2021

Research and Professional Development Conference

ACTER

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THE ACADEMY ACTTE

UNIVERSITY COUNCIL FOR
Workforce and
Human Resource
Education

Monday, November 29

12:00 p.m. Registration Opens

1:00 p.m. ACTER Conference Committee Meeting

2:00 p.m. Workshop

Reviewing Scholarly Manuscripts for Publication and Presentation

Mark Threeton, Pennsylvania State University

The quality of published research is essential to developing new knowledge and enhanced educational practices in our field. Therefore, rigorous peer reviews are essential to creating and maintaining a reliable stream of scholarly literature, which advances Career and Technical Education. Within this session, participants will learn how to conduct rigorous yet respectful reviews of scholarly articles which are submitted for publication and presentation. This session is highly recommended for early career professional scholars and graduate students interested in developing as a researcher, author, and reviewer.

5:30 p.m. Welcome Reception & Presentation

7:30 p.m. ACTER Executive Committee Meeting

James Bartlett, ACTER President

Patrick Bourke, ECMC Foundation

Sunday, November 30

7:45 a.m. Welcome & Greetings from Conference Partners

8:00 a.m. Panel Discussion on Funding CTE & Workforce Development

Corinne Alfeld, IES Education Research

Patrick Bourke, ECMC Foundation

Keith Witham, Ascendium

9:05 a.m. Symposium

Intended Outcomes & Beyond: Outputs, Experiences & Reflections from a National Fellowship on Postsecondary Career & Technical Education Research

James E. Bartlett, II, Ph.D., North Carolina State University
Michelle E. Bartlett, Ph.D., North Carolina State University
Patrick Bourke, ECMC Foundation
Jordan Dolfi, North Carolina State University
Melita Pope Mitchelll, Johnson C. Smith University
Jodi C. Adams, University of Louisiana
Gresham D. Collum, University of Tennessee

This symposium will describe a Research Fellows program that seeks to develop researchers studying postsecondary career and technical education. The session will include an overview of the inputs, resources, and activities (training institutes, webinars, mentoring, coaching, & collaborations) using a logic model that highlights outputs and outcomes. Fellows will describe their experiences and collaborations during the program.

9:05 a.m. Extended Abstracts

Identifying the Tools and Equipment Available for Career and Technical Education Teachers to Teach Small Gas Engines

Ryan Anderson, Texas State University
P. Ryan Saucier, Sam Houston State University
A. Preston Byrd, West Virginia University
P. Troy White, South Dakota State University

The purpose of this study was to evaluate the participants perceived availability of tools and equipment related to four-stroke small gas engine inspection & testing, repair and theory & safety skills prior to and after attending a three-day professional development workshop. The teachers reported average or below average availability of the tools necessary to teach small gas engine prior to completing the workshop. However, the teachers reported average or above average availability of the tools and equipment necessary to teach small gas engines after completing the workshop. The results of this study indicated that many of these teachers may have lacked the training needed to complete the small gas engine skills, therefore did not know what tools were needed.

Determining the professional development needs of students using an Augmented Reality welding system

Lourdes Garza, Texas State University
Ryan Anderson, Texas State University
Rhett Skyora, Texas State University
Bradley Borges, Texas State University

The purpose of this study is to identify the welding professional development needs of students enrolled in the Introduction to Agricultural Engineering course after completing an AR welding training program. Utilizing the Lincoln REALWELD training system to conduct the research, each participant completed four arc-off passes and three arc-on passes. Welding scores in the arc-on mode drop after transitioning from the arc-off mode in four of the parameters. This could be related to the increase of anxiety levels going from arc-off to arc-on. We recommend participants continue to focus on improving their travel speed in the arc- off mode before transitioning to the arc-on mode. Participants should consistently score in the 90's for all five parameters in the arc-off mode before advancing to the arc-on mode.

Identifying the relationship between virtual assisted welding instruction and welding performance

Jacob Ramos, Texas State University
Ryan Anderson, Texas State University
Brittney Heibel, Texas State University
Bradley Borges, Texas State University

The purpose of this study is to determine if a relationship exists between overall weld scores and certified welding inspector (CWI) scores of beginning welders using virtually assisted welding simulation. Overall VA welding scores are compiled from five parameters tracked by the REALWELD training program that include travel speed, contact tip to work distance (CTWD), travel angle, work angle, and position. Our results indicated using VA weld training had a statistically significant impact on CWI scores. Each weld pass had statistically significant impact, regardless of whether it was arc-on or arc-off. Schools looking to adopt VA training systems can provide their students with immediate feedback in an individualized setting that welding instructors cannot duplicate.

10:30 a.m. Symposium

Experiential Learning Practices: Learning by Doing, Or…?

Mark Threeton, Pennsylvania State University
Greg Belcher, Pittsburgh State University KTC
Kevin Elliot, Pittsburgh State University
Kyungin Kim, Pennsylvania State University
Julie Dainty, Pittsburgh State University
Jon Jones, Pittsburgh State University

Over the years, career and technical educators have embraced experiential learning (EXPL) as a research-based theoretical framework to promote the transfer of learning (Clark et al., 2010). However implementation of EXPL in Career and Technical Education (CTE) programs can often differ from one instructor to the next based on their utilization of this framework. While one instructor might describe EXPL as "learning by doing", another would explain that it is a developmental process of watching, thinking, doing and feeling. Thus, further investigation is needed to understand if there is a disconnect between EXPL and instructional practices. Through a focus group methodology, CTE educators were asked about their understanding and utilization of EXPL as they taught health and safety related content. The results revealed somewhat of a disconnect between EXPL and the instructional practices utilized in these programs. The content of this symposia session would be useful to CTE teacher educators, CTE administrator preparation faculty and educational practitioners interested in CTE and the relationship between education and work.

