- Explain classroom management strategies for the secondary classroom

- Describe the development and professional standards for educators

- Demonstrate the ability to be reflective about the teaching and learning process

- Describe and discuss some of the key skills that are needed in a digital age

- Identify and discuss some of the ways technology is leading to changes in teaching and learning

- To identify the main pedagogical characteristics of video

- Demonstrate online collaborating using Google

- Explore virtual reality in the classroom

- Describe and discuss current trends and issues when using technology in the classroom

- Compose a working Canvas module

Research Question #2

Research question #2 asked, "*What Instructional Strategies and Coursework Transfer into the CTE Teacher's Classroom*"?

Pilot Interview

A pilot interview was conducted with a participant who met the criteria of being a USU CTE Academy student, however, this participant had not transitioned from industry to teaching. This participant was employed as an educational advisor for the Davis Technical College which was how she heard about and found interest in the USU CTE Academy. Therefore, this participant was chosen to participate in a pilot interview since she met most of the criteria needed for the project.

All of the relevant interview questions were asked of the pilot interview participant and all interview questions were answered by the participant. Upon completion of the pilot, interview question 7a, "What specific skills did you want to learn or gain?" was removed as an interview question because the pilot study participant and following participants included the skills they wished to learn or gain in their answer to question seven, "What were your expectations for the Academy in the beginning?" Therefore, it seemed unnecessary to include 7a as an interview question.

The interview was conducted via Zoom in order to verify that Zoom was a viable way to interview the participants and was not too cumbersome. The pilot interview was included in the chapter because of the insightful responses the

participant detailed. However, data retrieved from the pilot interview was not included in the final results.

Pilot Interview Participant

Background questions. The pilot interview participant had an associate degree in general studies and sociology and a bachelor's degree in business administration. She had worked in education not as a teacher but as an advisor for 15 years. The last 8 years she had worked as an advisor for the Davis Technical College.

USU CTE Academy questions. The pilot interview participant enrolled in the USU CTE Academy because it was an opportunity to learn more about teaching so she could better support the faculty within her program, and she also wanted to work towards her master's degree.

Her beginning expectations included learning about classroom management, student engagement and teaching strategies. Her expectations changed because one of her first classes was assessment and evaluation which she did not expect to learn about but found valuable. Then she learned about building teaching skills, like project-based learning, which was also different then she originally expected to learn. However, she found those classes to be useful in knowing how to better support the faculty within her program at the Davis Technical College. One skill in particular that she learned at the USU CTE Academy was how to create an online learning page or Canvas page for incoming students. The participant created this Canvas page to break up the

introductory content the student's had to review prior to starting the Davis Technical College program. Since the Canvas page's creation, the students seem to understand the material more and she planned on using this skill in her future advisory work.

The pilot interview participant felt she had made connections with other USU CTE Academy students, especially the students who were working towards their own master's degree. She has also collaborated and found support from the other students in the Academy as well.

Participant One

Background questions. Participant One's educational background was a Bachelor of Science in Nursing. She spent 12 years working in industry as a nurse and has spent five years teaching nursing skills, human growth and development, and obstetrics at the Davis Technical College.

USU CTE Academy questions. Participant One enrolled in the USU CTE Academy to pursue a master's degree in Education. She expected to learn content that would improve her understanding of teaching theory and improve her abilities as an educator. She wanted a stronger foundation of excellent pedagogy principles and tools to improve her teaching, such as, understanding summative and formative assessment better, improving ways to engage students, and classroom management tips.

She felt those expectations had been met and she was a little surprised as

to how directly the education she had received at the USU CTE Academy had already benefited the program in which she taught. In short, the value of the Academy had exceeded her expectations.

She felt all the content learned at the Academy had been relevant and she had already implemented the following content learned through the Academy into her classroom.

- Performance based assessment

- project-based learning

- 21st Century Skills (virtual reality, google docs, screencast, online surveys)

- Occupational and Task analysis

- Collaborative and/or cooperative learning

Participant One had already implemented five of the instructional strategies listed above in her classroom and she planned to also implement differentiated assessment and differentiated instruction as well.

