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A Document Analysis to Explore Full-Time Postsecondary CTE Faculty Job Postings to Understand Curriculum to Prepare and Develop Faculty

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This study examines job postings for full-time postsecondary Career Technical Education (CTE) faculty to explore job duties. Document analysis was used on the job postings collected on JobsEQ Real-Time Intelligence for CTE instructors in North Carolina. Over a year, 318 job postings were found through specific search terms in JobsEQ, with 205 retained. Discarded postings were due to duplication, not postsecondary CTE, or part-time positions. Examination of job postings revealed six thematic areas that tie to curricular skills: development process, inputs and standards, content of the CTE curriculum for students, uses of curriculum in the CTE instructor's role, goals, and management of items related to curriculum. Further analysis was performed using the ADDIE instructional model as a lens. This work helps describe how skills for analyzing needs of students and employers, design of instruction, development of instruction, instruction implementation, and evaluation of students and programs relate to the job of CTE instructors and uncovers areas of potential professional development.

Keywords: ADDIE, document analysis, skill development, professional development

Introduction

Technical experts in their content areas are often the individuals who become postsecondary career and technical education (CTE) faculty members at community colleges yet may lack experience or training in education. A postsecondary CTE instructor is an educator who specializes in technical content beyond high school, typically at a community college, technical school, trade school or vocational education program (Bartlett, 2002; Brand et al., 2013; Soliz, 2023). These instructors develop students to directly enter the workforce in technical occupations within various career clusters (Hyder et al., 2023; Rosen, 2023), including but not limited to Health Science, Information Technology, Manufacturing, and Business Management and Administration. They prepare students for technical occupations such as HVAC technicians, electricians, welders, mechanics, or computer systems administrators within clusters like Architecture and Construction, Information Technology, and Transportation, Distribution, and Logistics. Additionally, they address emerging technical occupations in sectors such as Agriculture, Food, and Natural Resources, as well as Science, Technology, Engineering, and Mathematics (STEM) (Anglum et al., 2023).

In addition to theoretical knowledge, these instructors emphasize practical skills and teach using hands-on learning. Many times, these instructors have formal technical training but lack training in education (Kerna, 2012). For example, a welder from industry chooses to teach at the community college, or an individual working as a nurse decides to change careers to become a

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nursing instructor. These postsecondary CTE faculty members play a critical role in preparing individuals for the workforce and serve as a key component in the workforce development system in the United States. The 2018 Association for Career and Technical Education (ACTE) framework for high-quality CTE identifies prepared and effective staff as one of the 12 elements of high-quality CTE programs. To maintain high standards, it is suggested that faculty must meet minimum qualifications and have opportunities for professional development to meet state, school, certification, and licensing requirements. However, it was not within the scope of the framework to directly identify what these minimum qualifications or skills are for postsecondary instructors. Nevertheless, professional development is one approach to help CTE instructors stay up to date with industry and pedagogical knowledge.

Effective postsecondary CTE faculty have always been vital, yet the understanding and organization of their preparation and requirements across the U.S. have been inconsistent and unclear, as Bartlett (2002) pointed out. This issue continues to persist and was brought up again later, with Bazile and Walter (2009) stressing the need for a better grasp of this area of requirements and preparation of CTE instructors at the postsecondary level. They highlighted the varied landscape where some states require certifications specifically for postsecondary CTE teachers, while others have broader credentials for community college faculty. Despite some states and fields having certification, there remains a notable gap in research to comprehend the precise requirements for postsecondary CTE instructors. Research has explored pedagogical approaches, but there is a lack of in-depth examination of how the curriculum used for professional development or the content of courses to teach how to teach (courses that meet certification requirements in some cases) impact the roles and effectiveness of postsecondary CTE instructors. Additionally, at the postsecondary level, where students are primarily adults, there is a lack of attention to topics such as andragogy.

