Analysis of Subject Matter Topics Presented at AERA's CTE Annual Meetings

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Abstract
The purpose of this study was to identify and categorize subject matter topics presented at the annual American Educational Research Association (AERA) CTE Special Interest Group (SIG) meetings during 2005-2019. A total of 19 subject matter topics were identified that accounted for 237 peer reviewed presentations. The top eight subject matter topics presented during this 15-year period were: assessment, transition to post-secondary education, academic integration, alignment with federal education policy, best practices, professional preparation, instructional strategies, and economic impact of CTE. Emerging subject matter topics included: faculty and staff development, curricula designs, relevance of workforce standards, future CTE content, programs of study, STEM, and integration of technology. It is recommended that additional classifications be considered in future research to include equity/diversity, international CTE (i.e., global subject matter topics), and career exploration and guidance.

Introduction and Theoretical Base
Grouping topics under appropriate categories is considered critical for effective analysis of subject matter topics, regardless of program areas. According to Radhakrishna and Mbaga (1995) "content analysis of conference proceedings provides perhaps the most current source of the state -of the art of research and development activities of a profession" (p.86). Analysis of subject matter topics are more likely to guide our professional organizations to address selected research priorities according to: 1) depth of research conducted in specific subject matter topics, 2) ascertain if the research conducted adds value to the knowledge base, and 3) identify gaps for additional research and practice (Radhakrishna, 1998).

The theoretical base of our study was grounded in work by selected scholars in CTE disciplinary emphasis areas. Also, several scholars have presented and written about subject matter topics in agricultural education and career and technical education at other national conferences in the field (Crunkilton, 1988; Gordon, Shaw, Xing, & Talib-Deen, 2017; Gordon, Xing, & Shaw, 2019; Lambeth, Elliot, & Joerger, 2008; Lambeth, Joerger, & Elliot, 2009; Lambeth, Joerger, & Elliot, 2018; Radhakrishna & Xu, 1997; Reed & LaPorte, 2015). The conceptual framework for this study was based on the National Career and Technical Education Research Agenda (Lambeth et al., 2009) that was developed for the Association for Career and Technical Education Research (ACTER) annual conference meetings. The framework is comprised of five research problem areas (RPAs) with a total of 53 subject matter topics. The five research problem areas are:

1. Knowledge Base for Teaching and Learning
2. Curricula and Program planning
3. Delivery Methods
4. Accountability

5. Program Relevance and Effectiveness

We were unable to locate any published articles that examined subject matter topics of conference presentations of the *annual AERA CTE SIG meetings*. The specific objectives of this study were to:

1. Describe the characteristics of presenters in terms of gender, authorship, and institutional affiliation.
2. Identify and categorize subject matter topics presented at the annual AERA CTE SIG meetings during the last 15 years (2005-2019).
3. Proposed a framework for a national research agenda for AERA CTE SIG annual meetings.

Methods and Procedures

In this study, we employed a deductive quantitative content analysis design. Xing, Shaw, and Gordon (2017) emphasized that "deductive content analysis is often used when there is prior knowledge and researchers intend to test a theory or framework. Researchers organized data based on an existing, though alterable, theory or framework" (p.49). Also, see research reported by Elo and Kyngäs (2008); Riffle, Lacy, Watson, and Fico (2019). In our study we used the ACTER framework that was developed by Lambeth and colleagues (2009). A census was used to examine all peer-reviewed conference presentations that were made at the AERA CTE SIG annual meetings during the fifteen years (2005-2019). According to Riffe et al. (2019) "a census means every unit in a population is included in the content analysis, and often makes the most sense for research that examines a particular event or series of events" (p.74). We excluded all non-peer reviewed presentations from this study. Thus, a total of 237 conference presentations were analyzed to accomplish the objectives of this study.

The following criteria were used to classify the 237 conference presentations into subject matter topics: title of the study, central theme of the study, type of session, and an abstract of the study. We created a subject matter category, namely "other," to include presentations that did not fit into any of the subject matter topics from the framework (Lambeth et al., 2009) used in this study. The researchers obtained conference programs (unit of analysis) of these 15 years from AERA's "online program files" website (sampling frame of the study) during the 2019 calendar year.

