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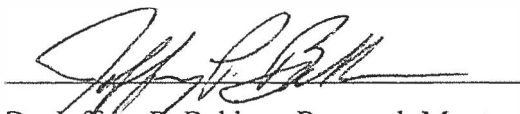
BARRIERS TO IMPLEMENTATION OF EVIDENCE BASED INSTRUCTIONAL PRACTICES IN CAREER AND TECHNICAL EDUCATION AT COMMUNITY COLLEGES

A Scholarly Research Project

Submitted in Partial Fulfillment of the Requirements for the Degree

Doctor of Education

Approved:



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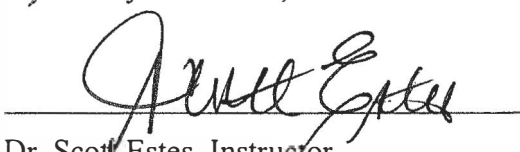

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ABSTRACT

Studies show a need for career and technical education (CTE) faculty to have more instructional training. Greater use of evidence based instructional practices (EBIPs) would likely improve community college CTE program instruction by providing research-based guidance for effective instruction. Use of EBIPs remains low across all levels of education, and while there is some research into barriers impacting the use of EBIPs within universities and k12 systems, there is little research into barriers impacting use of EBIPs within CTE programs at community colleges. This qualitative study consisted of ten interviews with community college CTE faculty and staff to examine the central question of this study; what are the barriers to implementing EBIPs within CTE at County Community College. Themes within this study indicated barriers associated with faculty time, CTE faculty culture, and the teaching philosophy in which faculty were inclined toward. CTE faculty conceptions of EBIPs were generally negative and construed as not applicable to CTE, although there were outliers who took a more favorable stance toward use of EBIPs suggesting possible avenues for mitigating barriers. Findings indicated that program accreditation standards may nurture a culture of innovation and use of EBIPs, faculty inclined toward a more Humanistic teaching philosophy may be more likely to attribute value to the use of EBIPs, and characteristics of the program such as program demands for curriculum development influenced faculty perceptions of time for developing EBIPs. Implications of this study are that use of EBIPs may increase among CTE faculty with better assessment of department resources needed to develop EBIPs by the college, and that the culture of CTE faculty may be influenced toward greater use of EBIPs by advocating a more discipline-based EBIP use by professional development staff, adopting discipline-based professional instructional standards, and by expanding the instructional philosophy of faculty.

DEDICATION

This paper is dedicated to Glen Edson Hardbarger and Connie Lou Hardbarger for their wisdom and regard for the pursuit of knowledge; to Anne Joseph, MD, for her encouragement and sacrifice for this venture; and to Dhruv and Luiza, who have many places to go.

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INTRODUCTION

Introduction to the Problem

Community colleges are being much heralded for their ability to provide career and technical education that can quickly usher students into high-demand job opportunities (Blissett, 2020); however, community colleges also have a unique problem, a 43% national community college completion rate (Causey et al., 2022). While there are many formidable causes for a low graduation rate such as financial hardships unique to community college students and being less likely prepared for college-level work (Bonilla & Minaya, 2024), it has been well established that quality of instruction is linked to student achievement and student achievement impacts graduation rates (Blikstad-Balas et al., 2021; Jankowski, 2017). While there are explicit calls to refocus resources for instruction improvement toward faculty development initiatives within the community college CTE sphere (Stout & Jaeger, 2023), in the last two decades there has been little change in the community college completion rates and they rank far below any other educational setting (Causey et al., 2022; National Student Clearinghouse, 2023). Grubb (1999) widely surveyed CTE faculty across 11 states and found that most faculty primarily made decisions on instructional practices based on their own experiences through trial and error, an inefficient and often ineffective strategy, and secondly through discussions with peers, a strategy limited to the judgement and biases of the consulting faculty. In response in part to poor completion rates, McNair et al. (2022) proposed community colleges be more student ready by committing "to ensuring the success of students" through an "intentional, systematic, holistic, and transformative approach to ensuring student learning" (p. 6). Improving instructional quality will require identification of teaching practices that effectively advance student outcomes

(Blikstad-Balas et al., 2021). Harnessing the broader research and evidence of more effective instructional practices to facilitate instructional decision making may be the transformative approach required to improve instruction within CTE.

Evidence Based Instructional Practices (EBIPs), instructional practices based on research (Mayer, 2021), can provide the needed research-based framework for identifying more effective instructional practices, as well as a basis for continual instructional improvement as the research evolves. While the relevance of various EBIPs will likely vary among the many CTE disciplines, use of EBIPS to identify more effective teaching practices across all CTE disciplines can provide some assurance that CTE students are benefiting from instruction demonstrating the highest efficacy for student learning. However, research shows use of EBIPs remains low across academia (Gardner et al., 2021). Thus, a fundamental question for CTE community colleges becomes what is getting in the way of use of possibly a systematic and transformative approach to improvement of CTE instructional practice?