The participant was asked to share an instructional strategy learned at the USU CTE Academy that the participant had already implemented into her classroom.

> I adapted student presentations for a lesson into a more project-based learning assignment because the students can prepare information to share with the community rather than just their peers. I also upgraded our nursing skills rubrics to reflect current best practices. And I implemented many more engaging methods of teaching that created more active learning experiences to complement lectures. I created online pages that students can work on collaboratively. Also, I use QR codes to help familiarize students with lab equipment and how to operate it. I recognized areas of instruction that lacked clarity and corrected it so students are able to learn better. I'm in the process of developing instruction and

assessment to teach several nursing skills.

While completing USU CTE Academy courses the participant had collaborated with some of her fellow Academy participants on an Applied Science and Technology assignment. She had also collaborated with Academy students on some projects to enrich the learning experience of Davis Technical College students.

Overall, Participant One was very impressed with the USU CTE Academy and could not think of any ideas or teaching strategies that she had used in her classroom that the Academy had not covered.

Participant Two

Background questions. Participant Two's educational background consists of a Bachelor of Science and an ASE master technician certification. He spent 18 years working in industry as an automotive technician and a service manager. He has since spent six years teaching automotive at the Davis Technical College.

USU CTE Academy questions. Participant Two enrolled in the USU CTE Academy because he wanted to learn more about teaching. He expected the courses would be centered around how to teach technical education and after completing two semesters of courses his expectations had not changed.

He specifically wanted to gain a greater understanding of how to develop tools for teaching and how to better assess student understanding. Participant Two felt that the courses he had completed at the Academy had been very

relevant to his classroom. He had already implemented the following content learned through the Academy into his classroom.

- Differentiated assessment

- project-based learning

- Occupational and Task analysis

- Collaborative and/or cooperative learning

Participant Two planned to include 21st century skills such as google docs, VR, online surveys, and screencast as teaching strategies in his classroom. He was very excited to introduce virtual reality goggles to his classroom.

Participant Two had connected with and collaborated with 12 other individuals who he worked with at the Davis Technical College who were also students in the USU CTE Academy. They shared ideas that they had created from the methods learned at the Academy.

One of the ideas Participant Two used in his classroom that was not covered in the USU CTE Academy courses was the use of QR codes. He attached QR codes to equipment in his automotive lab that then played videos allowing students to identify tools and learn how to properly use them.

Participant Three

Background questions. Participant Three's educational background included two licensures, the first in cosmetology, and the second in master esthetics. She spent 12 years working in industry as a cosmetologist and master

esthetician. She had spent the last eight years teaching at Davis Technical

College teaching esthetics.

USU CTE Academy questions. Participant Three enrolled in the USU

CTE Academy because Davis Technical College was advertising the program.

Her expectations included learning teaching skills to add to her classroom,

specifically she wanted to learn how to engage with different types of learners.

Participant Three felt she had learned quite a bit at the Academy and the

information learned was relevant because she applied it to her classroom daily.

She had already implemented the following teaching strategies in her classroom

that were learned in her USU CTE Academy courses,

- Performance based assessment

- Project-based learning

- Collaborative and/or cooperative learning

Participant Three planned to use the following teaching strategies learned

at the Academy in her classroom which included,

- Performance based assessment

- Differentiated assessment

- Differentiated instruction

- project-based learning

- 21st Century Skills (virtual reality, google docs, screencast, online
  surveys)

- Occupational and Task analysis

The only instructional strategy that she had not implemented and did not

plan to implement in her classroom was backward design. This was becoming a familiar trend among the participants that will be discussed further in the paper.

Participant Three did not have a specific example of a teaching technique that she already implemented in her classroom, but she did state she would like to use differentiated assessment more often in her classroom.

She stated that she had made connections and had collaborated with other USU CTE Academy students but did not share any further details. She also did not have any ideas that she used in her classroom that had not been covered in her Academy courses.

Participant Four

Background questions. Participant Four had a Bachelors in English and worked for 13 years as a teacher, 4 years as a middle school teacher, and 9 years at Davis Technical College. He taught workplace communications and job seeking skills at Davis Technical College. Participant Four did not transfer from industry since teaching was his profession. However, since he had not received a formal Bachelor's in Education he was kept as an interview participant.