A codebook was developed which included the following pieces of information: year of the conference, number of presentations, conference theme, conference location, gender of the first author, authorship of presenters, authors' institutional affiliations, and the subject matter topics. Gender of the first author was determined by the first name, as well as a Google search if necessary. The authorship of presenters included: 1) single author, 2) two authors, 3) three authors, and 4) more than three authors. Subject matter topics of the 237 presentations at AERA CTE SIG were determined according to the classification made by Lambeth et al. (2009).

Sampling validity (Riffe et al., 2019) of the codebook was established using a panel of experts consisting of two teacher educators and an advanced doctoral student. Inter-coder reliability

(Riffe et al., 2019) was achieved by using procedures such as inter-coder comparisons of subject matter categorization and further reviews of consistencies in coding. Data of this study were summarized using frequencies and percentages.

Limitations of the Study

One of the limitations of this study is that the researchers had to administer judgmental and subjective decisions pertaining to the classifications of selected subject matter topics. Content analysis of conference programs may suffer from misjudgments due to unclear titles and descriptions of the study (Christiansen, 1996; Reed & LaPorte, 2015). Despite established procedures for coding consistency, researchers may still lose the focus of study for this particular reason. In addition, coding was completed by faculty and a graduate student from one university located in the Western U.S. This shared culture of the university (college, department, and program area) and the faculty-student relationships may influence faculty and students to think and perceive in a similar manner unconsciously.

Findings and Discussion

As shown in Table 1, a total of 237 presentations were made during the 15 years (2005-2019). The average number of presentations per year was 16 (15.8). The lowest number of presentations occurred in 2008, and highest was in 2018. However, since 2008, the number of presentations has almost doubled from 11 to 21 in 2019. With reference to conference locations, New York City accounted for both the lowest and highest number of presentations per year. It appears that the Great Recession of 2008 (Kenton, 2018), was probably a major factor for the low number of presentations. Conference locations in the Western U.S. and Canada, appeared to be well represented during the last 15 years. Overall, conference locations appear to fit the following criteria: culturally diverse locations, average weather conditions in April, and presence of local post-secondary institutions of higher learning (AERA, 2016).

Table 1

Conferences by Year, Number of Presentations, and Locations (2005-2019)

Year	Number of Presentations	Conference Location
2005	15	Montreal, CAN
2006	14	San Francisco, CA
2007	15	Chicago, IL
2008	11	New York, NY
2009	16	San Diego, CA
2010	15	Denver, CO
2011	14	New Orleans, LA
2012	15	Vancouver, CAN
2013	17	San Francisco, CA
2014	13	Philadelphia, PA
2015	16	Chicago, IL
2016	18	Washington, DC
2017	15	San Antonio, TX
2018	22	New York, NY
2019	21	Toronto, CAN
TOTAL	237	

Presenters' Characteristics

Of the 237 presentations, 128 (54%) were made by male presenters (Table 2). This finding is supported by previous research (Gordon, Shaw, Xing, & Talib-Deen,2017; Gordon, Xing, & Shaw, 2019). The typical AERA CTE SIG presentation consisted of two authors (39%), mostly males, and presenters employed at a land grant institution (Table 3). University of South Florida (a non-land grant institution), accounted for the highest number of presentations (19 or 5.88%). In general, it appears that there is a trend toward multiple authors presenting at AERA CTE SIG annual meetings (Table 4).

Table 2

Total Number of Presentations by Gender of First Author and Year

Gender	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Total (%)
Male	7	7	9	6	11	9	8	10	8	5	6	10	8	12	12	128 (54)
Female	8	7	6	5	5	6	6	5	9	8	10	8	7	10	9	109 (46)
Total	15	14	15	11	16	15	14	15	17	13	16	18	15	22	21	237 (100)