Furthermore, there is a lack of research to verify if the requirements some community colleges must follow make a difference in student outcomes, such as learning, completion, and gainful employment. When examining instruction in math, Stansbury (2018) explored whether those with a math education degree have better outcomes than those with a mathematics degree. The debate over the necessity of certification for CTE instructors, as discussed by Bazile and Walter (2009), points to a critical aspect that instructors and their students may greatly benefit from professional development. This development may be seen as a crucial part of the systems that help adequately prepare faculty for the educational challenges related to their roles in postsecondary education, ultimately fostering student success and labor-market outcomes. However, it also appears that this could be an area of continual development since, in a recent study of postsecondary faculty in Tennessee, Hudson (2021) found that it would be helpful for technical college faculty to have training in curriculum design, development, updating, and evaluation. To further stress the importance of curriculum, Gauthier (2021) found that curriculum was one of the three components through factor analysis revealed in a community college CTE faculty survey regarding the importance to CTE. While not as much research has been done at the postsecondary level, research on the integration of academic and CTE curricula synthesized by Park et al. (2017) at the secondary level provided evidence that contextualizing instruction increased academic skills and called for the understanding of best practices to create career and college readiness. This integration in the CTE curriculum must be further examined at the postsecondary level and would need to be reported in ways that those with technical expertise can relate to and adopt.

Literature dating back to the 1980s shows concerns about filling the needed CTE teacher vacancies (Brockway & Sage, 1982; Camp & Hively, 1988). In that literature the shortages of CTE instructors were evident at both the secondary and postsecondary levels. Then, twenty years later, a

national examination of policy by Bartlett (2002) revealed "a lack of available knowledge, consistency, and organization of requirements" to understand the prerequisites to become a postsecondary career and technical educator (p. 121). While most of the research on teacher shortages in CTE has focused on the secondary level, it is urgent to take notice of this issue at the postsecondary level with the increases in dual enrollment, the need for postsecondary education to enter the workforce, and the demand for technical jobs. The shortages at both the secondary and postsecondary levels will only exacerbate the problem of finding qualified CTE instructors. A call for research to understand the practices of postsecondary CTE educators was made, but only a few studies have been examined. Bazile and Walter (2009) highlight that while some states offer certifications for postsecondary CTE teachers, states do not typically extend this requirement to community college faculty at large. Despite the presence of such certifications, there is a notable gap in research regarding the content of curriculum that should be used to develop postsecondary CTE instructors.

While certification requirements for CTE postsecondary instructors would likely increase the challenge of filling these already demanding positions, it is essential to explore the instructor's role to ensure they are adequately prepared. Understanding this role is crucial for designing professional development programs aimed at equipping them to enhance student success effectively. Additionally, providing this preparation will likely enhance their abilities as instructors and reduce the likelihood of them leaving the profession due to dissatisfaction. Exploring the skills listed in job postings would help identify the needs to create additional pathways to prepare CTE instructors for community colleges.

Purpose and Guiding Research Question

This study examines full-time job postings for the CTE faculty in relation to the curriculum-related job duties of postsecondary CTE faculty. Various resources exist for those seeking to develop postsecondary educators, offering insights into the knowledge, skills, and abilities needed for success at community colleges. Advisory boards, professional organizations, best practices literature, and research all contribute to understanding the duties of postsecondary faculty. However, job postings are the primary tool for communicating with potential employees and identifying talent to fill postsecondary CTE faculty positions. Therefore, this study aims to delve deep into job postings to understand the skills required for postsecondary CTE faculty positions, providing insights into the skills needed to prepare postsecondary CTE instructors. The study sought to answer the question: How do community college job postings for full-time postsecondary CTE instructors in North Carolina portray the instructor's role related to curriculum in their job duties?