USU CTE Academy questions. Participant Four wanted to enroll in the USU CTE Academy to complete his Master's in Career and Technical Education. He stated that his master's degree would open up opportunities for advancement in his teaching career and would help him be a good teacher. The teaching skills he specifically wanted to learn included learning more engaging ways to connect with students in an online environment.

In the beginning his expectations for the Academy were based on a convenient and feasible way to complete his master's and work at the same time. He hoped it would also be less expensive to obtain his Master's. He did not feel like his expectations of the USU CTE Academy changed.

Participant Four felt the knowledge and teaching skills learned at the USU CTE Academy had been relevant. He had learned a lot and thought the Teaching with Technology course was particularly helpful because he was exposed to several technologies that made his teaching easier and more engaging.

He had already implemented all of the following teaching strategies in his classroom that he was asked about, therefore the next question 'which teaching strategies do you plan to implement?' was omitted since he had already implemented all of the teaching strategies.

- Performance based assessment
- Differentiated assessment
- Differentiated instruction
- project-based learning
- 21st Century Skills (virtual reality, google docs, screencast, online surveys)
- Occupational and Task analysis
- Backward Design
- Collaborative and/or cooperative learning

An example of an instructional strategy that he began using in his classroom based on the teaching skills learned at the USU CTE Academy was to

use Google Sites to create different links for students to access example resumes. He was interested in starting to implement activities in his classroom involving project-based learning. He thought if he could come up with projects that were directly tied to his student's prospective industries, he could connect with his students better and convince them of the relevance of his course.

Participant Four had connected with and collaborated with other USU CTE Academy students and had continued to take courses with some of the Academy students. They had often collaborated on projects and had supported each other as fellow students and were on a group email chain to support each other and share news.

One idea that Participant Four used in his classroom that was not covered in the USU CTE Academy courses was strategies for how to involve small groups in a self-paced learning environment.

Participant Five

Background questions. Participant Five had a Bachelor of Science in Public Health she spent 15 years working in industry as a medical assistant and clinic manager. She had spent five years teaching medical assisting at Davis Technical College.

USU CTE Academy questions. Participant Five was interested in the USU CTE Academy because she could use the courses towards completing her Master's in Education. She expected to learn skills to increase her abilities to reach students in the most effective way possible. Her expectations of the USU

CTE Academy were exceeded because she learned an array of different

educational approaches and found the courses extremely relevant.

Participant Five had already implemented the following teaching strategies

learned at the USU CTE Academy in her classroom,

- Performance based assessment

- Differentiated assessment

- project-based learning

- 21st Century Skills (virtual reality, google docs, screencast, online surveys)

- Collaborative and/or cooperative learning

She planned to implement the following teaching strategies learned at the

USU CTE Academy in her classroom,

- Differentiated instruction

- Occupational and Task analysis

As we have seen with other participants she had not and did not plan on

including backward design to her current or future teaching strategies. However,

she had implemented differentiated instruction in her classroom because,

> There are many ways to teach the same concept or skill and differentiated instruction gives the student an advantage in their learning and evens the ground in which they are standing.

Participant Five planned to shift from her medical assisting classes

standard examinations and instead use various ways for her students to

demonstrate knowledge. She felt allowing her students to express their

knowledge beyond a written exam would be more comprehensive.

Participant Five had connected with her fellow students in their first few classes and expressed that they had relied heavily on each other.

Participant Six

Background questions. Participant Six obtained an associate degree in General Studies and was licensed as a cosmetologist and master esthetician. She spent 31 years in industry as a receptionist, hair stylist, and master esthetician. She has taught at Davis Applied College for eight years and teaches some of the master esthetician certification classes.

USU CTE Academy questions. Participant Six enrolled in the USU CTE Academy so she could complete her bachelors. Her expectations for the program included taking classes that would support her teaching and give her more guidance on how to design curriculum. Her expectations had not changed. Some specific skills she was interested in learning were classroom management and instructional development. Participant Six felt that the classes she had taken thus far were very relevant.