Table 3

Total Number of Presentations by Institution and Year

Institution	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	Total	
Univ. S. Florida	-	-	-	-	-	-	3	-	2	3	3	3	1	2	2	19	5.88%
Univ. Georgia	1	1	-	1	2	-	-	-	-	-	1	3	3	-	1	13	4.02%
Univ. Louisville		1	1	-	-	1	2	3	2	1	2	-	-	-	-	13	4.02%
Univ. Illinois	3	3	-	1	-	-	1	-	-	-	1	-	-	-	-	9	2.79%
Univ. Missouri	-	-	1	-	-	-	-	1	3	1	-	1	-	1	-	8	2.48%
Nat. Center CTE	1	4	3	-	-	-	-	-	-	-	-	-	-	-	-	8	2.48%
Purdue Univ.	-	-	1	2	2	1	-	1	-	-	-	-	1	-	-	8	2.48%
NC State	-	-	-	-	1	1	-	1	-	1	-	2	-	-	1	7	2.17%
Ohio State	-	3	1	-	2	-	-	-	-	-	-	-	-	1	-	7	2.17%
Iowa State	-	-	1	2	1	-	-	2	-	-	-	-	-	-	-	6	1.86%
Univ. Minnesota	-	5	-	-	-	-	-	1	-	-	-	-	-	-	-	6	1.86%
Penn State	2	1	-	-	-	-	-	-	-	1	-	1	-	-	1	6	1.86%
Wageningen Neth.	-	1	1	-	1	-	-	1	-	1	-	-	-	1	-	6	1.86%
Iowa DOE	-	-	1	1	2	-	-	-	-	-	-	-	-	-	1	5	1.55%
W. Michigan	-	1	2	-	-	1	-	-	-	-	-	-	-	1	-	5	1.55%
Virginia Tech	-	-	-	-	-	-	-	1	-	1	1	1	1	-	-	5	1.55%
Columbia Univ.	-	-	-	2	-	-	-	-	-	-	-	-	-	-	2	4	1.24%
Cornell	-	-	1	-	-	2	1	-	-	-	-	-	-	-	-	4	1.24%
Georgia State	-	1	1	1	1	-	-	-	-	-	-	-	-	-	-	4	1.24%
Oklahoma State	1	-	-	-	-	3	-	-	-	-	-	-	-	-	-	4	1.24%
RTI International	-	-	-	-	1	-	-	1	-	-	-	1	-	-	1	4	1.24%
UCSB	-	-	-	-	-	-	-	-	-	-	1	1	1	1		4	1.24%
UNLV	1	1	-	-	-	-	-	-	-	-	-	1	-	-	1	4	1.24%

*Other	10	2	8	6	11	9	8	8	22	7	13	11	13	23	13	164	50.77%
Total	19	24	22	16	24	18	15	20	29	16	21	25	20	30	24	323	

*Note. Institutions accounting for less than one percent or three conference presentations during the 15 - year analysis.

Table 4

Total Number of Presentations by Position of Authorship and Year

Author	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Total (%)
Single	6	3	3	2	6	3	4	4	4	5	4	3	2	6	5	60 (25)
Two	7	6	5	6	5	5	3	7	7	4	5	7	7	9	9	92 (39)
Three	1	2	6	2	1	6	3	3	2	4	3	5	4	4	5	51 (22)
> Three	1	3	1	1	4	1	4	1	4	0	4	3	2	3	2	34 (14)
Total	15	14	15	11	16	15	14	15	17	13	16	18	15	22	21	237 (100)

Subject Matter Topics

The 237 presentations were categorized into the relevant subject matter topics (Table 5). The **top 8 subject matter topics** presented during this 15 year were *assessment* [10.97%] (RPA4—Accountability), *transition to post-secondary education* [7.59%] (RPA3—Delivery Methods), *academic integration* [7.17%] (RPA2—Curricula and Program), *alignment with federal education policy* [6.33%] (RPA5—Program Relevance and Effectiveness), *best practices* [5.91%] (RPA3—Delivery Methods), *professional preparation* [5.91%] (RPA1—Knowledge Base for Teaching and Learning), *instructional strategies* [5.49%] (RPA1—Knowledge Base for Teaching and Learning), and *economic impact of CTE* [5.06%] (RPA4—Accountability]. The **least researched subject matter topics** were impact of CTE courses on student achievement, alternatively certified teachers, policy development, and quality of teachers. **Emerging topics** included faculty and staff development, curricula designs, relevance of workforce standards, future CTE content, programs of study, STEM, and integration of technology. Overall, the top category was *"other"* (40 presentations, 16.88%), a variety of topics unrelated to the subject matter topics as classified by Lambeth et al.'s framework (2009). The top three subject matter topics in the "other category" were equity/diversity (15 presentations), international CTE (i.e., global subject matter topics) (9 presentations), and career exploration and guidance (8 presentations). Thus, subject matter topics labeled as "other" appeared to be dominant among AERA CTE SIG presenters during 2005-2019.