Evidence of the Problem

Only 55% of community college students continue a second year at their starting institution, far below that of 4-year institutions with a 78% retention rate (National Student Clearinghouse, 2024). Approximately just one-third of Illinois community college students graduate their starting institution (Illinois Board of Higher Education, n.d.). While there are many reasons college students stop attending college, a 2023 survey of 2-year and 4-year college students found that 26% dropped out because of academic challenges (Mowreader, 2024). Given that Fletcher et al. (2012) concluded “It is critical for CTE faculty to incorporate more dynamic and novel (instructional) strategies” (p. 81), improving community college instruction would likely substantially benefit students and improve community college retention rates. Yet,

systematic professional development early on in a community college instructors career remains allusive. Grubb (1999) in a study involving 257 classrooms from 32 community colleges across 11 states found that although very inefficient and time consuming for instructor learning, “by a large margin, most instructors credit trial and error for their current practices” (p. 43). Grubb also determined that only a portion of the instructors were able to experiment with trial and error to a substantial effect, while students bore the consequences of waiting for more effective instruction. Lancaster and Lundberg (2019) administered the Community College Survey of Student Engagement and the Community College Faculty Survey of Student Engagement to a community college district in California with 836 students, 107 part-time faculty, and 108 full-time faculty responding and found an inconsistent use of engaging instructional practices by CTE faculty. There is specifically an identified need for instructional improvement within CTE (Kerna, 2012; Fletcher 2012).

Significance of Evidence Based Instructional Practices

E. L. Thorndyke, denouncing the weight of tradition and biases toward determining instructional practices, declared that the profession of teaching would improve “in proportion as its leaders in education direct their choice of methods by the results of scientific investigation rather than general opinion” (Mayer, 2021, p. 66). Mayer (2021) concluded that researched-based knowledge is a necessary component of instruction to improve education.

A 2012 literature review of educational research related to discipline-based education research (DBER) by the National Research Council concluded that “research-based instructional strategies were more effective than traditional lecture in improving conceptual knowledge and attitudes about learning” (National Research Council, 2012, p. 3). The Council found that even small changes showed effect and that “with support from institutions, disciplinary departments,

and professional societies, current faculty should adopt evidence-based teaching practices to improve learning outcomes for undergraduate science and engineering students" (National Research Council, 2012, p. 198).

A University of Melbourne study sought the best process for taking existing in-person courses fully online, which meant significant curriculum revisions to existing courses; researchers found that when the course revision process included curriculum and course design professions, delivery method experts, and subject matter experts, they produced a high-quality online learning environment (Davey, 2019). Koch (2012) found that community college English faculty participation in professional development of teaching methods approved by the National Association of Developmental Education correlated to improvements in faculty perceptions of their instructional efficacy, and that professional development impacted teaching methods/curriculum.

Further, the department of Biology at the University of Minnesota found that by making a small change to teaching assistant (TA) development and incorporating more evidence-supported strategies of instruction when instructing TAs how to teach led to a doubling of the TA's teaching score on the Reformed Teaching Observation Protocol evaluation, a measure of instructional effectiveness in incorporating student-centered teaching (Hicks et al., 2022). Lieberman et al. (2010) attributed, in part, a 69.3% improvement in the pass rates for medical students of the Step 1 professional exam to medical schools providing formal faculty development programs that advanced instructional practices such as problem-based learning and other constructivist learning approaches.

Conversely, Ansorger (2021) conducted a literature review looking at major educational reform initiatives in the United States and determined that a cause of disparity in teaching in the

US during COVID-19 was in part, due to a lack of evidence-based pedagogical approaches in certain states and districts and that without rigorous, culturally responsive teaching and varied assessment tools, students from low-social economic backgrounds were at a critical disadvantage.

Probable Causes Related to the Problem

Research indicated limited faculty time, perceptions of students, and limited department or institutional support could be barriers to implementing EBIPs within CTE programs. Henderson and Dancy (2007) conducted six faculty interviews of tenured faculty at a large university to better understand why research-based instructional methods were not being further incorporated and found the following faculty perceptions: students would be too disinterested to the instruction or classroom participation, too little time because of amount of content to cover, too little time to learn new instructional practices, too little support from other faculty within the department making the task more difficult, students would be too uncomfortable communicating with each other if required, the inability to orient classrooms and lecture halls, the structured length of the course left little time to accommodate students learning the material at different rates as a perceived requirement of EBIPs. Drage (2010) examined a high school setting for barriers to instructional improvement and found time a major factor. Stieha et al. (2016) studied implementation of EBIPs at a university and time was again a large factor, as well as faculty felt they were not fairly reimbursed for their efforts.

