2020

Research and Professional Development Conference
Family and Consumer Sciences Teacher Perceptions of Students in Poverty
Sally E. Arnett-Hartwick, Illinois State University

The purpose of this research was to evaluate the impact of a poverty simulation on family and consumer sciences (FCS) teachers’ perception of poverty. FCS teachers (n = 47) from a midwestern state participated in a poverty simulation. Participants completed a questionnaire prior to and following participation in the simulation. Quantitative data suggested improvements in attitude while the qualitative data produced themes for future education activities and teacher-student interactions. The simulation encourages more positive attitudes among FCS teachers regarding their perception of poverty.

Community College Students’ Acquisitions of Work Skills
Xue Xing, University of Nevada, Las Vegas
Howard R. D. Gordon, University of Nevada, Las Vegas

Using the 2014 nationally representative Community College Survey of Student Engagement (CCSSE), we examined traditional and non-traditional students’ experiences in terms of their three ways of knowledge accumulation from the perspective of career capitalist (Inkson & Arthur, 2001). Results showed that traditional and nontraditional students shared commonalities as well as differences in their three ways of knowing, which also contributed significantly to students’ career outcome (i.e., perceived acquisition of job-related skills).

Beyond the Perkins Collaborative Research Network (PCRN) Data: The need for Perkins V. Special Populations and Students with Disabilities Research
Michael W. Harvey, Pennsylvania State University

This poster presents the critical need for special populations, especially students with disabilities, research in CTE beyond the Perkins Collaborative Resource Network (PCRN) data. PCRN four-year longitudinal data (2014-15 to 2017-18) shows an increase in SWD participation in secondary CTE nationally. CTE holds promise for SWD concerning post-school employment outcomes (Jeon, 2010; Rabren et al., 2014; Wagner et al., 2015). CTE provides workforce skills needed for jobs in the 21st century (Imperatore & Hyslop, 2017). The professional literature does not adequately represent CTE SWD or special populations research (Rowe et al. 2019). More research is needed in this area (Harvey et al., 2020). This poster session will discuss research efforts needed and identifies grant potential in the context of Perkins V (PL 116-6).
Is Engineering Technology a STEM-CTE Pathway for All?
Anthony M. Perry, Texas Tech University

Increasing diversity in STEM-related CTE pathways is a federal priority. The secondary engineering technology pathway is linked to high paying, high demand jobs though Black and Hispanic students continue to be underrepresented in these classrooms. Expectancy-value theory provides a lens to research the motivations to choose this pathway to better address the lack of diversity. Data come from the High School Longitudinal Survey of 2009 which surveyed high school freshman and links to their course transcripts. Logistic regression models show that STEM-related expectancy, value, and costs do not predict engineering technology concentration. This agrees with results indicating that future aspirations do not align with CTE pathway choice and future research should include predictors beyond math and science.

Outcomes of Participating in the Community College Work Experience Program for Business Administration Students in Jamaica
Sonja Robinson, Pennsylvania State University

Education is considered one of the most important contributions to a nation’s social and economic success. In a highly competitive global economy, it is vital that educational institutions prepare students who will join the workforce, and become productive citizens that contribute to their nation’s economic development. In Jamaica, there is a widespread belief that education is what drives economic growth, and increases global competitiveness in a knowledge-driven economy (Pavel, 2012). A community college education in Jamaica is considered essential for this very reason. Community colleges through their programs offer an education that encourages community enrichment, skills retraining, and cultural activities, all of which are aimed at the creation of a ‘whole’ person. Moreover, community colleges act as a “mechanism for upgrading the skills of individuals already in the workforce, through universal admissions policies and flexible courses of study, which include degree programs, certificates, and nondegree courses” (Marcotte, 2010, p. 37). The purpose of the research is to explore the mandatory work experience program used in Jamaican community colleges and the outcomes for students who participate.