10:30 a.m. Extended Abstracts

Identifying the Effectiveness of School-Based Agricultural Education Teachers Who Aim to Increase their Human Capital

Christopher J. Eck, Clemson University

Teaching effectiveness is an elusive, difficult to gauge concept, especially in career and technical education. The effective teaching instrument for school-based agricultural education teachers (ETI-SBAE) was used in conjunction with the effective teaching model for SBAE teachers to frame this exploratory survey research design during the 2020 National Association of Agricultural Educators Virtual Conference (n = 28). Composite effectiveness scores on the ETI-SBAE ranged from 59 to 98, out of 104, with a mean score of 81.54 overall. Female SBAE teachers were found to be more effective than their male counterparts in this self-reported study. Determining effectiveness using the ETI-SBAE allows teachers to reflect upon their current human capital, ultimately guiding professional development opportunities to improve their effectiveness.

Using Check-In Meetings to Facilitate Preservice CTE Teacher Identity Development

Patrick Hales, South Dakota State Univerisity
Laura Hasslquist, South Dakota State Univerisity
Tony Durr, South Dakota State Univerisity
Nicole A. Graves, South Dakota State Univerisity

Teacher candidates are at a significant point in their teacher identity development during their teacher preparation program, but often struggle to realize that fact. This study uses grounded theory to explore one CTE teacher preparation program's initiative, called check-ins, where faculty meet regularly and in a focused manner with teacher candidates to discuss and reflect on field experiences and coursework. Analysis revealed that check-ins provided a model which helped to develop reflective practice and awareness of identity in teacher candidates. More work is needed to develop this approach for different settings and programs.

11:45 a.m. Round Tables

Career and Technical Education in Ghana through Implementing School Based Agricultural Education: A Fellowship Perspective

Meikah Dado, Texas A&M University

In 2020, the International Agricultural Education Fellowship Program (IAEFP) was established through a partnership with AgriCorps and funded by the U.S Department of Agriculture (USDA) Foreign Agricultural Service (FAS). IAEFP provides an opportunity for nine fellows to live in Ghana and implement the four components of school based agricultural education (SBAE) including classroom instruction, school demonstration farm, home entrepreneurship project, and leadership development. To monitor and evaluate the success of IAEFP, a mixed methods approach will be used to examine the impact on the fellows and their perceived impact on the communities they serve. Using a convergence parallel method, qualitative and quantitative data will be analyzed separately then compared to examine the single phenomenon and draw conclusions.

Turning the page on COVID: Revisiting Lewin's Change Model in Regard to Study Abroad Changes After COVID

Ana C. Casas, Texas A&M University

COVID changed how educators facilitate ideas and content virtually overnight. When the option to meet in person "froze" it made universities all over the world "unfreeze" methods utilized for years to "refreeze" new ways of meeting through zoom and various learning management systems, virtual learning experiences, and virtual exchange programs. The idea of virtual exchange is not necessarily new to the world of education, however, due to COVID the idea of utilizing them as a way to expand the diversity of students who are able to attain similar levels of intercultural competencies that students who are able to study abroad is a new

concept. This research roundtable plans to look at how virtual exchange will "refreeze" long after COVID-19 exists.

Reconceptualizing the Conceptual Framework of Community College Student Success to Account for Disabled CTE Students

Brett Ranon Nachman, North Carolina State University

This conceptual piece works to advance Hirschy and colleagues' (2011) conceptual framework of community college student success by accounting for the distinctions among disabled students. Through incorporating the lens of Evans and colleagues' (2017) social approach of disability, we can account for the individuals, institutional, and societal ableism that perpetuates discriminatory and exclusive practices that marginalize disabled people. Accordingly, I put forward a framework that modifies Hirschy and colleagues' (2011) model with a disability perspective. The framework presented in this proposal is aimed to be incorporated in a study I am designing that examines disabled CTE community college students' experiences and professional pathways.

Impact of TEAS Test on Student Success and Diversity

Angela M. Thomas, North Carolina State University

The lack of program completion rates based on academic inadequacies were higher than or equal to rates attributed to life. Standardized tests in conjunction with other program admission requirements did not yield 100 percent program completion. The radiography program recognized opportunities to examine the admission processes to identify gaps in completion rates and demographics. This study examined (a) demographics, TEAS test scores, completion, and pass rates of the students and (b) the relationship between student demographics and TEAS test scores.

Rural Career and Technical Education: An Integrative Literature Review

Rosemary McBride, Laramie County Community College
Mason Lefler, Utah State University
Misti Jeffers, Brandeis University
Ty McNamee, Teachers College, Columbia University

Despite the potential of CTE as particularly culturally and economically relevant to promoting economic opportunity in rural areas, the field of rural CTE is understudied. This paper provides an integrative and analytical review of the literature within the last twenty years describing the existing literature specific to providing pathways to postsecondary CTE targeting rural populations. Our synthesis yields key findings in terms of identified barriers and pressing gaps in the literature as well as three emerging themes common across existing literature. We offer a critique of the literature as well as provide targeted suggestions to guide future rural CTE research in a meaningful direction.