Research indicated the concept of academic freedom could be a barrier. Downey et al. (2019) describes the resistance of faculty to program revision when trying to align the sociology program to established best practices for curriculum design and development established by the American Sociological Association. Faculty impeded progress until there was agreement on the

meaning and bounds of academic freedom, and the study found that the needs and motivations of faculty needed to be thoroughly addressed before moving to any degree of standardization, even if required to meet the guidelines of a governing body. Hos et al. (2020) found that curriculum standardization, was perceived by faculty at a California Community College as the culprit for poor student performance. Hos et al. reported on an effort in curriculum standardization and found that faculty perceived better student outcomes when they had greater instructional control; faculty even inferred harmful ulterior motives were a core reason behind standard instruction. Clearly the needs and motivations of faculty and their ideals of academic freedom can be an impediment and/or obstacle to adopting consistent and systematic instructional practices in curriculum design.

Research indicated leadership and culture could be barriers. Mampane (2021) pointed toward leadership as a barrier to improving instructional practices in the classroom and postulated that the duality of school leadership's duties may be impacting their ability to hold teachers accountable. Thomson et al. (2019) found that "winning hearts and minds and explaining the reasons why change is required is a critical component in changing cultural practices if quality and continuous improvement is to be achieved" (p. 12). Further, Thomson laid out a process for course design that recommended a team of five to seven and to include stakeholders, design professionals, and pedagogical experts; an implication being that a change in culture is needed in determining instructional design and that the expertise and biases of one person is less likely to achieve research-based instructional practices. Tucker and Hughes (2020) pointed to deep seated institutional and cultural biases toward CTE as impacting instructional practice, while Stieha et al. (2016) indicated a department culture in facilitating some success. Highlighting institutional and cultural biases Kim (2019) points to the fact just 14% of PELL

grant funding went toward CTE students in 2016 despite community colleges comprising approximately half of the higher ed institutions in the United States.

Limited Research

There was limited research found specifically targeting the barriers to implementation of EBIPS within community college CTE programs. Community colleges, accommodating generally 2-year programs, have their own unique educational setting, culture, goals and priorities apart from 4-year colleges and larger universities. Additionally, CTE programs have their own history, culture, goals, and priorities apart from liberal arts or transfer programs. This study explores barriers impacting use of EBIPs specifically within the CTE program environment of a community college.

Statement of the Problem

CTE faculty need to improve their instructional practice (Kerna, 2012; Fletcher, 2012), and greater use of EBIPs would likely improve community college CTE program instruction by providing faculty with research-based guidance on effective instruction (Mayer, 2021); however, use of EBIPs in community colleges remains low (Gardner et al., 2021).

Purpose of this Study

The purpose of this study is to investigate the influences or barriers impeding the use of EBIPs within CTE programs at County Community College. It is hoped that identifying the barriers to implementation of EBIPs will inform practice and advance the use of research-based instructional practices at County Community College.

Key Terms of Study

This study utilized definitions of instruction and EBIPs of Richard Mayer, Distinguished Professor of Psychology at the University of California, Santa Barbara.

- *instruction*: "creating a learning environment for the learner with the goal of the learning environment to promote learning processes in the learner that lead to appropriate learning outcomes" (Mayer, 2021, 65)
- *instructional practice:* any activity associated with creating the student learning environment to promote learning of established learning outcomes
- *evidence based instructional practices (EBIPs): "*instructional practices that are consistent with research evidence" (Mayer, 2021, p. 66)
- *barrier*: "anything immaterial that stops advance hostile or friendly, that prevents union, or keeps separate and apart" (Oxford University Press, n.d.b)
- *instructional strategies*: the same meaning as instructional practices for the purposes of this paper

To further elaborate on the definition of EBIPs, one example of an EBIPs is Mayer's work on how to best transfer information through a multimedia lesson from which he determined that "people learn better from words and pictures than from words alone" (Mayer, 2021, p. 117). His research showed how to make a more effective presentation to better transfer knowledge. Thus, it is a better instructional practice to present diagrams or illustrations of the subject matter when lecturing than to simply verbally describe the subject.

Research Question

This study seeks to understand the impediments to broader adoption of EBIPs within CTE programs at a County Community College by researching the perspectives of CTE faculty, faculty professional development staff, and CTE administration to better understand what they see as barriers, their experiences implementing new instructional practices, and their

sentiments/philosophy toward instruction and EBIPs. Thus, the principal question of this study is:

- What are the barriers to implementing EBIPs within CTE at County Community College?