Alternatively Certified FCS Teacher Preparation: Program Needs Assessment, Evaluation of Self-Efficacy, and the Journey to Being an FCS Teacher
Kristie Storms, Texas Tech University

This poster session will provide an overview of the researcher’s dissertation project. This dissertation follows the three-article method. The first article of the dissertation is to conduct a needs assessment identifying potential gaps in alternative teacher preparation of FCS teachers in Texas. The second article aims to identify levels of self-efficacy among alternatively certified FCS teachers in Texas. The last article will explore the journey that individuals took to choosing FCS teaching as an alternative career.
The Efficacy of Mentoring for New Career and Technical Education Teachers: A Review and Case Example

Jodi Adams, University of Louisville
Ann Herd, University of Louisville

The purpose of this study is to explicate the theoretical linkages between the needs of new CTE teachers and mentoring as a development tool using an integrative literature review (Callahan, 2010; Torracco, 2016; Yorks, 2008). Kram’s mentor role theory (1985) is used as a guiding framework to derive the theoretical linkages between mentoring and new CTE teacher needs. In addition, a case example is described that illustrates the design and implementation of a new CTE teacher mentoring program addressing mentor role theory components. Preliminary results from focus groups examining the experiences and perceptions of new teachers and mentor coaches will be reported. Practical implications from the study include the identification of critical mentoring components for inclusion in program design.

Do Individualized Learning Plans Help Students Achieve Employment Goals After High School?

Xue Xing, University of Nevada, Las Vegas
Maximum A. Sirabian, University of Nevada, Las Vegas
Jay W. Rojewski, University of Nevada, Las Vegas

Using public data from the High School Longitudinal Study of 2009 (HSLS:2009), we explored the effectiveness of individualized learning plans (ILP) through its associations with selected goal and outcome variables. We also examined whether ILP guided students’ career and technical education course taking to help them achieve employment goals. Results showed ILP had positive associations with establishing employment goals, securing employment, and achieving employment goals after high school. Students who had planned to seek employment after high school were likely to take more CTE credits which, in turn, increased their probabilities of working after high school. However, ILP did not moderate the relationship between employment goal and CTE credits nor the relationship between employment goal and work activity.

Postsecondary Training for Reentry

Adriane Graham, Old Dominion University

Increased unemployment for the reentry population is problematic. For communities with unmet labor market needs and increasing numbers of ex-offenders without gainful employment, an opportunity to match those unmet needs exists. This study examines the viability of postsecondary training options available to incarcerated individuals. Surveying the population involved in the reentry job-seeking process provided insights to inform the local workforce development board and the Virginia Department of Corrections.
To What Extent are Elementary Teachers Using Universal Design for Learning Strategies to Teach Computational Thinking? Do these Strategies Improve Computational Thinking Scores?
Jonathan Montoya, University of California Irvine
Sharin Jacob, University of California Irvine
Mark Warschauer, University of California Irvine

The question guiding this research is: To what extent are elementary teachers using Universal Design for Learning (UDL) strategies to teach computational thinking (CT)? Lessons were coded for strategies, and CT scores for pre and posttests. Data were analyzed for statistical significance. CT scores were juxtaposed with UDL strategies. All teachers observed used UDL. The most UDL had the greatest change in mean CT scores. We believe this is a result of UDL strategies influencing students’ CT scores. Data revealed that UDL strategies are being used, and we should look more into how these strategies can support student learning of CT. We recommend more research into the efficacy of UDL strategies to teach Computer science and Computational thinking.

Developing the Key Constructs of Career Literacy: A Delphi Study
Kesha Valentine, Old Dominion University
Mickey Kosloski, Old Dominion University

Career literacy, for this study, is defined as the set of functional, interactive, and critical skills students need to access career-related information. Students need to be able to read, understand, and make informed decisions related to their secondary and post-secondary options. Measuring a student’s career literacy will provide educators and counselors with information to develop interventions specific to students’ needs. In order to determine the concepts and skills that contribute to a student’s career literacy, a four-round Delphi study was executed. At the conclusion of four rounds, there were more than 50 skills organized by functional, interactive, and critical. This session will highlight the process and the results of this research.