Table 5

Subject Matter Topics Presented at AERA by Year (2005-2019)

Subject Matter	Year																
	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	Total	%
Assessment	3	1	2	1	2	1	-	4	2	1	2	2	2	3	-	26	10.97%
Transition to Postsecondary	1	2	1	2	1		1	-	3	-	1	1	1	3	1	18	7.59%
Acad. Integration	1	1		1	3	4	1	1	-	-	-	2	1	2	-	17	7.17%

																Total	%
Alignment Fed. Policy	-	-	2	-	3	-	3	1	-	-	-	1	1	1	3	15	6.33%
Best Practices	2	-	-	1	-	2	-	-	-	-	1	1	1	2	4	14	5.91%
Prof. Prep.	2	3	-	-	1	-	-	2	2	-	1	1	2	-	-	14	5.91%
Instructional Strategies	2	3	-	1	2	1	1	-	1	-	-	-	-	1	1	13	5.49%
Econ. Impact	1	-	1	2	1	1	-	1	-	-	1	-	1	-	3	12	5.06%
Faculty & Staff Development	-	1	-	-	-	2	1	3	-	2	-	-	-	1	-	10	4.22%
Curricula Design	-	1	1	-	1	-	2	-	1	-	1	-	-	1	2	10	4.22%
Relevance Wrkf. Stand.	-	1	3	-	-	2	1	-	-	-	-	1	1	-	1	10	4.22%
Fut. CTE Content	-	-	3	1	-	-	-	-	1	1	1	-	-	2	-	9	3.80%
Prog. Of Study	-	-	-	1	-	-	2	1	2	-	1	-	-	-	-	7	2.95%
STEM	-	-	-	-	-	-	2	-	-	-	2	3	-	-	-	7	2.95%
Integ. of Tech.	1	-	2	-	-	1	-	-	-	-	-	-	-	1	-	5	2.11%
Impact of CTE courses	-	-	-	-	-	-	-	1	2	-	-	1	-	-	-	4	1.69%
Alt. Cred/Cert.	-	-	-	-	-	-	-	-	-	-	1	-	1	1	-	3	1.27%
Policy Dev.	1	-	-	1	-	-	-	-	-	-	-	-	-	-	-	2	0.84%
Quality of Teach.	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	1	0.42%
*Others	1	1			2	1		2	5	6	5	4	4	4	5	40	16.88%
Total	15	14	15	11	16	15	14	15	17	13	16	18	15	22	21	237	

*Note. Adult learners, Career exploration & guidance, CTE high school course taking & dropout, Equity/Diversity, Extension, International, Juvenile Justice programs, Retention of non-traditional students, Special needs.