Frameworks for Study

The foundation of this study is based on the 2018 ACTE Quality CTE Program of Study Framework (Imperatore & Hyslop, 2018), which provides a comprehensive understanding of high-quality CTE. Additionally, the study uses the ADDIE Model (Molenda, 2003) of Instructional Design as a lens through which data is organized and synthesized. The 2018 ACTE Quality CTE Program of Study Framework outlines 12 elements of high-quality CTE programs, offering a structured approach to identifying essential components and standards. This framework serves as a benchmark against which the required skills and competencies in job postings can be measured, ensuring alignment with current standards of excellence in CTE education. The ADDIE Model, a widely recognized

instructional design framework, guides the study's approach with its systematic process, including Analysis, Design, Development, Implementation, and Evaluation stages. Its application in instructional design reinforces the methodical organization of curriculum skills found in job postings. Together, these frameworks provide a comprehensive and systematic approach to understanding the curriculum skills required for postsecondary CTE teachers. They ensure that the study is grounded in relevant educational standards and employs a rigorous process for data analysis and application.

Using the ACTE framework in conjunction with the ADDIE Model of Instructional Design offers a solid foundation for analyzing job postings for postsecondary CTE instructors. The ACTE provides a thorough standard for evaluating competencies and skills, and the ADDIE Model, known for its systematic approach to instructional design, complements this process. Applying these frameworks enhances the study's credibility and has the potential to offer practical recommendations for enhancing curriculum development and instructional design when preparing CTE educators. This methodical and comprehensive approach is one technique to gain an understanding of how to prepare postsecondary CTE faculty.

Methods

Document analysis, an effective yet underused qualitative research approach (Merriam & Tisdell, 2016), holds particular relevance in the field of CTE. In this study, document analysis is employed to examine job postings collected by a prominent national organization, which uses this data for labor market analysis. This method involves gathering existing data and analyzing pre-existing information (Bowen, 2009). According to Morgan (2022), the process of document analysis begins with the selection of documents, considering factors such as authenticity, credibility, representativeness, and meaning (Flick, 2022), followed by sampling techniques and thematic analysis. Job postings serve as a valuable source of data for document analysis due to their widespread availability, textual nature, and broad representation from diverse sources. As the primary means of communication for recruiting potential employees, these postings reflect the voice of the employer and provide accurate information shared externally by organizations. However, limitations of document analysis include potential restrictions on access to documents, as well as possible deficiencies in transparency, comparability, and the omission of radical alternatives, highlighting the dangers of relying solely on official records for a comprehensive understanding of a topic (Karppinen & Moe, 2019). It is important to note that the documents examined in this study do not provide a platform for participants to express their voices. In addition, a specific limitation of the methodology is that job announcements often fail to align precisely with actual job duties. Therefore, the credibility of the data is contingent upon the accuracy of the published job announcements. While document analysis shares similarities with content analysis, it is better suited for this study because, as explained by Glenn (2022), content analysis encompasses all media forms of a subject, whereas document analysis focuses specifically on written documents.

Data Sources. A search conducted in the JobsEQ Real-Time Job Posting database revealed a total of 2,856 job postings in North Carolina within the time frame of July 1, 2021, to June 30, 2022, specifically for the occupational code SOC code 25-1194.00, which pertains to career/technical education teachers at the postsecondary level. Subsequently, the search was narrowed down by filtering for postings that mentioned "community college" under the employer category and "full-time" under job type, resulting in 510 postings. From these, non-CTE or administrative positions were excluded, leaving a final count of 318 postings. After removing duplicate postings and re-posts,

a total of 205 unique postings remained for analysis. Each of these unique postings, in HTML format, was captured and saved into individual files using NCapture software. All 205 files were uploaded into the software for further processing. Each file was then coded to a specific career cluster. The distribution of postings among different career clusters is presented in Table 1, where it can be observed that the clusters of architecture and construction (*n*=48, 23.6%), transportation, distribution, and logistics (*n*=31, 15.3%), and information technology (*n*=29, 14.3%) collectively accounted for more than half of the total postings. The job posting data used in this study originates from the Real-Time Intelligence dataset provided by Chmura. This dataset is deemed reliable and valid owing to its robust methodologies and transparent practices. Drawing data from over 45,000 websites, the dataset offers a comprehensive perspective of the job market and is updated on a daily basis to ensure timeliness. Rigorous deduplication processes are employed to eliminate redundancies, thus ensuring accurate job ad counts. Additionally, detailed analysis, including wage conversions and selection within provided ranges, reflects the meticulous handling of data. Quality controls are implemented to exclude data of inferior quality, thereby safeguarding the integrity of the dataset. Systematic monitoring of job ad statuses, distinguishing between active and closed ads, enhances the accuracy of the dataset. These measures collectively affirm the reliability and validity of the data, providing accurate and meaningful insights into the job market (Chmura, 2022; JobsEQ, 2019).