Teacher Burnout During Remote Learning
Tony Durr, South Dakota State University
Nicole Graves, South Dakota State University
Laura Hasselquist, South Dakota State University
Patrick Hales, South Dakota State University

The switch to remote learning put a great deal of stress and responsibility on teachers at all levels. Early elementary teachers had to struggle with teaching students to read through a computer screen. High school teachers had to motivate students and provide dynamic and rigorous content without personal contact. Many teachers at all levels were forced into a learning environment that they were not trained or prepared for. The immense stress of these unprecedented circumstances undoubtedly took a toll on K-12 teachers. This study explores the level of burnout that teachers experienced during remote learning.
Awareness of Apprenticeships Among College Students at a Metropolitan Research University in the Western United States: A Fixed Convergent Parallel Mixed Method Study
Kendra O'Connell, University of Nevada, Las Vegas

Narrowing the skills gap in the United State by providing a low-cost, high-tech education, and delivering a high-skilled, competitive labor force. Partnerships between government, industry and educational institutions are focused on developing and creating more apprenticeships. However, enrollment in apprenticeships in the US remains low. Why? A primary factor is lack of awareness. This convergent parallel mixed-method study explored students’ awareness of apprenticeships, sources of influence in choosing an educational path, and depth of understanding of apprenticeships. Data was gathered through an original-instrument survey. This study found students have some awareness of apprenticeships, but depth of knowledge is shallow. Principal influencers were family and personal growth objectives.

CTE New Teacher Institute: A Virtual Experience
Elaine Adams, University of Georgia
Alexis Williams, University of Georgia

In March 2020, the educational experience of students in the United States changed. Due to Coronavirus disease, most educational programs at all levels transformed to online environments. Teachers and students, across the nation, went virtual. Virtual learning continued throughout the summer for all Georgia colleges and universities; hence, impacting the Career and Technical Education New Teacher Institute at the University of Georgia. This poster presents the virtual instructional strategies infused, identifies lessons learned, and summarizes the learning experiences of 50 participants. Johnson and Aragon’s (2003) instructional strategy framework for online learning environments supported this research.

Student Participation in CTE Related Professional Organizations: Who Participates and Why?
Katherine Kandelec, Athens State University

Practitioner based research in professional organizations indicates that students, both graduate and undergraduate, participate in professional organizations for far different reasons than the organization sponsors typically expect. An examination of which students are most active, why they choose to participate, and what organization leaders can do to best serve this population and grow their groups is presented.
Monday, November 30
12:00 p.m. Welcome – Zoom

12:30 p.m. Symposia and Research paper presentations – Zoom
Research Paper Session 1  Exploring the Relationship Between Online Student Interactions and Student Success in Postsecondary Career and Technical Education
Alain Ayangma, North Carolina State University
James E. Bartlett, North Carolina State University

Community colleges are using online instruction to increase the talent development pipeline of skilled workers in career and technical education (CTE) disciplines. In postsecondary education, Jaggars et al. (2016) report student interactions relate to student success. The study explores the relationships between online student interactions and student success while controlling for gender, age, ethnicity, Pell status, and enrollment status. CTE students that have completed at least one CTE course online surveyed regarding interactions and student success. This study uses regression analysis to examine relationship student-to-student interaction, and student-to-instructor interaction, student-to-content interaction, student-to-work-based learning interaction, student satisfaction, perceived learning, academic success, and perceived transfer of learning and student achievement.

Examining the Learning Habits of Non-Traditional Adult Students in An Online Career and Technical Education Program
Timothy Thornton, Athens State University
Letitia Bergantz, Athens State University
Katherine Kandalec Holm, Athens University

The study investigated the learning habits of nontraditional students in an online Career and Technical Education program. In the study, the user activity of 135 undergraduate and graduate nontraditional students were collected and tracked in 20 different online courses during the fall, spring, and summer semesters of the 2018-2019 and 2019-2020 academic years. The data identified specific times of the day and days of the week in which nontraditional students were most active. The findings indicated that nontraditional students were most active in the evening and on the weekend. These findings align with previous research related to time management, role theory, and the role education plays in non-traditional students’ lives.

Understanding College Work-Based Learning: An Introductory Study
Oscar A. Aliaga, University of South Florida

This is an initial study to understand work-based learning (WBL) that are available to students in colleges and universities around the country. This report is focused on WBL offered in
cybersecurity programs only. Responses received to a survey used with this purpose were 92 and came from colleges offering different types of cybersecurity programs. Among the most important findings is the fact that as institutions these colleges and universities offer a wide range of WBL, a scope that differs from WBL offerings reported in previous studies. This study also reports on typical qualifications students need to have in order to participate in those colleges WBL and reveals a rather heavy emphasis on technical levels and institutions."