Participant Six had already implemented the following teaching strategies learned at the USU CTE Academy in her classroom,

- Performance based assessment
- project-based learning
- 21st Century Skills (virtual reality, google docs, screencast, online surveys)
- Collaborative and/or cooperative learning
- Occupational and Task analysis

- Backward Design

She planned to implement all of the following teaching strategies learned at the USU CTE Academy in her classroom,

- Performance based assessment

- Differentiated assessment

- Differentiated instruction

- project-based Learning

- 21st century skills (virtual reality, google docs, screencast, online surveys)

- Occupational and Task analysis

- Backward design

- Collaborative and/or cooperative learning

An example of an instructional strategy that she began using in her classroom based on the teaching skills learned at the USU CTE Academy was Quizlet, an online tool that allowed teachers and students to create online games, quizzes, and flashcards. She had also implemented curriculum development as an instructional strategy. She planned to incorporate Canvas course development in her classroom.

Participant Six had collaborated with other USU CTE Academy students. She had the opportunity to work with and discuss several learning tools with her fellow students. She could not think of any ideas that she used in her classroom that were not taught in the USU CTE Academy classes.

Instructional Strategy Tables

Table 1 displays the instructional strategies that the participants were specifically questioned about and if the participant had *already* implemented the instructional strategy in their classroom. Table 2 displays the instructional strategies the participants *were planning* on implementing into their classrooms in the future.

Backward design was the least used strategy possibly because the participants did not understand what backward design was during the interview. Backward design, which is also called backward planning or backward mapping, is a process that educators use to design learning experiences and instructional strategies to achieve specific learning goals.

It was exciting to see that all of the participants had incorporated project-based learning into their classrooms because student engagement was a

Table 1

Instructional Strategies Already Implemented

Instructional strategies	Participant					
	1	2	3	4	5	6
Performance-based assess	x		x	x	x	x
Differentiated assessments		x		x	x	
Differentiated instruction				x	x	
Project-based learning	x	x	x	x	x	x
21st century skills	x			x	x	x
Occupational & Task analysis	x	x		x		x
Backward design				x		x
Cooperative/ collaborative learning	x	x	x	x	x	x

Table 2

Instructional Strategies Plan to Implement

Instructional strategies	Participant					
	1	2	3	4	5	6
Performance-based assess	x		x			x
Differentiated assessments	x		x			x
Differentiated instruction	x		x		x	x
project-based learning	x		x			x
21st century skills	x	x	x			x
Occupational & Task analysis	x		x		x	x
Backward design			x			x
Cooperative/collaborative learning	x		x			x

common theme when asked what skills the participant wanted to learn at the
USU CTE Academy.

Research Question #3

Research question #3 asked, "*What other instructional strategies cte
teachers use that they feel are successful*"? Only two participants answered the
above question during the interview process. The other participants stated they
did not have any ideas of successful instructional strategies that the USU CTE
Academy had not covered. Participant four stated that he uses strategies for
small groups to learn in a self-paced learning environment. Participant two
stated,

> One of the ideas I am using that was not covered (at the USU CTE
> Academy) is the use of QR codes. We attach videos or subscriptions to
> equipment. This lets students identify tools and their proper usage.

Summary

In this chapter, the results based on the project's research questions as well as other questions were reported. A description of the USU CTE Academy organization, faculty, and students was described. A description of the interview process was also shared. Finally, a synopsis was given for the pilot participant's interview and the other six interview participant's responses.

CHAPTER V

CONCLUSION AND RECOMMENDATIONS

Introduction

The purpose of this project was to identify the instructional strategies and coursework that were taught through the USU CTE Academy to CTE teachers who have transitioned from industry to education. The project assessed how well the instructional strategies and coursework transferred into the CTE teacher's classrooms while learning and participating as students in the USU CTE Academy.

There were four main research questions that the project was centered around. Research questions 1-3 were addressed in Chapter IV, in this chapter, question 4 will be addressed.