Table 1

Frequency and Percent of Unique Full-Time Community College CTE Job Posting in North Carolina From July 2021 to June 2022 by Career Cluster

Career Cluster	***N***	**%**
Architecture & Construction	48	23.6
Transportation, Distribution, & Logistics	31	15.3
Information Technology	29	14.3
Health Science	25	12.3
Human Services	19	9.4
Law, Public Safety, Corrections, & Security	17	8.4
Science Technology, Engineering, & Mathematics	11	5.4
Hospitality & Tourism	8	3.9
Manufacturing	7	3.4
Education & Training	3	1.5
Agriculture, Food, & Natural Resources	2	1.0
Arts, Audio Video Technology, & Communications	2	1.0
Business Management & Administration	1	0.5
Total	205	100%

Note. Job postings were only found in 13 of the 16 career clusters.

Data Analysis

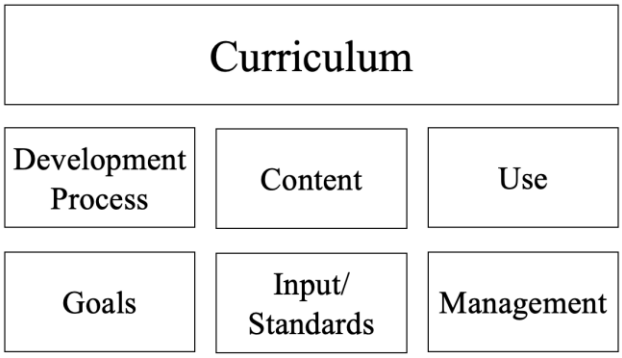
The researchers analyzed the 205 job postings using both traditional techniques and NVivo Release 1 software. Each file was coded according to career clusters, as outlined in Table 1. Prior to analysis, all job postings were carefully reviewed to ensure their suitability and to eliminate any duplicates. A query for terms related to curriculum, such as “curriculum” and “curricula,” yielded 293 occurrences in 142 of the postings. Next, each occurrence was examined within its context, and if necessary, the full posting was reviewed to provide deeper insight. Initial codes were then established, and these codes were further organized into categories. These categories were then grouped into overarching themes. Using the lens of the ADDIE model, the researchers analyzed the categories and assigned them to the appropriate phases of the instructional design framework. This process helped in understanding the expected curriculum-related skills outlined in the job duties.

Results

The initial examination of how the curriculum is portrayed in job postings for postsecondary CTE revealed six thematic areas: the development process, inputs and standards, curriculum content, curriculum uses, goals, and management of items related to the curriculum. Among these areas, the curriculum development process emerged as the most prominent and was described in the greatest detail, as illustrated in Figure 1 below.

Figure 1

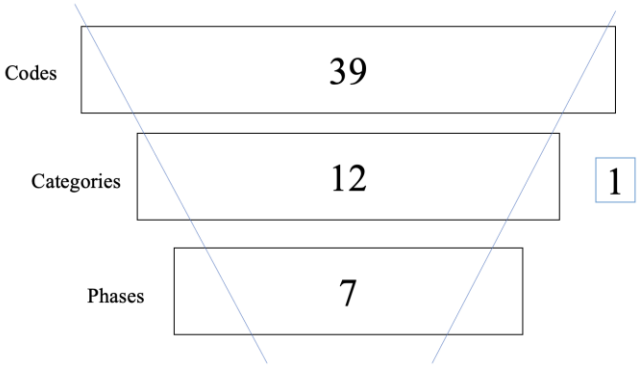
Initial Analysis of Curriculum in Job Postings With No Preset Lens



The ADDIE model framework was used to interpret the curriculum skills required as listed in the job duties of postsecondary CTE postings. This framework offered a structured approach to examine the necessity for instruction, design, development, implementation, and evaluation. By applying the ADDIE framework to the curriculum, codes were categorized and then grouped into phases. Figure 2 below illustrates the reduction of data from 205 postings into 39 codes, which were subsequently organized into 13 categories. These categories align with seven phases of curriculum development. However, one category, namely "marketing the curriculum," emerged as a task unrelated to pedagogical aspects of the curriculum development process. Instead, it pertained to the use of the curriculum in student and business partner recruitment efforts.