Understanding Heterogeneity in the Selection into and Returns to Career and Technical Education
Walter G. Ecton, Vanderbilt University
Shaun M. Daugherty, Vanderbilt University

Quantitative policy research about Career and Technical Education (CTE) too often considers CTE as a single, monolithic policy, potentially masking broad heterogeneity across CTE fields as diverse as healthcare, construction, and IT. Leveraging statewide student-level data, we explore several dimensions that unpack the many different ways that different students may experience any returns from CTE. Focusing on both postsecondary and early-career earnings, we find stark evidence suggesting that returns to CTE are far from uniform across student subpopulation and CTE career cluster. We encourage researchers and policymakers to consider the heterogeneity within the field of CTE rather than thinking of CTE as a single, monolithic policy.

Can STEM-Focused Career and Technical Education Strengthen the STEM Pipeline for Students with Learning Disabilities?
Jennifer Freeman, University of California, Santa Barbara
Michael Gottfried, University of Pennsylvania
Jay Plasman, Ohio State University
Shaun Daugherty, Vanderbilt University

Recent educational policies have emphasized the expansion of science, technology, engineering, and mathematics (STEM) courses in high school to support postsecondary pursuits in these fields. The 2006 Perkins Act reauthorization highlights the importance of expanding STEM-focused courses into the career and technical education curriculum (CTE). Yet, little is known about the link between STEM-focused CTE coursetaking and postsecondary STEM persistence for students with learning disabilities (SWLDs). Using a nationally representative data of high school students, we found that SWLDs who earn more credits of STEM-focused CTE courses did not have different college-going expectations. That said, they were more likely to
Symposium 1

Establishing CTE Leadership Standards: Replication of One Northeast State’s Evidence-Based Knowledge and Skills Core Competencies in Two Mid-Western States to Determine a Common KSCC Skill Set

Michael Harvey, The Pennsylvania State University
Joey Fleck, The Pennsylvania State University
Mark Threeton, The Pennsylvania State University
Deanna Schultz, University of Wisconsin-Stout

Michelle Conrad, University of Central Missouri
Michael Pantleo, University of Central Missouri
Jack Elliot, Texas A&M University
Pradeep Kotamraju, Director of CTE, California Department of Education

This symposium presents one state’s CTE leadership evidence-based knowledge and skills core competencies (KSCC) established using triangulated multi-method research (Egan, Jones, Luloff, & Finley, 1995). The study incorporated Phase I: survey methods, Phase II: focus group; and Phase III: Delphi techniques. The findings include nine (9) Focus Areas with a total of 106 competencies specific to CTE administration. The research design is being replicated in two states to establish a specific set of KSCC for each state. The results will be part of an effort to determine a national set of KSCC. We will explain replication efforts and actions needed to move this framework forward toward a CTE SPA and national set of CTE Leadership specialty standards (Zirkle & Jeffery, 2017).
Symposium 2  COVID-19 Global Pandemic Upheaval: CTE Teachers Response

John Cannon, University of Idaho
Mary Jo Self, Oklahoma State University
Carol Billing, University of Idaho
Allen Kitchel, University of Idaho
Sally Arnett-Hartwick, Illinois State University
Kevin Elliot, Pittsburg State University
Michelle E. Bartlett, North Carolina State University
Mari Borr, North Dakota State University
Jeremy Jeffrey, Bloomburg University of Pennsylvania

The United States along with the rest of the world has experienced an unprecedented disruption in daily life due to the COVID-19 pandemic. Educational institutions at both the K-12 and post-secondary levels were closed from mid-March through the end of the school year. Schools moved traditional classes to remote, distance delivery platforms. CTE teachers were tasked with creating engaging learning activities online for curricula which is taught in a hands-on contextual learning environment. This symposium will present preliminary results from research conducted by a collaborative group of CTE researchers from throughout the country. Findings from initial data analysis will be discussed with the audience and the CTE profession, with best practices being a component.