Technical and vocational education and training models in Africa: A comparative study of TVET practices in Africa and non-African countries

Jeffrey Matu, Pennsylvania State University

The paper reviews peer-reviewed empirical studies on technical and vocational education and training (TVET) models in Africa. A conceptual framework that incorporates cultural dimensions was used to examine the effects of cross-cultural education in ensuring the quality outcomes from TVETS that enhance employability and labor productivity, including promoting lifelong skills, to achieve the Sustainable Development Goal (SDG) 4 and 8 and the African Union Agenda 2063 priority goal 1 and 6 in a culturally diverse learning environment. The literature review covers quality outcomes from TVET related to cross cultural learning, labor market information, career counseling, institutional accreditation, certification, occupational standards, and student performance and knowledge assessments, including the TVET models implemented in Africa. The paper examines current research and points out gaps in the existing literature. The review indicates that a cross-cultural TVET model provides positive outcomes for African TVETs in achieving the SDGs and Agenda 2063 goals related to employability and labor productivity through educational investments in developing a high-quality workforce. However, more empirical results on its effectiveness are needed to understand better under which circumstances they yield the desired results in Africa's structural transformation and economic development.

1:15 a.m. Research Papers – Session 1

CTE as Crime Prevention: The Link Between Career and Technical Education and Criminal Behavior

Jay Plasman, Ohio State University

Al Passarella, Johns Hopkins University

Criminal behavior and educational attainment have a long-established relationship. Further, vocational training programs are associated with reduced criminal behavior when provided to incarcerated individuals; however, little work has explored career and technical education (CTE) as a crime prevention lever when delivered in traditional high schools. Using data from the National Longitudinal Survey of Youth, we estimate the relationship between high school CTE and later criminal behavior. We found CTE participants were arrested fewer times after high school and less likely in general to ever be arrested after high school, further building on the general link between education and crime. Implications extend to education policy as further evidence regarding potential benefits of CTE as funded by Perkins legislation.

Faculty and student perceptions of online learning in CTE teacher in-service preparation programs

Julie Dainty,Pittsburgh State University

Kelley Manley, Pittsburgh State University

Discovering the perceptions of online learning for faculty and students in Career and Technical Education (CTE) teacher in-service preparation programs was the purpose of this qualitative study. Themes emerged in the categories of level of engagement, transfer of learning, teaching methods and techniques, instructor impact, peer interaction and benefits and challenges. Within the six categories, nine themes emerged from the data. Students perceive relevance and application of content, synchronous meetings, use of videos, organization of course and instructor, peer interaction, and accessibility and convenience of the course valuable in online learning environments. Many of the same themes emerged from the faculty perceptions with the inclusion of the importance of innovative teaching methods and techniques in online courses.

Influencers of Middle School Perceptions of Postsecondary CTE

Melita Pope Mitchell, Johnson C. Smith University

In order to prepare the next generation of productive citizens, students should be exposed to various career paths before high school. Traditionally, heavy focus has been given to career paths that almost exclusively directed students toward traditional college experiences to be "successful". This study explored seventh grade student perceptions of postsecondary career and technical education (CTE). Students were surveyed from three public middle schools in the southern piedmont of North Carolina using Q methodology. This research method uses quantitative data to measure the subjectivity in student perceptions through inverted factor analysis. Data from a sample of 35 students will be used to identify factor groups that will illustrate patterns of influence regarding perceptions in the way students view post graduate opportunities.

1:15 p.m. Research Papers – Session 2

Perceptions of Curriculum Availability for Career and Technical Education Teachers to Teach Small Gas Engine Technology in Secondary Schools

P. Troy White, South Dakota State University

Ryan G. Anderson, Texas State University

P. Ryan Saucier, Sam Houston State University

A. Preston Byrd, West Virginia University

Curriculum plays a key role in the teaching of students but often is considered less important than teacher pedogeological knowledge. The data reported here evaluates the perceived quality of curriculum available to teachers to teach four-stroke small gas engine technology at the secondary level. Participants attended an intensive three-day workshop in which they were provided both hands-on skill

instruction and industry prepared curriculum. Teachers evaluated the quality of their available curriculum, both before and after the workshop, wherein they were provided the curriculum and given an orientation to the resources available. Overall, teachers reported having a quality curriculum available following the workshop, but scores suggest that improvements can be made to the curriculum which could lead to improved implementation.

Using Virtual Reality to Determine Professional Development Needs of Beginning Welders
Brittney Heibel,Texas State University
Ryan Anderson, Texas State University
Bradley Borges, Texas State University
Marsha Swafford, Arkansas Tech University
Incorporating virtual reality (VR) technology within welding training has shown to be effective. The purpose of the study is to identify professional development needs of beginning welders by employing weld cues using the Lincoln Electric VRTEX 360. The VRTEX 360 measures skill performance by tracking five weld variables: travel speed, contact-to-workpiece distance, position, and travel and work angles. This study consisted of (n=44) undergraduate students. Using the VRTEX on factory settings, students completed three rounds of four 2F filet practice welds (cue assistance) and one test weld (no cue assistance) on ¼" mild steel using the GMAW process. Results of employing personalized feedback cues during training show statistically significant (p<0.05) impacts on participant pass rates and weld skill acquisition.

Assessing the influence of welding sequence training on student performance
Rhett Sykora, Texas State University
Ryan Anderson, Texas State University
Bradley Borges, Texas State University
Marsha Swaford, Arkansas Tech University
Gas Metal Arc Welding (GMAW) is a crucial process in agricultural mechanics and requires a tremendous amount of costly practice and training to achieve proficiency. Virtual Reality (VR) and Augmented Reality (AR) training simulations have been developed as educational tools to teach welding students more efficiently. The goal of this study was to determine the most effective sequencing of using VR training, AR training and traditional welding training when compared to the pass/fail rate of students taking the Certified Welder (CW) test using the GMAW process in the 2F position. Forty-four participants completed training using three distinct sequences of the three training protocols. An ANOVA indicated no statistically significant differences (p > .05) in participants' performance between training sequence groups.