Figure 2

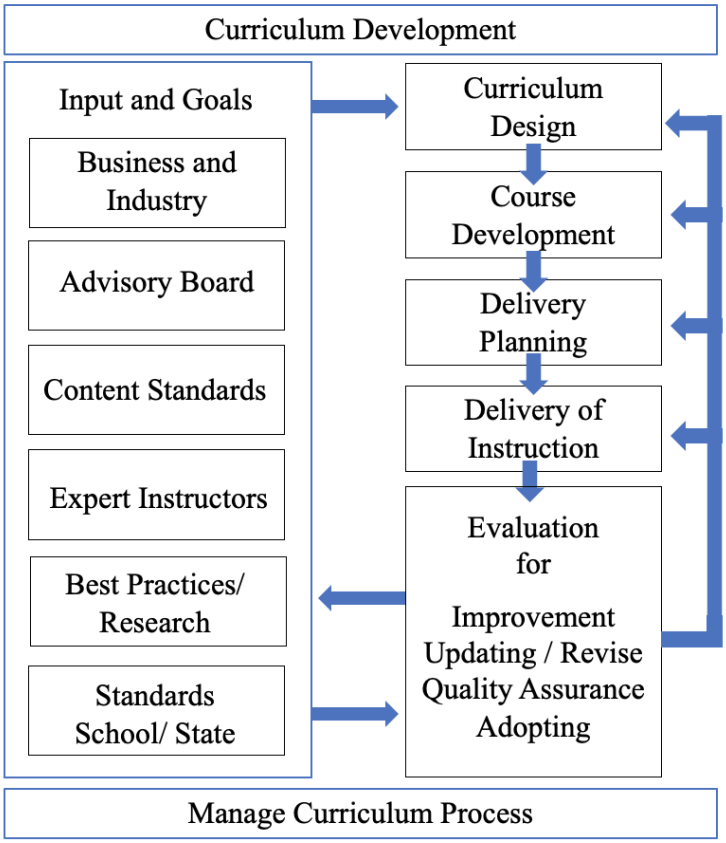
Data Reduction Visual With Number of Codes, Categories, and Phases



The ADDIE instructional design framework offers a structured approach to understanding the curriculum development process for CTE instructors, as depicted in Figure 3 below.