Sub questions within this study are:

  - How are community college CTE instructors experiencing barriers to improving their instruction and how does the educational culture contribute to barriers adopting use of EBIPs?
  - What is the "felt-need" for EBIPs among faculty, faculty development staff, and CTE administrators?
  - What is the nature of instructor's experiences generating resistance to use of EBIPs in the classroom?

Aspiration for this Study

It is the aspiration of this study to more thoroughly identify barriers to implementation of EBIPs as a critical step to informing and improving the instructional practice of CTE programs at County Community College. As stated in the 2022 EDUCAUSE Report by Pelletier, et al.:

> Community college leaders must invest in establishing the appropriate policies and structures to implement the pedagogical approaches necessary to address the evolving learning modes that students increasingly demand. Institutionalizing professional development as an integrated practice, investing in instructional designers and support staff, and embracing flexibility by creating and strengthening a culture of continuous improvement are the first steps to take (p. 50).

Pelletier (2022) sums up the foundational assumption of this study. That we cannot rest with where instruction and its consequences for student success currently stand; that better

establishing those pedagogical approaches along with a culture of continuous improvement are first steps to improving instruction within CTE. Hopefully, this study cast light on the issues hindering improvement of instructional practices and the benefits that examination and appropriate adoptions of EBIPs can bring.

Conclusion

Over the course of five chapters, this study will present the results of an investigative study into the barriers impacting adoption of EBIPs within CTE programs at County Community College. Chapter two will present associated research into barriers to adoption of EBIPs within the k12 and university educational context. Chapter three will define the methodology of this study, a qualitative study conducted through a series of interviews of faculty, faculty professional development experts, and administration. Chapter four presents the findings of this study; and chapter five provides an analysis and discussion on implications of those findings. This study is a practical study being conducted by a practicing community college administrator in hopes that the implications of this study will lead to further action in improvement of CTE instruction.

CHAPTER 2

REVIEW OF THE LITERATURE

Review of the Problem and Introduction to the Chapter

Continued improvement in Career and Technical Education (CTE) instruction at community colleges is needed. Nationally, the community college completion rate is 43.1% (Causey et al, 2022) with only 52.4% of students continuing a second year at their starting institution (Gardner, 2022). Fletcher et al. (2012) concluded most CTE faculty use traditional instructional methods and determined the implementation of better instructional methods within CTE is critical. Highly effective instruction is especially important for community colleges where most students are far less prepared for learning than four-year college program students with many only able to attend part-time (Ober et al., 2018).

Instructional practices of which the effectiveness of the instruction is based on evidence, Evidence Based Instructional Practices (EBIPs), and not traditional or individual teaching preferences, offer instructors and institutions definitive guidance on how to deliver high quality instruction. However, the research shows use of EBIPs remain low across academia (Gardner et al., 2021), and there is little research into use of and the barriers to the use of EBIPs within CTE at community colleges.

The purpose of this study is to explore barriers impeding the adoption of EBIPs within CTE at County Community College, so that County Community College can begin assessing how best to mitigate those barriers and advance the use of EBIPs. Following is a review of the literature for the case for EBIPs, a look at the state of instruction within CTE, barriers found in other educational settings, and how those barriers have impacted attempts to bring substantive change in instructional practices.

The Case for Evidence Based Instructional Practice

Mayer (2019), a distinguished researcher in the psychology of learning and online learning, reflected on the last thirty years of research and what it has told us about certain educational instructional practices. Behaviorism, Cognitivism, and Constructionism, and other modern learning theories have established a scientific basis for developing instructional practices and strategies to aid learning. Mayer summarized the results of decades of research to show that application of specific instructional methods and strategies in online education formats conclusively improve student learning. Research and scientific method have established Evidence Based Instructional Practices (EBIPs) in online education, as well as a growing body of education disciplines, settings, and formats.

A 2012 publication by the National Research Council extensively researched discipline-based education research (DBER) to improve undergraduate education in the sciences and engineering based on a synthesis study. A core goal of DBER is to research EBIPs within various disciplines and to identify instructional approaches that contribute to student success and retention based on the researched evidence. The research was driven, in part, by data suggesting students were not experiencing high-quality science and technology instruction nor were the courses adequately attracting students. Poor faculty teaching was cited as a primary reason for science, math, and engineering students changing majors. This synthesis study of empirical research looking DBER found that "that research-based instructional strategies are more effective than traditional lecture in improving conceptual knowledge" (p. 3). The Council also concluded that research-based instructional strategies were more effective than nonresearched based strategies in improving student knowledge and course satisfaction. The Council research found that student-centered approaches to instruction such as making lectures more interactive,

encouraging student participation, collaborative activities, and use of tutorials improved student learning and that even small changes showed effect. In summary, the study definitively found that research-based instructional strategies were more effective than traditional strategies fundamentally based on traditional lecture, However, the study also found that the research on effective education had not led to widespread changes in teaching practice among scientist and engineers and posed three general recommendations: address faculty conceptions about instruction, better understand cultural and organizational norms of the discipline to address those cultural and organization barriers, and utilizing the research on adult learners to better motivate faculty.