Career and Technical Education Teachers' Perceptions of Their Profession and Willingness to Encourage Students to Enter a CTE Teaching Career

Mariam Abdelhamid, Old Dominion University
Robert Loya, Old Dominion University
Philip Reed, Old Dominion University
Mickey Kosloski, Old Dominion University

This study examined the current climate of how CTE teachers perceive their profession and if they are encouraging their students to enter the teaching profession. A survey developed by the National Center for Education Statistics was submitted to CTE teachers in Virginia (n = 743) to address these questions. Descriptive statistics helped to determine that CTE teachers are generally satisfied with their careers but dissatisfied with factors in which they have no control, and the number of teachers recommending the profession to their students in recent years has decreased considerably. A Pareto analysis was conducted, and the results showed the key reasons why teachers are not recommending the CTE teaching profession to their students are salary/benefits and school variables not in their control.

Effects of a Professional Development Session on Career and Technical Education Teachers' Perceptions of the Importance to Teach Small Gas Engines

P. Ryan Saucier, Sam Houston State University
A. Preston Byrd, West Virginia University
P. Troy White, South Dakota State University
Ryan G. Anderson, Texas State University

Within career and technology education research, a prevalent theme is preparing a current generation of students for careers in the 21st century workforce and the ongoing professional development needs of teachers who need remedial education concerning technological advancements found within those associated industries. This national study sought to understand the perceptions of career and technology education teacher's importance to teach small gas engine technology to school-based, secondary students. These teachers were engaged in a three-day, industry sponsored professional development that was taught in eight states. Findings indicated that across three scales of measurement (inspection/testing, repair, and theory/safety) teachers' perceptions of importance mostly increased. Based upon the concepts of pedagogical content knowledge, early career teachers need professional development to instruct technology.

Teachers' Perceptions of Career Readiness as an Outcome of Secondary School

Brooke Thiel, North Dakota State University
Adam Marx, North Dakota State University

The purpose of this study was to describe teachers' perceptions of career readiness and determine the association between demographic information and teachers' perceptions of career readiness. A census survey assessing perceptions of career readiness was shared with secondary teachers in [state]. A series of one-way ANOVAs were conducted to assess the differences in perceptions of career readiness based upon groups. On average, results indicated teachers in [state] have positive perceptions of career readiness. The content area taught by a teacher had the largest effect on the total variance observed in perceptions of career readiness, with Career and Technical Education and special education teachers reporting significantly more positive perceptions of career readiness than core academic and other/elective teachers.

2:40 p.m. Extended Abstracts – Session 3

The Impacts of High School Industry Certifications: Regression Discontinuity Evidence

Matthew Lenard, Harvard University

This paper estimates the effects of earning industry certifications in high school on later outcomes. Industry certifications are a type of alternative education credential that may represent human capital accumulation, a signal of skills to employers, or both. Students who just barely fail or barely pass a certification exam are likely to differ only in their likelihood of earning certification. Thus, I use regression discontinuity design to estimate the effect of earning a certification on secondary, postsecondary, and labor market outcomes. Preliminary results suggest that earning a credential does not boost the likelihood of graduating from high school or alter students' post-high school plans. Subsequent work will explore effects on college enrollment, college attainment, alignment with industry sector, and wages.

Motivational Pathways into Postsecondary Computer and Information Systems

Anthony M. Perry, Texas Tech University

Computing and information sciences (CIS) careers are expected to grow faster than most occupational areas between 2019 and 2029. CIS occupation include opportunities for individuals with both subbaccalaureate and baccalaureate degrees. Despite curricular interventions, the population of people who pursue CIS pathways are not diverse by race/ethnicity and gender. Applying expectancy-value theory, this study investigates the motivational factors which influence the decision to pursue postsecondary CIS degree programs for students in the High School Longitudinal Study of 2009. Prior CIS experiences are associated with declaring subbaccalaureate and baccalaureate CIS, but several math-related items are associated only with pursuing baccalaureate CIS. These results have implications

interventions to increase student interest in computing careers and future research into this educational choice.

4:05 p.m. Poster Session
Sponsored by The Belk Center ECMC Fellows Program at North Carolina State University

Educator perceptions of an online global learning program

Thomas Gabel, Pennsylvania State University
Laura Rice, Pennsylvania State University
Rita Graef, Pennsylvania State University
Daniel Foster, Pennsylvania State University

Since the onset of the global pandemic of 2020, utilization of online learning platforms has become common across the world due to necessity (Sidamon-Eristoff, 2020). Since 2019, the Global Teach Ag Network has provided programming entitled GLAGjr to educators registered in the Global Learning in Agriculture Conference. Educators are delivered professional development opportunities in food security and global learning. GLAGjr provides educators with online modules that are ready to be adapted and used by educators in their instructional settings for secondary students. The research project focused on ways to improve the online learning modules and their effectiveness, as well as revealed educator needs to utilize online materials both in the classroom and remotely. However, the research findings revealed emergent "Ah-ha" moments that describes a shift in the teaching paradigm. Twenty specific "AHA Moments" emerged throughout the texts and settled into six researcher identified domains. The six domains include Teacher Practices, Learner/Learning, Time, Connection, Social Media, and Global.