1. What instructional strategies are taught in the USU CTE Academy program courses?

2. What instructional strategies and coursework transfer into the CTE teacher's classroom?

3. What other instructional strategies CTE teachers use that they feel are successful?

4. What improvements could be implemented in the USU CTE Academy courses?

Research Question 4 Results

Research question 4 asked, "*What improvements could be implemented in the USU CTE Academy program courses*"? The USU CTE Academy has

improved the participants' understanding of pedagogy required to teach CTE content. The instructional strategies that were taught to the students are transferring into their classrooms. The student's stated in the interviews that their expectations of the Academy have been met or exceeded. Overall, the Academy has been successful but there are some improvements that could be implemented.

Improvements Based on Participant Interviews

The USU CTE Academy participants showed a lot of interest in wanting to learn how to engage students. This concept was taught using project-based learning in the Methods of Teaching and Learning course and online student engagement was taught in the Teaching with Technology course. Improvements should be made to incorporate the theme of student engagement in all of the Academy courses where appropriate.

Improvement could be made in backward design and a curriculum review may be necessary due to the lack of responses from students about classroom implementation. QR codes and self-paced curriculum development could be implemented also since participants have found these strategies useful in their own classrooms.

Based on the participants responses about collaborating with fellow students on projects, creating email chains and staying connected throughout the duration of the Academy. A seminar class would be beneficial and would provide a formal opportunity for students to share ideas and discuss what they have

learned each semester.

Exit interviews of all future USU CTE Academy students would lend more insight into what is and what is not transferring into their classrooms. It would lend insight into more ideas and teaching strategies that the participants use in their classroom's that the Academy does not teach. An exit interview would also provide information for the Academy to continually make improvements.

Improvements Based on Review of Literature

The American Institute of Research (AIR) in 2015 studied the top five professional learning priorities for CTE teachers to learn in order to improve their teaching effectiveness (Green & Moore, 2016).

1. Align curriculum, instruction, assessment. and evaluation.
2. Teaching authentic or simulated learning experiences requiring real-world application.
3. Student engagement or motivation.
4. Improve business and industry engagement.
5. Critical thinking and problem-solving skills.

Based on the AIR's research, the USU CTE Academy has been successful at teaching three of the five professional learning priorities. The first professional learning priority is how to align curriculum, instruction, assessment, and evaluation. Based on the feedback regarding what instructional strategies participants stated they had learned at the Academy, curriculum and assessment received the most responses from participants.

Next, the participant interviews revealed the Academy was moderately

successful at teaching the second professional learning priority, teaching authentic or simulated learning experiences requiring real-world application. This was taught at the Academy through the project-based learning curriculum. Improvements could be made through additional instruction that incorporates industry-specific technologies to authentic and/or simulated learning experiences.

Next, the participants showed a lot of interest in wanting to learn how to engage students. Student engagement or motivation was the third priority for the CTE teachers who participated in the AIR study. The USU CTE Academy appears to be doing this in the Methods of Teaching and Learning course as well as the Teaching with Technology course. However, further student engagement could also be included in the USU CTE Academy's Curriculum and Program Development course and the Classroom and Laboratory Management course.

Last, based on the fourth professional learning priority from the AIR study and the list of teaching strategies taught at the USU CTE Academy. The Academy should include a course that teaches the students how to improve business and industry engagement. Finally, based on the fifth professional learning priority, critical thinking and problem-solving skills should be included in independent courses or incorporated as part of a course at the Academy.

Conclusion

In conclusion, the USU CTE Academy teaching strategies and coursework are transferring into the CTE teacher's classroom. The USU CTE Academy has

improved the participants' understanding of pedagogy required to teach CTE content. However, participant interviews revealed that learning how to incorporate more student engagement, a review of backward design and a seminar course would be beneficial to the program. The ARI research conveyed that courses in business and industry engagement and critical thinking and problem-solving skills would add value to the USU CTE Academy and give students exposure to other important CTE content.

Recommendations for Further Study

A follow-up interview of the six participants would add clarity to some question responses that were not quite sufficient and would allow the interviewer to draw more information that was lacking. A follow-up interview could also gather information about the CTE teacher's need to know how to teach:

- Industry and business engagement
- Critical thinking skills
- Problem-solving skills
- Authentic and/or simulated learning experiences requiring real-world application

Again, a seminar class would be beneficial and would provide a formal opportunity for students to share ideas and discuss what they learned each semester and would assist in fostering a sense of community among the participants.