McConnel et al. (2017) conducted an extensive literature review of active learning strategies to improve Geoscience education. This study primarily researched STEM disciplines but also the social sciences and humanities analyzing and ranking the strength of evidence for popular strategies. Evidence of effectiveness was based on classifying the research using a GER Strength of Evidence pyramid to determine if the strategy should be advocated for use in the geosciences. Based on their research, they made conclusions of the strength of evidence ranking the effectiveness of the strategies as either high, moderate, or low, determining that five of the eleven strategies ranked high in effectiveness. See Table 1 for a list of the strategies.

McConnel's study concluded that not all active learning strategies possessed equal evidence to support the strategy, but that those students experiencing the active learning strategies and with strong evidence to support them were likely benefiting from better instruction. McConnel concluded that the next step is for researchers to determine how these EBIPs with a high confidence of evidence to support them will function in the Geo Sciences in particular.

Table 1

Classification of Evidence of Effectiveness

Active Learning Strategy	Evidence of Effectiveness
Think-Pair-Share	High
Lecture Tutorials	High
Concept Maps	High
Minute Papers	Moderate
Jigsaw	Moderate
Gallery Walks	Low
Concept Sketches	Low
Role Playing	Low
Minute Papers	Low

Examples of instructional practices proving more effective than others are at every grade level, as demonstrated by McNeill and Krajcik (2008). They examined of 13 seventh grade science teachers observing and ranking the teachers for use of and effectiveness of four instructional practices: defining scientific explanation, making the rationale of scientific explanation explicit, modeling scientific explanation, and connecting scientific explanations to everyday explanations. They then corelated their ranking of use of and effectiveness of use of the instructional method with student learning achievement. Their data showed that by making the rationale of scientific explanation more explicit students gained in comprehension; however, the evidence for use of the other instructional methods was negligent or dismissive of the instructional method. While the results of this small study need verified, the indication of the study is that k12 teachers may be neglecting effective instruction and pandering to ineffective instruction because of lack of evidence and research in their use of instructional practices.

The State of Instruction within CTE

Fletcher et al. (2012) conducted a national online survey of instructional staff designated within Career and Technical Education (CTE) programs to determine most used instructional strategies, least used, and most prominent or signature strategies within the CTE field. There were 387 respondents, 90% of which were from 4-year programs and 75% from 4-year programs at graduate level institutions. Survey respondents were asked to categorize their use of 53 instructional strategies as to rarely, frequently, or always. Although less than 10% of respondents were teaching at community colleges, the study nonetheless provided data as to the instructional practices being used within CTE. Survey respondents indicated interactive lecture, questioning, and whole group discussion were the top three CTE instructional strategies. While the study found that constructivist form and self-directed approaches were part of the instructional strategies, CTE faculty seem to be relying on traditional forms of instruction and the study concluded that those forms of instruction were most likely the signature pedagogies in the field of CTE. Fletcher recommended further qualitative studies, interviews of exemplary CTE faculty, exploring the "implicit structures" (p. 80) of their preferred instructional methods and their assumptions about CTE teaching and the instructional strategies most beneficial to student learning. Fletcher concluded "It is critical for CTE faculty to incorporate more dynamic and novel strategies (p. 81)".

Research points to the inconsistent use of engaging instructional practices by CTE faculty. Lancaster and Lundberg (2019) administered the Community College Survey of Student Engagement and the Community College Faculty Survey of Student Engagement to a community college district in California with 836 students responding, 107 part-time faculty responding, and 108 full-time faculty responding. The study identified particular faculty

practices that promoted student learning, such as whether a community-based project was part of the course. The study of community college faculty supported previous findings that community college faculty and their specific faculty practices could be identified "as most productive for student learning" (p. 149). While this study found that CTE faculty were more engaging with students than their community college counter parts, the study ended with a common recommendation, implement formal faculty development to improve teaching practices.