Evaluating Self-Assessed and CWI Welding Scores by Gender

Kacie York, Texas State University
Ryan Anderson, Texas State University
Rhett Sykora, Texas State University
Brittney Heibel, Texas State University

The purpose of this study is to evaluate the self-assessed welding scores of students by gender. Participants (n = 42) were allowed one-hour-and-fifty-minute lab period to practice welding. For the Gas Metal Arc Welding lab, participants used ¼" mild steel in the 2F position and instructed to complete as many welds as possible and submit their best weld for grading. A grading criterion developed by Herren (2009) was used by the students, course instructor, and an American Welding Society (AWS) certified welding inspector (CWI) to score the welds. Ultimately, males performed better, but scored themselves higher than the CWI did. The females did not perform as well as their male counterpart, but they were more critical of their weld performance.

Using a Cooperative Learning Approach for Piloting TILT

Kristina Wendricks, Northeast Wisconsin Technical College
Matt Spindler, Northeast Wisconsin Technical College

The transparency in learning and teaching (TILT) framework integrated into the design of instructional practices can promote the development of learner agency. Transparent learning activity and assessment design delineates clarity in three main components: purpose, tasks, and criteria for success. A cooperative learning approach was employed for this pilot research project, with participating faculty centered as the learners. Each faculty identified two assignments for TILTing. Faculty from non-related disciplines worked in pairs on the following tasks: a) evaluating and revising two assignments; and b) evaluate and provide feedback to their paired peer. Data reveal that the cooperative process and TILT framework helped faculty participants: a) organize their work; focus peer feedback; and build better content for blended learning experiences.

Piloting a TILT Project with Technical College Faculty

Kristina Wendricks, Northeast Wisconsin Technical College
Matt Spindler, Northeast Wisconsin Technical College

Building transparency into teaching helps students develop their capacity for self-regulated learning by focusing their awareness on what is working for them. It is then that agency that helps learners to achieve better results and build a sense of belonging in learning contexts. Paired faculty in a pilot study: a) evaluated and revised two original course assignments along three main transparency components, clarity of purpose, tasks, and success criteria and b) evaluated and provided feedback on assignments to their paired peer. The pilot demonstrated there are clear benefits to adding transparency to learning activities and assignments for faculty and students.

Evaluation of Welding Assessment Scores Using Triangulation

Rhett Sykora, Texas State University
Ryan Anderson, Texas State University
Bradley Borges, Texas State University
Marshall Swafford, Arkansas Tech University

The purpose of this study was to compare the self-assessed welding scores submitted by the students to the assessment scores provided by the course instructor and the CWI. Students were allowed one, one hour and fifty-minute lab period within the Introduction to Agricultural Engineering course to practice welding, using 1/4" mild steel in the 2F position, and submitting their highest quality weld for grading. After the conclusion of the lab students were asked to complete a self-evaluation on their submitted weld. The submitted weld was also graded by the course instructor and a CWI using the same grading criterion as the

student. There were no statistically significant differences between weld scores provided by the student, course instructor, and CWI.

Training Beginning Welders Using Virtual Reality Simulations

Brittney Heibel, Texas State University
Ryan Anderson, Texas State University
Bradley Borges, Texas State University
Marshall Swafford, Arkansas Tech University

The purpose of this study is to compare scores of beginning welders' virtual and actual welds, using the VRTEX 360 VR simulator and traditional live weld process. Participants completed a demonstration to live and VR weld training using the Gas Metal Arc Welding (GMAW) process. After being randomly assigned a weld training sequence, participants performed three single-pass welds in the 2F configuration using the VRTEX 360, then one weld using live welding. Participants displayed improved weld scores with each virtual weld performed. The pattern reveals that beginning welders require additional training time using the VRTEX 360. Mean scores of 80+ following the VRTEX 360 training session indicates that the participants received meaningful learning as they performed at advanced beginner levels.

Comparing Student Participation and Engagement of High School Juniors in Their Career and Technical Education Classes and a Core Class, in an Online, Virtual Environment

Kevin Stalsberg, Pittsburg State University

In the spring of 2020, in response to the CoVid-19 global pandemic, a large suburban school district in the Midwest, moved all its classes to an online format. At that time, the district froze grades for the semester, teachers couldn't add assignments or take attendance. Near the end of the spring semester, a survey that measured engagement and participation was sent to all students enrolled in CTE classes at that district's Career and Technical Campuses. The survey examined participation and engagement of junior students in their CTE courses with a core course, history. The survey found a statistically significant difference in both engagement and participation in student's CTE classes vs their history class.

CTE Teachers' Post-Pandemic Compassion Fatigue and Burnout

Nicole A. Graves, South Dakota State University
Laura Hasselquist, South Dakota State University
Alison Wilson, South Dakota State University
Tony Durr, South Dakota State University

Compassion fatigue and burnout have been associated with teachers' intentions of leaving the profession (Liu & Onwuegbuzie, 2012). This is of particular concern in Career and Technical Education (CTE) due to the documented shortage of teachers (U.S. Department of Education, 2017). The onset of the COVID-19 pandemic and

need to switch to remote learning overnight added to the stress that teachers were already facing. Students had problems accessing digital learning systems, particularly in rural areas, and teachers and students both complained about the lack of student-teacher interaction (Hebebci, et al., 2020). The current study seeks to measure the impact of pandemic related stressors on compassion fatigue and burnout amongst CTE teachers in a rural, mid-west state.