REFERENCES

Brand, B. (2008). Supporting high quality career and technical education through federal and state policy. *American Youth Policy Forum*, Vol., 1-16.

Career and Technical Education. (2020, April 16). Retrieved from Utah State Board of Education Career and Technical Education: https://www.schools.utah.gov/cte/about?mid=2521&tid=1

Dortch, C. (2012). *Carl D. Perkins CTE Improvement Act of 2006: Background and performance.* https://fas.org/sgp/crs/misc/R42863.pdf

Green, C., & Moore, C. G. (2016). *Professional learning: What CTE teachers want.* https://www.acteonline.org/wp-content/uploads/2018/05/Techniques-May2016-ProfessionalLearningCTETeachers.pdf

Joerger, R. M., & Bremer, C. D. (2001). *Teacher induction programs: A strategy for improving the professional experience of beginning career and technical education teachers.* Columbus, OH: National Dissemination Center for Career and Technical Education.

Mcleod, P. J. (2003). The ABC's of pedagogy for clinical teachers. *Medical Education*, *37*(7), 638-644. doi: 10.1046/j.1365-2923.2003.01559.x

SREB High Schools That Work. (2014). *Preparing CTE teachers for today's students* [Brochure]. https://www.sreb.org/sites/main/files/file-attachments/cte_teachprep_brochure_single_pages1.pdf

Threeton, M. D. (2007). The Carl D. Perkins Career and Technical Education (CTE) Act of 2006 and the roles and responsibilities of CTE teachers and faculty members. *Journal of Industrial Education, 44,* 66-82.

Wonacott, M. E. (2002). *Teacher induction programs for beginning CTE teachers in brief: Fast facts for policy and practice.* Columbus OH: National Dissemination Center for Career and Technical Education.

APPENDICES

Appendix A

Utah State University Career and Technical Education Academy
Data Collection Interview Questions

Utah State University Career and Technical Education Academy Data Collection Interview Questions

Background Questions

1. What is your educational background? Associate's degree, certificates?

2. How many years did you spend working in industry?

3. What occupation did you perform in industry?

4. How many years teaching experience in the public school system do you have?

5. What is your teaching content area?

USU CTE Academy Questions

6. Why did you enroll in the USU CTE Academy?

7. What were your expectations for the Academy in the beginning? Have they changed, if so, why?

    a. What specific skills did you want to learn or gain?

8. Which of the following instructional strategies learned at the USU CTE Academy you have already implemented in your classroom? Or plan to implement in your classroom?

    a. Performance based assessment?

    b. Differentiated assessment?

    c. Differentiated instruction?

    d. Project-Based Learning?

    e. 21st century skills? I.e. google docs, VR, surveys, screencast, other tools?

    f. Occupational and TASK analysis?

    g. Backward design?

    h. Collaborative and/or cooperative learning?

9. Through participation with the academy have you made connections and/or collaborated with fellow Academy participants?

10. Are there any other ideas not covered in the Academy that you are currently utilizing successfully in your classroom?

Appendix B

Participant Email Invitation

To: Undisclosed Recipients

Subject: USU Research Participation

Dear USU CTE Academy Student,

You are being contacted because you are a student enrolled in the USU CTE Academy program.

Jessica Deceuster is conducting Zoom interviews researching what strategies, techniques, and new ideas learned in the USU CTE Academy courses students are implementing in their classrooms. To participate in the research, a consent form will need to be signed and a Zoom interview scheduled with Jessica. The Zoom interview should take about 15-20 minutes.

The data gleaned from this project and interview process will be used to improve the content of the courses taught at the USU CTE Academy. We feel this is important to enhance CTE instruction throughout the state. If you would be willing to participate in the interview, please email jessica.decesuter@gmail.com to set up an appointment to schedule an interview.

Thank you for your time and consideration.

Sincerely,

Jessica Deceuster
USU Graduate Student
801.989.7631
jessica.deceuster@gmail.com
IRB # 11560
Principal Investigator Gary Stewardson gary.stewardson@usu.edu