Figure 3

Job Duties in Relation to Curriculum Using ADDIE Framework as a Lens

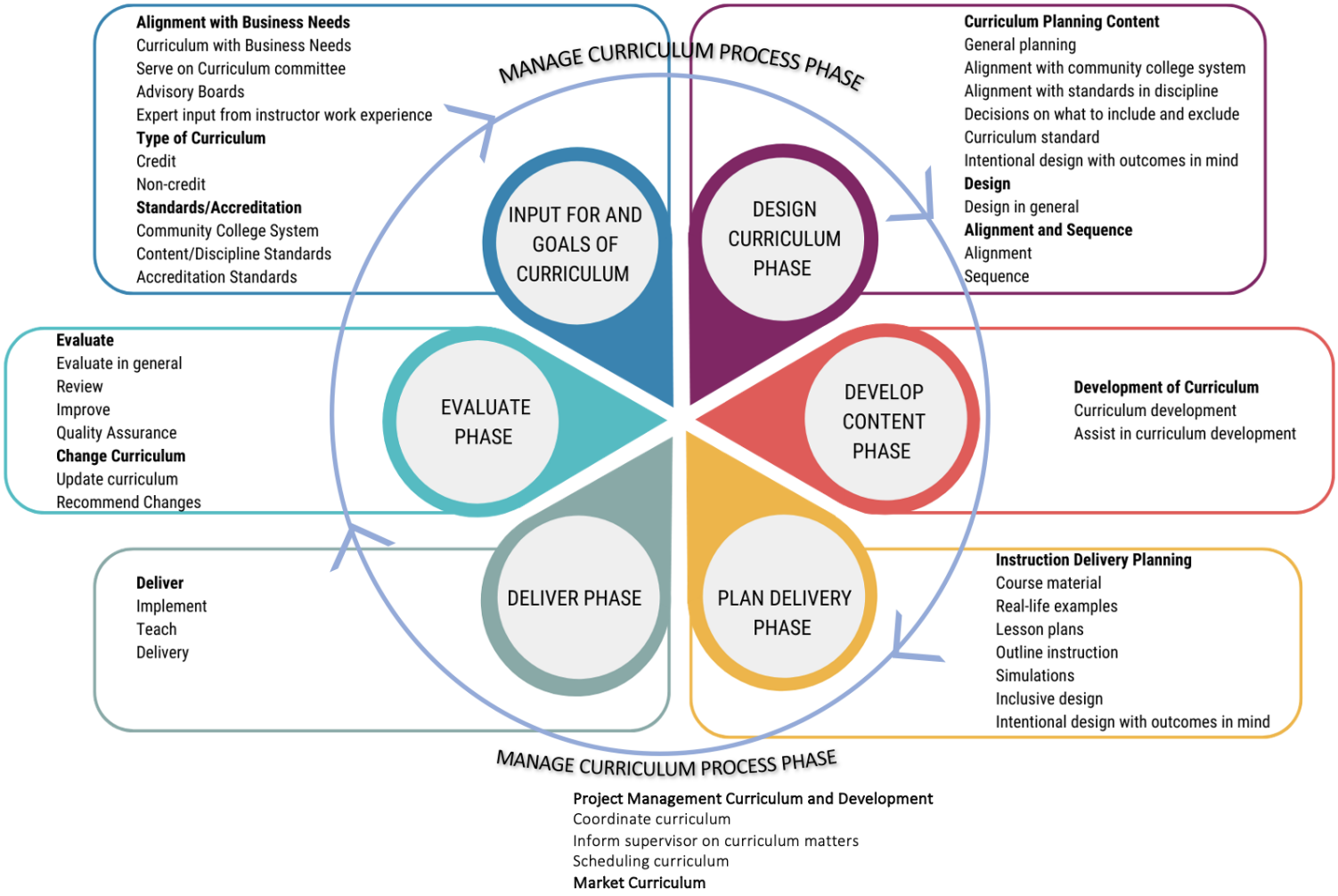


The final model (Figure 3) outlines seven phases to describe the curriculum development process in relation to the job postings for postsecondary CTE instructors. The process commences with setting goals, gathering input from various sources, and contextualizing the curriculum. While not inherently part of the development process, the type of curriculum (credit course, non-credit course, and workforce training) often provides a framework influencing instructional goals. The curriculum design phase entails creating comprehensive program designs that explain the purpose of the curriculum. Job postings occasionally mentioned this phase as a responsibility of CTE faculty, either independently or in collaboration with business partners. Collaboration with external entities was emphasized in setting goals and designing the curriculum, requiring inputs such as content standards and professional certification requirements. After establishing the overarching program curriculum, postings often highlighted the faculty's role in acquiring resources, developing course materials (including syllabi, outlines, slides, and resources), and structuring courses. Planning for course delivery often coincided with development activities, linking course-level development with preparation for content delivery. Delivering the curriculum to students, also known as teaching, instruction, or delivery, was highlighted as the subsequent phase in the process. Job postings stressed the importance of effective delivery methods, although the specific criteria for effectiveness remained

unclear. Only a few postings discussed delivery within an online environment. The final phase involves evaluation, including student assessment and instructional evaluation for enhancements, updates, and quality assurance.