1:30 p.m. Symposia and Research paper presentations – Zoom
Research Paper Session 3  Explaining First-Generation Students’ Postsecondary Education Enrollment from a Social Cognitive Perspective

Xue Xing, University of Nevada, Las Vegas
Jay W. Rojewski, University of Georgia

Using the High School Longitudinal Study of 2009 (HSLS:2009) dataset, this study compared postsecondary education enrollment patterns of first- and continuing-generation students under the framework of social cognitive career theory (SCCT; Lent et al., 1994, 2000). Postsecondary educational self-efficacy played a significant role in setting higher postsecondary educational goals for all students. Postsecondary educational self-efficacy and goals, together, had a substantial positive influence on postsecondary enrollment patterns for both groups, with a stronger total effect of self-efficacy for first-generation students. Contextual supports and barriers directly influenced students’ goals but played different roles for students with different generational status.

Examining the Application of Holland’s Theory to Career Interests and Selected Careers of Postsecondary Automotive Technology Students

Laura G. Maldonado, North Carolina State University
A trend appears to be developing; early career professionals in the automotive profession are leaving the field at a startling rate (Adler, 2018). In an effort to explore this phenomenon this research investigated whether postsecondary automotive technology students’ interests, abilities, and values were congruent with their chosen career pathways. One hundred eighty-six students from three institutions completed the Self-Directed Search assessment. Realistic was the predominant Holland code followed by Enterprising for the participants within this study. The majority of participants had a medium level of congruence between interests and choices as measured by the C-index. The findings may be useful for educators, guidance counselors, and campus leaders interested in diversifying instruction and professional development strategies to promote future career success.

Exploring Participation in SkillsUSA Among Postsecondary Students
Laura G. Maldonado, North Carolina State University

Researchers have investigated career and technical student organizations (CTSOs) more at the secondary level than the postsecondary level. This qualitative case study investigated how participation in SkillsUSA, a CTSO, influenced community college students’ preparedness for the workforce and connection to campus. Data were gathered from interest questionnaires, interviews, resumes, and from the U.S. Census Bureau. Using the Psychology of Working Theory (PWT) (Duffy et al., 2016) to frame the study, findings revealed that participation in SkillsUSA influenced students’ work choices, initiative, and confidence in overcoming obstacles. Participants also reported benefitting from a supportive campus community. The study provided an extension of the PWT to community college populations and has implications for practitioners and policymakers.

Research Paper Session 4
The Effects of a District-University Partnership for Career and Technical Education Teachers
Hannah Kistler, Vanderbilt University
Catherine Duggan, Vanderbilt University

School districts struggle to recruit and retain industry professionals as Career and Technical Education (CTE) teachers, given fixed costs to becoming a teacher, lower wages of teaching relative to industry, and initial challenges in the classroom transition. This study seeks to make an important contribution to the limited literature on the dynamics of the CTE teacher labor market by leveraging the introduction of a unique program for CTE teachers. Using longitudinal data for over 400
beginning CTE teachers, this study measures the effect of a district-university partnership on the retention and racial diversity of beginning CTE teachers using a difference-in-differences research design. Results suggest that implementation of the partnership is associated with an increase in CTE teacher retention.

Examining the 21st Century Skillset Perceptions of Students in an IT Career Academy Compared to those at a Comprehensive School

Edward Fletcher, The Ohio State University
Amber Dumford, University of South Florida

We examined how students perceive of their 21st Century skillsets (critical thinking and communication, applied learning, and intra- and inter-personal skills) as a function of participating in an urban magnet IT career academy compared to students at a traditional, comprehensive high school. Propensity score matching allowed us to match students from the academy with students from the comprehensive high school based on key characteristics. Based on general linear modeling, academy students reported that their school significantly contributed more to their ability to apply knowledge from their coursework to a real world context. There were no significant differences in academy and comprehensive students’ critical thinking and communication skills as well as intra- and interpersonal skills.

Symposium 3
Training and Mentoring Scholars to Improve Postsecondary CTE and Advance the Field
James E. Bartlett, North Carolina State University
Michelle E. Bartlett, North Carolina State University
Patrick Bourke, ECMC Foundation

This symposium focuses on postsecondary CTE research to improve the field of CTE. The presentations will highlight a needs assessment conducted with postsecondary CTE research fellows and describe specific professional development designed to meet those needs. Reflections on the projects undertaken by the research fellows will be presented and will highlight their learning from the research and fellows program. One project will address the details of modifying research during COVID-19. The symposium will describe projects with preliminary findings, the training offered throughout the year, and the future research efforts of the fellows. Interested stakeholders may include researchers, policymakers, administrators, business partners, and workforce development professionals.
This session describes the phenomenon surrounding the sudden shift from face-to-face teaching and learning to teaching and learning from a distance as a result of COVID-19. Teachers were left without a classroom of students without warning, and many were struggling to find ways to communicate with students and parents, maintain student motivation and engagement, provide social and emotional support to students, and deliver meaningful lessons on LMS and virtual conference platforms. A “just in time training” strategy was used to promote and offer weekly online support and networking meetings to 8 instructor cohorts. The symposium will describe how the meetings evolved over 6 weeks into a resource rich, professional learning community from which teachers were able to learn new skills, engage their students, and optimize their teaching practice.