Impact of Experiential Learning through a Long-Term Fellowship on Career Choice

Meikah Dado, Texas A&M University
Jessica Spence, Borlaug Institute for International Agriculture
Dr. Jack Elliot, Texas A&M University

AgriCorps, an international fellowship program, provides experiential learning opportunities for fellows who work as agricultural educators, 4-H/FFA advisors, and agricultural extension agents in rural Ghanaian and Liberian communities. Kolb's model of experiential learning was used as a lens in which to explore the impact of a long-term fellowship experience on career choice. This phenomenological study included semi structured virtual interviews with 18 past AgriCorps fellows to analyze the impact on career choice. Based on our analysis, three themes emerged including experience, connections, and skill building. By participating in a long-term fellowship, participants were able to go through each stage of Kolb's experiential learning model. This study's findings have applicability within other career and technical education settings.

Writing the Path to Success: Supporting CTE Postdoctoral Researchers and Graduate Students through Virtual Writing Sessions

Jordan Dolfi, North Carolina State University
Laura G. Maldonado, Ph.D., North Carolina State University
James E. Bartlett II, Ph.D., North Carolina State University
Michelle E. Bartlett, Ph.D., North Carolina State University

This research seeks to uncover the perspectives of graduate students and recent postgraduates involved in an online writing series for research fellows in the Postsecondary Career and Technical Education Research Fellows Program. Virtual writing sessions were introduced to the Fellows program in Spring 2020 to support continued productivity during the COVID-19 pandemic. Due to perceived success, the writing sessions were continued throughout Summer 2020 and the 2020-21 academic year. Preliminary findings showed that participants of the optional writing sessions reported an increase of time devoted to writing, an increase in writing productivity, and a sense of community with their peers. This research will be of interest to faculty who support doctoral students' dissertation progress.

CTE Instructors Level of Preparedness to Transition to Distance Learning and Perceived Student Outcomes Achieved During the Spring 2020 Semester

Michelle Bartlett, North Carolina State University

John Cannon, University of Idaho

MaryJo Self, Oklahoma State University

During 2019-2020 there were 7.6 million secondary and 3.5 million postsecondary students who participated in some form of Career and Technical Education (CTE) in the United States (U.S. Department of Education, National Perkins Reporting System, 2020). Due to COVID-19, ninety-three percent of US households with school age children and at least 50.8 million public school students were affected by the move from face-to-face learning environments to online platforms (McElrath, 2020). Due to the applied nature, CTE instructors were challenged to provide a 'hands-on' environment to develop college and career ready skills. This research explored CTE teacher, from all 50 U.S. states, perceptions preparedness levels to transition to distance learning and perceived student outcomes achieved.

An Examination of VR in Postsecondary Career and Technical Education

James E. Bartlett, II, Ph.D., North Carolina State University

Nicholas J. Bartlett, Central Carolina Community College

This research implements an integrated review of the literature to examine the state of virtual reality (VR) in career and technical education (CTE). With the growth of online education and the increased quality and access to virtual reality, it is essential to understand how it can be leveraged in career and technical education. The purpose of this paper is to examine VR in the career and technical education literature. Specifically, this study will answer 1.) how VR has been defined in the literature and CTE research, 2.) how has VR been used in career and technical education, and 3.) what are the types of research that has been conducted in the field.

VIRTUAL POSTERS

Self-Identified Professional Development Needs of Virginia CTE Teachers

Gary Lupton, Virginia Tech

Professional development is widely recognized as an important tool for improving teaching quality. However, PD offerings often fail to impact teacher practice and student outcomes. Aligning PD with teacher needs can improve those outcomes. We often neglect to ask the question, what do CTE teachers need for PD? This poster presentation provides an overview of the purpose, methodology, findings, conclusions, and implications of a study that sought to identify the professional development needs to Virginia CTE teachers. The quantitative study utilized the Borich Needs Assessment Model to identify competencies with the greatest difference in importance and teacher ability. The findings of this study can shape the identification and offering of specific PD topics.

DACA Recipients' Narratives: Pursuing Noncredit Occupational Training

Andrew Gardner, Montgomery Community College

Completed an adapted in-depth qualitative interview study that explored and documented the lived experiences of four DACA recipients that pursued noncredit occupational training opportunities at a community college in North Carolina. The purpose was to understand what experiences led DACA recipients to enroll in noncredit occupational education in the community college setting, insight about their educational experiences in higher education, and how they used the education; they gained through noncredit occupational education.

Applying the Theory of Planned Behavior on a Community Based Mushroom Farming Training in Ghana

Andrews Idun, University of Ghana, Legon

Mihee Park, Pennsylvania State University

John Jongho Park, Pennsylvania State University

In this investigation, we applied a framework of the theory of planned behavior into the mushroom farming training in which participants acquired knowledge and skills to grow mushrooms, but they also had an opportunity to build a community. Qualitative data and analysis revealed the relationship among participants' intention to start farming and their locus of control, support from others, enjoyment, and future benefits. Results showed that although participants enjoyed gaining knowledge and skills and admitted the positive outcomes of mushroom farming, most participants did not intend to start mushroom farming because they did not feel like appropriate support to initiate their action for mushroom farming, and more importantly, their perceived obstacles were too strong to envision to start mushroom farming.

The Effectiveness of Postsecondary CTE Teacher Education Degree Attainment and Professional Development

Lisa Martino, UCF

Research on K-12 teacher quality (content knowledge, teacher experience, teacher education degrees, and professional development coursework) show a positive relationship on student achievement. In the past, studies examining the effectiveness of postsecondary career and technical education (CTE) teachers in the United States have been understudied. A recent study examined the relationship between postsecondary CTE teacher quality and student achievement in Florida's career certificate programs. Postsecondary CTE student achievement is measured by industry certification (IC) exams. Survey findings from 203 CTE teacher participants indicated statistically significant relationships between educational attainment (EA) and pedagogical knowledge (PK) with student achievement of industry certification exam pass rates (IC).