The Case for EBIPs within CTE

The Congressional Research Service prepared a primer for Career and Technical Education that provides a concise summary of what constitutes CTE (Dortch, 2014) outlining the differences between CTE and non-CTE education and the growing similarities with four-year programs. The primer defines the two primary categories of associates degrees and certificates within community colleges. The first category is liberal arts, sometimes referred to as academic education and more particularly identified in the primer as "fine arts, English, mathematics, science, foreign languages, and the humanities" (p.1), is designed to have substantial course credit transfer to a four-year institution if undertaken within post-secondary education. The second is CTE primarily focused on career education and workforce development with the program outcomes targeted to a specific occupation or occupations, or most fields of study outside of liberal arts. Both CTE and liberal arts have learning targets focused on broadly applicable skills. Increasingly, CTE programs are aligning curriculum to transfer to 4- year programs to offer students more opportunities and attract a wider body of potential students, as in the 2010 state of California initiative, The Student Transfer Achievement Reform Act, establishing a collection of associates degrees that would transfer to California state universities (Baker, 2016).

The breadth of disciplines with CTE is vast. Shown below in Table 2 are the 16 clusters within the national career clusters framework of career and technical education programs, all of which have 4-year degree program counterparts (Dortch, 2014).

Table 2

Sixteen Clusters within the National Career Clusters Framework

	Cluster
1.	Agriculture, Food & Natural Resources
2.	Architecture & Construction
3.	Arts, A/V Technology & Communications
4.	Business Management & Administration
5.	Education & Training
6.	Finance
7.	Government & Public Administration
8.	Health Science
9.	Hospitality & Tourism
10.	Human Services
11.	Information Technology
12.	Law, Public Safety, Corrections & Security
13.	Manufacturing
14.	Marketing
15.	Science, Technology, Engineering & Mathematics
16.	Transportation, Distribution & Logistics

CTE may be primarily focused on career education and workforce development, but it often has a significant amount of dedicated lecture time as shown in Table 3, and often, CTE courses have no experiential lab or field portion to the course although the assumption is often that they do. With limited to no experiential lab portion to provide a critical active learning and constructionist learning environment for CTE students, EBIPs in the classroom lecture become as important to community college CTE students as they are for 4-year non-CTE students. As 2-year community college programs increasing shift to align for transfer to 4-year institutions, they will likely increasing expand content and face pressure to look like their 2-year transfer college.

EBIPs and the benefits of active learning they bring will be increasingly important to CTE. Table 3 is a small sample of courses showing the allotment between lecture time and lab time within CTE programs at a community college and demonstrates the similarity in course format and structure often found between CTE and traditional "academic" institutions (College of Lake County, n.d.).

Table 3

Sample of Courses within CTE Programs Allocation of Hours in Class

Course/program	Course designated lecture hours	Course designated lab hours	Transfer agreement
Computer Science I / Computer Science	4	0	Yes
Introduction to Business / Business Administration	3	0	Yes
Anatomy and Physiology II / Dental Hygiene	3	2	No
Automotive Welding / Automotive Collision Repair	3	4	No

The likely Benefit of EBIPs to CTE Teachers

EBIPs could be especially beneficial to CTE faculty in providing guidance for instructional practice. A mixed methods action research study by Kerna (2012) sought to determine what CTE faculty training was essential. Kerna interviewed nine CTE faculty at three post-secondary career and technical education colleges to find out what they thought was missing in their professional development. She determined three themes from the interviews: faculty did not believe the had enough training in lesson planning, faculty training at these institutions focused on training for direct instruction and lectures, and they did not have the training necessary to accommodate a variety of learners, especially providing instruction to students with learning difficulties or of varying learning needs. In short, Kerna's study found

CTE faculty were woefully lacking in basic pedagogical skills and the institutions themselves did not appear to be training to contemporary standards of instructional practices. The institutions were missing knowledge of EBIPs and instructors were missing the guidance that EBIPs can provide.

CTE Adjunct faculty would especially benefit from training and knowledge of EBIPs. A quantitative correlational research study by Guerra (2012) surveyed the students of 58 adjunct faculty looking to find how students perceived CTE adjunct teaching readiness and excellence and how those evaluations of teaching readiness and excellence related to instructor industry adjunct experience, adjunct teaching experience, and adjunct teaching professional development. Guerra's found that the lowest scores for teacher readiness were for organization of the instructor's presentations and the lowest scores for teaching excellence were reflected in how the instructor taught the course and followed by the instructor's perceived enthusiasm for the course. Students reported poor presentations and not liking how the CTE adjunct faculty were teaching the courses. Surprisingly, it was that CTE instructors who had taught the longest were reported as the worst instructors. Industry experience did not show up as factor in adjunct teaching performance, but professional development did to a modest amount, an 8% improved correlation between student feedback and professional development. The instructor's projected enthusiasm for the course may have been reflected in the instructor's lack of confidence in their instructional abilities and knowledge.