2:30 p.m. Break/Poster Sessions – Zoom

3:30 p.m. Round Tables – Zoom

Table 1

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<th>Employer Perceptions of Work-Based Learning in Postsecondary Education</th>
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<td>Kawana W. Johnson, Florida State University</td>
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The skills gap is real, and while employers struggle to find candidates with the right training, candidates struggle to gain the experience employers seek. Work-based learning (WBL) may offer the solution to bridge the gap. Unfortunately, employer engagement in these initiatives is lacking. Employers play a key role in WBL, but are seldom involved in conversations around the topic and are often unaware of the benefits (Greenfield & Stevens, 2018). This study will explore employer perceptions of WBL in postsecondary education in Northwest Florida. Using qualitative research methods, data will be collected through semi-structured interviews and a focus group. Results should expand the knowledge base while increasing participation and partnership between education and industry.
In order to mitigate STEM technical workforce shortage through vocational education programs, this study is to examine differences of expected length of program completion and program costs between STEM and non-STEM vocational education programs over four academic years. For this study, the Integrated Postsecondary Education Data System (IPEDS) was used. The results showed that only 7.5% of total federal funded vocational education programs were STEM programs, the average length of STEM programs is approximately 11 months, and total average costs of STEM programs is $18,242 which is $2,771 higher than non-STEM programs in 2018-2019. This study provided essential knowledge about STEM vocational education programs that is highly associated with STEM technical workers shortage in the U.S. economy.

Higher education’s connection to workforce development is increasingly at the forefront of policymakers’ priorities. Despite this policy activity, some argue that existing CTE systems are not effective and blame stigmatization of CTE for this failure. This study uses a multi-site case study design to explore policymaker perceptions of CTE to better understand how stigma affects the policy formation process. Preliminary findings strongly support the argument that stigma influences CTE policy formation in two main ways: 1) participants referenced historic context related to desegregation as important in influencing perceptions of CTE students, and 2) participants connected CTE with social programs, which prompted policy actors to attach attitudes about the deservingness of individuals who receive governmental assistance to CTE.

Educators play a direct role in inputs that impact student success outcomes. Nationally, postsecondary Career and Technical Education (CTE) program assessment has focused on outcomes, with less attention on input elements that impact output. In 2018, ACTE developed the Quality CTE Framework self-assessment tool that intentionally focuses on inputs. The purpose of this study is to measure postsecondary CTE educators’ viewpoints towards program inputs identified as criteria for high-quality programs. This study uses Q methodology, a
research method that quantifiably measures subjective perception through inverted factor analysis wherein the participants’ viewpoints are treated as factors and the program elements as variables. Data analysis procedures will identify viewpoints into factor groups, uncovering patterns of perception that can aid leaders and decision-makers.

**Tuesday, December 1**
3:30 p.m. Reflection Networking Event – Zoom

4:30 p.m. ACTER Member Meeting – Zoom

5:00 p.m. Conference Awards & Presentations – Zoom

5:30 p.m. Adjourn

**Monday, January 25**
12:00 p.m. IES Grant Writing Workshop – Zoom
Presenter: Corinne Alfed, Program Officer, CTE Research, National Center for Educational Research, Institute for Educational Sciences (IES), U.S. Department of Education

**Monday, February 1**
3:00 p.m. National Research Agenda Round Table – Zoom

4:30 p.m. Present Research Agenda Delphi Study – Zoom

**Monday, February 22**
7:00 p.m. Fireside Chat for Graduate Students and New Professionals – Zoom

**Date TBD**
12:00 p.m. Advanced CTE Workshop – Zoom
Presenter: Shaun Dougherty, Associate Professor, Vanderbilt University