Framework to Establish a National Research Agenda for AERA CTE SIG

The findings of this study suggest that AERA CTE SIG presenters researched a variety of subject matter topics during this 15- year period. However, there is no specific research agenda for our AERA CTE SIG. In general, the data from this study suggest that subject matter topics were more likely to align adequately with the five RPAs (Lambeth et al., 2009). Based on our findings, we recommend additional classifications be considered in future research to include the following subject matter topics: *equity/diversity*, *international CTE*, and *career exploration and guidance*. Findings from a content analysis of 37 annual conferences held by the International Technology and Engineering Educators Association, revealed that more attention is needed in all areas associated with diversity. The study's findings also noted that diversity accounted for only 124 topics between 1978 and 2014 (Reed & LaPorte, 2015). In addition, several scholars have argued that professional development for CTE instructors and professionals should place more emphasis on equity/diversity. This is very beneficial for preparing a high-quality competitive workforce (Advance CTE, 2018; Bezard & Shaw, 2017; Imperatore, 2019). With reference to international CTE, selected scholars have addressed the importance of benchmarking of CTE, widening of the skills gap among young people, and creating a global pipeline for dual enrollment options (Fitzgerald & Singmaster, 2017; Higgins, 2015; McCage, 2017). As of 2019, over 10% of AERA members were from more than 90 countries (AERA, 2019).   Research indicates the need for an increased emphasis on career exploration and guidance to help students make more intentional choices, especially during the middle grades (McFadden & Curry, 2018; Meeder, 2016; Stone & Lewis, 2012). Figure 1 illustrates the proposed framework for establishing a research agenda for AERA CTE SIG. Our goal is to have a national summit to identify and discuss critical issues of the profession at the national, regional, and international levels.
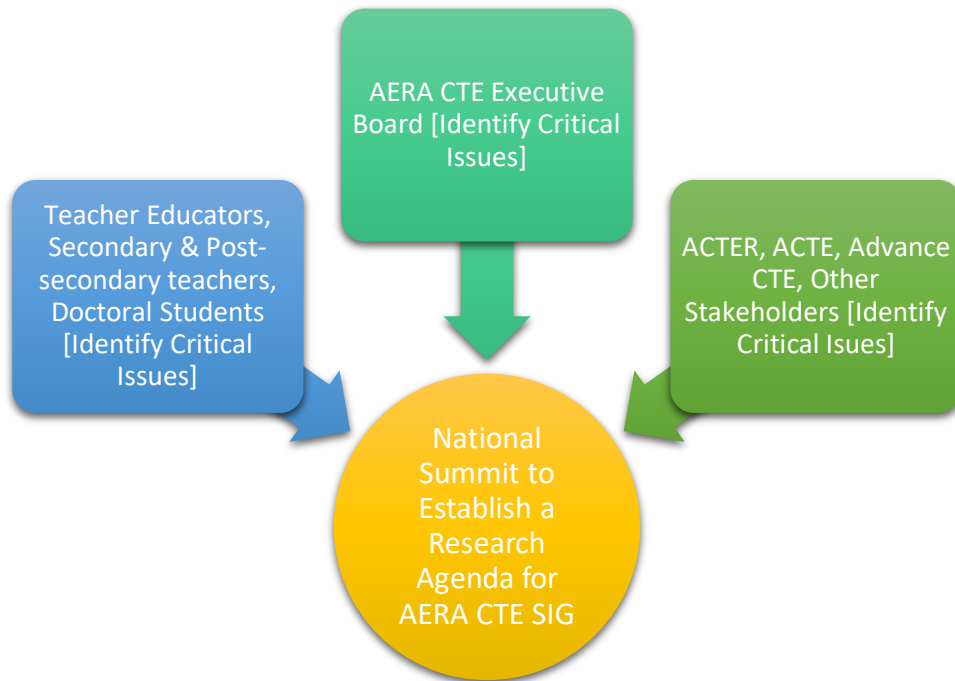
Figure 1. Conceptual Framework to Establish a Research Agenda for AERA Career and Technical Education Special Interest Group

Conclusion

This content analysis was designed to identify and categorize subject matter topics from 15 annual conferences of the AERA CTE SIG, spanning 2005-2019. Nineteen subject matter topics were identified, and using a deductive approach, presentations were tagged if they aligned with Lambeth et al.'s framework. The number of presentations ranged from 15 in 2005 to 22 in 2018, which accounted for a modest percentage increase of 46.6%. It appears that top subject matter topics in this study may be highly ranked because they were necessary and important. Data from this study suggest that there is a trend toward multiple authorship presentations at AERA CTE annual meetings, which is considered as a strength. This study highlights the need for AERA CTE SIG executive committee to work closely with the conference planning committee and selected sponsors to examine priorities in the field. Because over 15% of the presentations were classified as "other," we suggest that additional classifications be considered in future research.

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