A Comparative Study of Male and Female Undergraduate Computer Science Students' Educational Pathways

Stephanie Fitzsimmons, USF

STEM, including Computer Science (CS) fields are in global demand. This study's purpose was to explore the nature of the educational pathways, critical factors and commonalities/differences leading to CS undergraduate enrollment focusing on personal/home, academic/attitude and psychological factors underlying the Social Cognitive Career Theory. Purposive sampling method was used for this multi-case study, comprised of CS undergraduate upperclassman. Thematic analysis of narrative, plus researcher journal and drawings, enabled an interpretivist lens on the participant's voices. Five themes were identified: family role model, sense of belonging, growth mindset, good teachers, and you have to want it. My findings algin with much of the relevant literature. Recommendations for policy, practice and research are highlighted in the manuscript.

The Effects of Employees' Work Values and Work Ethics on Gop-Ul Perceptions and Income

HwaChoon Park, Korea Research Institute for Vocational Education and Training

Cheonsoo Park, Korea Research Institute for Vocational Education and Training

This study aims to examine the Korean employees' perceptions of their status in the workplace as Gop or Ul, the determinants of Gop or Ul, and the effects of work values and work ethics on Gop- or Ul perceptions and their income. A total of 999 Korean employees between the ages of 18 and 64 provided usable data, which were collected by the Korea Research Institute for Vocational Education and Training (KRIVET) in 2018 to examine Koreans' work values and work ethics. Data were analyzed employing descriptive statistics, the logistic regression model, and the ordinary least square model. The findings revealed that 11.8% among employees perceived themselves as a Gop, that as employees get older, have higher degrees, and are self-employed, the possibility of Gops increases. The main determinants of Gop-Ul perceptions were the degree of social influence of one's job, the degree of authority, initiatives, and employees' attitudes toward work. Gops earn about 60% more income than those who did Ul, which suggested that Gops have benefits of income premium in the workplace in Korea.

5:00 p.m. Annual Membership Business Meeting & Annual Awards

Monday, December 6
12:45 p.m. Welcome to Virtual Conference

<u>1:00 p.m. Professional Development – National Center Training</u>

This session presents a mini version of the CTE Research Network's week-long summer Training Institute , which is designed to prepare the next generation of CTE researchers.

The presenters will provide an overview of the current state of CTE research, focusing on high-quality evaluation studies. Participants will learn about considerations for conducting CTE research including addressing policy relevant questions and selecting and measuring appropriate CTE outcomes. The session will provide an overview of randomized controlled trial (RCT) design and various quasi-experimental designs (QED) in the context of CTE and considerations for addressing practical and methodological challenges. Participants should have general familiarity with CTE models and programs, and quantitative analysis experience

<u>6:00 p.m. "A Single Mom's Story" Screening and Panel at the ACTER Conference</u>

Moderated by Michelle Bartlett

Topic: ACTER "A Single Mom's Story" Screening and Panel at the ACTER Conference

<u>7:30 p.m. Fireside Chat: Applying for Faculty & Research Positions</u>

This session will discuss the process of applying for academic positions and positions in research organizations. Participants will get to hear views from faculty and researchers across the country.

Tuesday, December 7

<u>1:00 p.m. SREE Summer Fellowship: Student's Conduct Research Projects to Inform</u>

<u>4:00 p.m. Virtual Symposium</u>

Professional Learning, Collaboration, and Collective Inquiry for the Enhancement of Teacher Prep Programs and Professional Development in CTE

Maria Border, Penn State University

Dr. Laura Rice, Penn State University

As COVID begins to fade, and education transitions into the new normal, it is now more important than ever to ensure teacher prep programs and professional development offerings remain relevant and focused on best practices to support the development of teachers both personally and professionally. In this facilitated session, participants will have the opportunity to join a candid conversation about their organization's efforts to deliver effective teacher prep programs, professional development, and promote recruitment and retention of CTE teachers. Participants will discuss successes, challenges, and lessons learned as they have navigated through the COVID crisis and look to meet the needs of teachers in a post-COVID world.

Communication in students' career success: Supporting emerging adults through a social and emotional learning perspectives

Mariam Abdelhamid, Old Dominion University

Dr. Donna L. Fenton, Marietta College

Marci Gale, Central Virginia Community College

Kesha Valentine, Old Dominion University

Higher education institutions are tasked with creating curricular and cocurricular experiences that prepare students, both socially and emotionally, for post-graduate life. However, one criticism of higher education is that students are not ready for the world of work after graduation. COVID-19 ushered in new challenges and highlighted the ongoing discrepancy between skills employers want and preparation higher education provides (HBR, 2021). A recent survey found that nearly one in five respondents lack relevant preparation for their first post college job (HBR, 2021). A panel of experts from a variety of institution types will focus on the social and emotional learning skills needed to prepare students for work post-college and address the misalignment among the needs of students and the labor market.