Summary of the Case for EBIPs within CTE

Increased use of EBIPs would likely impact CTE as much or greater than classic academia courses. There is a reliance on traditional teaching practices within CTE and the number of lecture hours typically within a CTE course is as often as great as academic course

programs with the increasing alignment of CTE programs and 4-year programs placing a larger burden on CTE to cover content through lecture (Fletcher, 2012). CTE faculty often lack pedagogical knowledge and the majority of faculty are adjunct instructors, which research shows are in dire need of further professional development (Kerna, 2012; Guerra, 2012).

The role of a teacher is difficult, and for many CTE instructors who have little professional development or teacher training, it can be daunting (Reig, 2007; van Aalderen-Smeets et al., 2015). The role of a teacher is multi-faceted (Finnegan, 2019). First time and inexperienced CTE instructors would benefit from EBIPs as part of their practice. They should be able to come to work, immediately know the teaching practices and strategies to put in place, put them in place, and then focus on other important aspects of teaching: mentoring, encouraging, identifying a student struggling, providing feedback, and observing if the pace of learning is correct for the class or additional instruction is needed. Given how EBIPs could be proven effect guides to instruction that benefit instructors and students, what are the barriers to be found in implementing EBIP within CTE?

Barriers to Using Educational Based Instructional Practices

Lack of Time and Funding as a Barrier

Henderson and Dancy (2007) conducted interviews of six tenured physics faculty at four universities to better understand why research-based instructional methods were not being further incorporated to undergraduate teaching methods. The interviews focused on understanding instructional practices, conceptions about teaching and learning, and their experiences with education attempts at instructional change. Based on analysis of current change models, it appeared to them that change models were based on assumptions that faculty had traditional conceptions on instruction, were satisfied with their conceptions and were unaware of

better practices. Henderson and Dancy's findings showed those assumptions generally incorrect, that faculty were generally open to changes in instruction and aware of better methods, but believed circumstances, or situational factors, placed to many barriers. The principal situational barriers faculty perceived as reported by faculty during interviews were: 1) student disinterest to instruction or classroom participation, 2) too little time because of amount of content to cover, 3) too little time to learn new instructional practices, 4) little support from other faculty within the department making the task more difficult without their support, 5) the believe that students will be uncomfortable communicating with each other if required, 6) classrooms and lecture halls oriented in one direction, toward the lecturer, and bolted to the floor, and 7) the structured length of the course left little time to accommodate students learning the material at different rates, or constructing knowledge or building knowledge at different rates, as required by constructivism. In contrast, faculty reported that when they were given a release of time to implement new strategies, were not alone in their efforts, and received the proper training, they did successfully implement new practices. In discussion of the study the authors note "Too often, reforms are presented as if they can easily be incorporated (p. 12)".

Lack of time and institutional support were factors cited by Drage (2010) in an online survey of 265 Illinois high school teachers. The study pointed to the need for continued professional development in CTE; however, instructors lacked time in their schedule, there was a lack of funding for professional development, and many felt the professional development was either not meeting their needs, too brief, or of poor quality. Noteworthy, the study called out the testimony of one instructor in particular, who was highly critical of professional development lacking meaningful content and instructional strategies. Professional development to improve teaching skills was a key conclusion of this study, central to the concept of EBIP.

As part of a teaching reform effort, Stieha et al. (2016) observed 15 math and science faculty over a three-year period at a large university documenting their use of EBIPs using the Reformed Teaching Observation Protocol (RTOP). Time for faculty to learn and implement new practices was a critical factor in determining faculty implementation, and faculty felt institutional incentives at $500 annually were insufficient. 10 of the 15 participants in this study were math faculty, and 5 were science faculty. Stieha et al. points to the collaboration and support, the culture of those two departments, as a likely unique factor in their perseverance with their efforts to better their teaching practice and suggest that social networking theory where change is organic was a factor in the results of the math and science departments.

Educational Bias as a Barrier to EBIPs within CTE

The roots of bias against CTE goes back to the birth of the movement in the United States at the turn of the 20th century. Two great scholars and American Philosophers, John Dewey and Charles Prosser, both known as Education Progressives who favored Vocational Education (now known as CTE), had very different views of what education should be (Martinez, 2007). Dewey associated CTE and a learned society with a healthy Democracy, Democratic Humanism, and espoused that all students could benefit from CTE and learn from subjects through vocations rather than simply teach to a vocation. While Dewey supported integration of academic and vocational curriculum, Prosser did not. Prosser believed in a clear separation between academic and vocational education and that vocational education would be strictly utilitarian to serve industry; that social problems could be solved as all gained employment according to their skills and interest. According to Prosser, the classroom needed to match the vocational work environment as closely as possible.