Figure 4

Codes, Categories, and Phases from Data Analysis



Scholarly Significance

The roles of faculty members at community colleges lack clear definition (Cohen & Brawer, 1994). Given the diverse content found in CTE programs across disciplines, there is a need for further examination of job duties. This entails investigating various pedagogical approaches within each discipline and ensuring that the curriculum aligns effectively with the needs of the workforce. Many individuals transitioning to postsecondary teaching from business and industry bring expertise in their respective fields but often lack formal training in effective teaching methods. Given that curriculum content and development form a significant part of postsecondary positions, it is crucial to understand how job postings convey the relationship between the potential role of a CTE faculty member and the curriculum. This research holds significance as it describes how the curriculum intersects with the role of a CTE faculty member at a community college, identifies areas of potential professional development within educational spaces—areas that many new CTE faculty members report being unprepared for—and offers a framework for future research to compare the duties posted for CTE faculty members with the actual tasks they perform on the job. Community college faculty roles involve a substantial focus on teaching, and expanding this knowledge base is vital for the field. This research serves as a first step in understanding how the role of community college CTE faculty aligns with curriculum, providing a foundational understanding of the distinct needs of CTE compared to core academic faculty.

Implications for Practice

This study focused on the job duties of postsecondary CTE faculty and has several implications for practice. Our hope is that these implications can assist postsecondary educators, community colleges, and organizations involved in the hiring and professional development of CTE instructors.

Implication 1 – Curriculum Development Process: The study's findings revealed that job postings for postsecondary CTE instructors highlight the importance of skills related to curriculum development processes. This suggests that both educators and institutions should prioritize understanding and actively participating in different stages of curriculum development, such as goal setting, information gathering, and curriculum design. Instructors should be equipped with the necessary skills to contribute to the curriculum development process.

Implication 2 – Collaboration with Business Partners: The study highlighted the importance of collaborating with business partners in the curriculum development process. Postsecondary CTE instructors should actively engage with industry professionals, advisory boards, and employers to ensure that the curriculum aligns with industry needs and standards. Community colleges have the potential to foster strong business partnerships, facilitating meaningful collaboration and keeping the curriculum relevant and up to date.

Implication 3 – Equity and Inclusion: While this study did not specifically address equity and inclusion, it is crucial to incorporate these aspects into the creation of job postings and curriculum development for postsecondary CTE faculty. Institutions should adopt curriculum designs that acknowledge the diverse backgrounds, needs, and perspectives of students. This may involve integrating culturally responsive teaching practices, diverse content, and fostering an inclusive learning environment conducive to the success of all students.

Implication 4 – Consideration of Course Types: The type of curriculum (credit

courses, non-credit courses, and workforce training) influences the instructional goals and design. Institutions should tailor the curriculum according to the specific requirements and objectives of different course types. CTE instructors should be familiar with the distinctions and unique aspects of each course type.

Implication 5 – Job Posting Accuracy: While not the primary focus of this study, one of the limitations acknowledged is that job postings may not consistently align with the actual job duties. Institutions should ensure that postsecondary CTE instructor job postings accurately and comprehensively represent the responsibilities and expectations associated with the posted position. Doing so can attract well-suited candidates and minimize discrepancies between expectations and job duties.

Implication 6 – Alignment with Frameworks and Models: Job postings demonstrated a high level of congruence with the ACTE high-quality framework and the ADDIE model. It would be beneficial for CTE educators to acquaint themselves with both models when considering their instructor role. Familiarity with established frameworks and models can offer insight into curriculum development and instructional design. The findings from this study should be used to further explore faculty roles and develop competencies.

Implication 7 – Professional Development: The research results presented evidence of specific curriculum-related tasks that CTE instructors must be proficient in, aligning with existing research (Hudson, 2021; Seay, 2021). While this study did not conduct a needs assessment to gauge faculty competency in these areas, it did identify areas warranting professional development. These areas likely include instructional design, curriculum development, instructional delivery (in classroom, lab, and work-based settings), and evaluation. Providing workshops, seminars, and courses on these topics can empower educators to excel in their roles.