Wednesday, December 8

1:00 p.m. Research Papers

A Career and Technical Student Organization (CTSO) Model: Advancing Prevention and Early Identification, and Early Intervention

Gustavo Loera, California-HOSA

Cindy Beck, California-HOSA

Cal-HOSA is the first CTSO to investigate this connection and was therefore chosen as the focus of this study. The aim of this research is to explore Cal-HOSA students' participation in, and behaviors towards practicing and promoting mental wellness in schools and communities. Specifically, youth-led activities focusing on prevention and early identification of risk factors and protective factors associated with mental wellness. Our research has shown that school sites can be ideal places to: (a) begin conversations about Wed, Dec 08, 2021 mental health that achieve a better understanding of risk and protective factors, (b) increase training opportunities for students and educators to develop knowledge and skills about prevention and early identification, and (c) improve awareness and promotion of mental health and wellness.

Trade-Offs in High School Curricular Choices for Career and Technical Education Students

Walter G Ecton, University of Pennsylvania

Career and Technical Education (CTE) has long played a substantial, though controversial, role within America's public schools. While supporters argue that CTE may increase student engagement and prepare students for success in the

workforce, detractors caution that CTE may inhibit students' access to the rigorous academic coursework needed for college and high-status careers. As students' time in high school is a relatively fixed resource, this paper seeks to better understand the extent to which CTE is associated with trade-offs within students' high school curricula. Using a robust statewide longitudinal data system, this study explores the extent to which CTE may limit course taking in a wide range of subjects (including core academic subjects, electives, and Advanced Placement courses).

Impacts of a National Fellowship on Postsecondary Career & Technical Education Research
James E. Bartlett, II, Ph.D., North Carolina State University
Michelle E. Bartlett, Ph.D., North Carolina State University
Jordan Dolfi, North Carolina State University
This study uses a mixed-methods approach to examine participants' experiences in a year-long national research fellowship in career and technical education research. The fellow program development and this research is framed by the outcome-based logic model that includes program-led training, webinars, mentoring, and input from stakeholders, including the sponsoring foundation, research fellows, and the project team. Throughout the paper, the researchers will describe the Fellows' perspectives on the impact of the fellowship experience (logic model Activities and Output) on their development as CTE researchers (logic model Outcomes). An examination of how this research fellows program provides pathways to disseminating research and future employment will be provided. Interested stakeholders may include researchers, policymakers, administrators, business partners, and workforce development professionals.

2:30 p.m. Virtual Round Tables

Using Composite Narratives to Explore Community College Student Involvement in SkillsUSA
Laura G. Maldonado, North Carolina State University
This qualitative study explores the involvement of community college students in a career and technical student organization (CTSO). A conceptual framework based on the Quality CTE Program of Study Framework (Association of Career and Technical Education, 2018) guided the work. Qualitative data were gathered from interviews with students who participated in SkillsUSA, a CTSO, at two community colleges. The data will be presented as composite first-person narratives telling stories of involvement in professional development, competitive events, community service, and leadership activities offered through SkillsUSA. The findings will be useful for educators, advisors, chapters, and community college administrators.

History Doesn't Get to Decide for us: A Case Study of Black Parents and Their Perception of Career and Technical Education

Nzingha Williams, North Carolina State University

This case study examines the perception of career and technical education (CTE) among Black American communities with an in-depth look at the philosophies of Booker T. Washington and W.E.B Du Bois. There is a tremendous skills gap in the nation and an increasing economic mobility problem. If more Black students took advantage of CTE at the K12 and post-secondary level, then there is a greater opportunity to move the needle of economic mobility. The theoretical frameworks shaping this study are critical race theory (CRT) and human capital theory (HCT). The research question that shapes this project is how do parents in the 21st century view career and technical education as a path to economic success in the Black American community?

Relationship Between Technology Student Association Participation and Soft Skills Development, Controlling for Gender

Lauren Lapinski, Old Dominion University

The purpose of this study was to determine the relationship between student participation in Technology Student Association and the development of soft skills necessary for gainful employment. Data were provided by Pennsylvania Technology Student Association (n = 229). This study specifically sought information on relationships between soft skills development and (a) time spent on Technology Student Association activities; (b) competitive event success; (c) assumption of leadership roles; (d) gender. Preliminary findings indicate that the independent variables collectively account for a significant 16% (R2 = .16) of the variance in soft skills score. Time spent per week was a significant predictor of soft skills score (b = .19) as was the assumption of leadership roles (b = .22).

Factors Impacting Family and Consumer Sciences Teachers' Self Efficacy and Perceptions of STEM Education

Charlene Smith, Old Dominion University

Education in science, technology, engineering, and mathematics (STEM) has become widely talked about in recent years. Quality STEM education could maintain or increase the number of individuals preparing for careers in these fields and increase STEM literacy for the population. From its beginning, Family and Consumer Sciences (FCS) education has utilized modern science to improve home life, but it is not usually recognized as a STEM subject. The purpose of this study was to determine what factors impact FCS teachers' level of self-efficacy in teaching STEM education. In this quantitative study, middle and high school FCS teachers in Pennsylvania were surveyed using the ISTEM survey. Results were analyzed using descriptive statistics and regression analysis.

Associate in Applied Science to Bachelor's Degree: Exploring Transfer Efficiency by Career Cluster for Career and Technical Education

Keegan Anderson, Caldwell Community College

James E. Bartlett, II, North Carolina State University

This quantitative, non-experimental correlation study examined data for students graduating from community college with an applied associate of science degree that transferred to public universities in the same state to identify efficient pathways for students to utilize in transfer. The study looked at 1) the efficiency of applicable transfer credit across career clusters for students from various demographics, 2) the efficiency of applicable transfer credit across career clusters to 4-year public universities, and 3) the community colleges that have the highest frequency of students that transfer for identified efficient pathways.

4:00 p.m. Virtual Closing, Conference Awards, & Presidential Address