Implication 8 – Continuous Feedback and Improvement: To further the concept of evaluation, there was a notable emphasis on collecting feedback from class assessments and students to continually enhance the curriculum. Instructors should be taught systematic processes to establish feedback mechanisms. For example, one approach could involve implementing PDSA cycles, wherein the instructor sets goals, executes instruction, analyzes the outcomes, and then takes action to either adopt, adapt, or discard an instructional practice. This feedback loop can guide curriculum enhancements, address emerging industry needs, and ensure ongoing quality improvement. We encourage institutions to use instructor feedback primarily for instructional improvement rather than for assessing instructor quality.

Implications for practice highlight the significance of active participation in curriculum development, collaboration with industry partners, resource development, effective instructional delivery, evaluation, and quality assurance. By considering these implications, postsecondary CTE educators and institutions can refine their curriculum design and improve the overall quality of CTE programs.

Recommendations for Future Research

There are several areas of future research that can build on the findings of this study.

Comparative Analysis: While this study focused on one southern state, conducting a comparative analysis of job postings for postsecondary CTE instructors across different states or regions could be beneficial. This comparative approach may reveal insights into variations in the portrayal of curriculum-related responsibilities in job duties and identify potential factors

influencing these differences, such as state policies or regional workforce demands. A comparative analysis could also be conducted across various CTE disciplines to explore differing needs across career clusters.

Stakeholder Perspectives: In addition to investigating job postings, further research could explore the perspectives of various stakeholders, including employers, industry professionals, advisory boards, students, and faculty members, regarding the significance of curriculum in postsecondary CTE faculty roles. Examining their expectations, experiences, and perceptions can offer a comprehensive understanding of the alignment between job postings and actual job responsibilities. While the employer's viewpoint is reflected in the job postings, it would be valuable to investigate to what extent these postings correspond with the expectations of community colleges regarding the daily roles of CTE instructors.

Faculty Preparation and Support: It would be beneficial to explore how postsecondary CTE faculty members are prepared for new positions and supported in their roles. This could involve examining professional development opportunities, mentoring programs, and institutional resources available to faculty members to enhance their skills in curriculum design and instructional delivery. Expanding on the research of Saeger (2019) and Hanna (2020), this analysis could further investigate the support provided during different career time periods, such as the time between being hired and the start of teaching, the first year of teaching, and the first five years of teaching, to see how support varies across these stages.

Comparison with Curriculum Implementation: The field would likely benefit from a research project that compares the information found in job postings with the real-world duties of postsecondary CTE faculty in programs.

Qualitative Interviews: Researchers could benefit from collecting narratives and perspectives through qualitative interviews with postsecondary CTE faculty members. This approach would offer insights into their experiences, challenges, and successes in curriculum development and instructional delivery. These interviews can provide rich narratives that complement our quantitative analysis of job postings.

There are numerous potential future studies that could deepen the field's understanding of the postsecondary CTE faculty role and contribute to the continuous improvement of CTE programs and instructional practices.

Conclusion

This study investigated the role of postsecondary faculty in reference to curriculum within job postings for postsecondary CTE faculty positions in North Carolina. Through the analysis of 205 job postings using document analysis and the lens of the ADDIE instructional design model, six thematic areas related to the portrayal of curriculum in the job duties of postsecondary CTE instructors were identified. The findings highlighted the curriculum development process as the most prominent theme, emphasizing the importance of goal setting, input gathering, and contextualizing the curriculum. Additionally, the study highlighted the significance of collaboration with business partners, program design, resource acquisition, course material development, delivery planning, teaching, and curriculum evaluation. This suggests that individuals entering these postsecondary CTE instructor positions should have a clear understanding of the curriculum-related duties and their connection to the ADDIE model.

Overall, this study contributes to understanding how job postings for postsecondary CTE instructors in North Carolina depict the role of curriculum in faculty job duties. The findings may

aid institutions in aligning their recruitment strategies and faculty development initiatives more effectively with the expectations and responsibilities of instructors in curriculum development and instructional delivery. Moreover, this study lays the groundwork for future research and offers practical implications for improving CTE programs and instructional practices in postsecondary education.

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