Prosser's ideals won the day and we see the biases are created throughout our government and education system. Gauthier (2020) cites continued stigmatization of CTE within community colleges. Gauthier points to biases from parents, state funding for CTE programs, general community stigma including with student employers after graduation, and college administrative leaders who have no experience in CTE. Gauthier reports that "CTE faculty are rarely introduced to innovative teaching and learning methods" (p. 878) and reports a bias rooted in CTE faculty generally being less educated. There is evidence of bias against CTE on the federal level. Kim (2019) points to the fact just 14% of PELL grant funding went toward CTE students in 2016 despite community colleges comprising approximately half of the higher ed institutions in the United States (Gauthier, 2020). In addition, Pell grants exclude many CTE certificates because of course length requirements and seat time (Kim, 2019). Within High Schools, Tucker and Hughes (2020) reported on the perceptions of 16 high school teachers of core subjects (math, social studies, English, science, social studies). Participants believed taking CTE in high school would be detrimental to them attending a 4-year college and viewed students who would be attending 4-year colleges as more successful. Participants clearly segmented CTE from college and believed that school administrators encouraged students into a path toward one or the other. While policies exist to keep struggling students from being directed toward CTE, the policies are often disregarded. Tucker and Hughes concludes that "By continuing to ignore the value inherent in CTE, educators in the United States are withholding the key to best practices for many students" (p. 52). A likely barrier to EBIPs within CTE is the bias against it.

Faculty Perceptions of Value, Trust, and Leadership as a Barrier

McAlpin et al. (2022) surveyed STEM faculty across five disciplines at three large research universities where change initiatives were ongoing to increase use of EBIPs. The survey

instrument, referred to as a Cooperative Adoption Factor Instrument, measured faculty perceptions as a predictor of faculty adoption of EBIPs; how faculty perceived use of EBIPs to their advantage, the state of the connection between faculty, and how faculty perceived the reception would by their institution. McAlpin concluded that the perception of the value of EBIPs impacts adoption, and that a driver of perception of the value was the number of faculty implementing the practices, which could be influenced by having highly influential faculty adopt the practices. The McAlpin study also identified trust among faculty and faculty's ability to work together for mutual benefit as potential catalyst or barriers to adoption of EBIPs, and the university's climate for change, or faculty perception of the universities willingness to support change, as a factor in faculty's propensity to change.

The Role of Identity as a Barrier

Brownell and Tanner (2012), two Stanford Biology faculty, observed that although biology faculty were "experts at making evidence-based decisions" there were barriers "impeding them from making evidence-based approaches to teaching" in the classroom (p. 339). Despite a call to provide more effective teaching by the American Association for the Advancement of Science's in 2011, Brownell and Tanner noted that little had been done to change teaching habits. Brownell and Tanner conducted a literature review to support their observations that faculty identity could be an additional significant barrier to faculty adoption of EBIPs in life sciences. The literature confirmed that lack of training in the evidence-based instruction, the perceived lack of time to implement such practices, and the lack of incentives were all significant factors and supported the concept that how faculty identified themselves was also a crucial factor. Research showed if faculty identify themselves as researchers, then there was little incentive to become better teachers, and more importantly, if they had a negative

perception of teachers, then the incentive would be even greater to do nothing to better their teaching practice.

Situational and Individual Barriers to EBIPs in STEM

Gardner et al. (2021) included faculty identity as a possible barrier, but launched a broader survey into exploring barriers to EBIPs within basic and applied sciences at two large universities. They grouped the reasons for the barriers as either situational, situations creating barriers outside of faculty control, or individual, barriers as the result of an individual's beliefs, values, or knowledge about EBIPs. Through a survey of 109 instructional and tenure track faculty of basic and applied sciences (38% life sciences, 24% engineering, 17% chemistry, 16% math, 3% CIS, and 2% physics), Gardner et al. sought to learn how aware faculty were aware of EBIPs and their use of EBIPS, what situational and individual barriers they reported, and the intrinsic motivations of teachers using a GOTT (Goal Orientation Toward Teaching) survey, which sought to determine if teacher's goals were to do better for their students, personal recognition, or to avoid negative performance. Gardner explained that Situational barriers were measured using a Likert Scale of the following hypothesized barriers:

> (a) perceived lack of training, (b) perceived lack of class time for implementation, (c) perceived lack of preparation time for implementation, (d) perceived lack of evidentiary support for EBIPs, (e) anticipated resistance to EBIPs from students, (f) anticipated resistance to EBIPs from administration, (g) lack of institutional incentives, and (h) lack of institutional resources for using EBIPs (p. 59).

These possible situational barriers in regards to constraints of time were in alignment with the research reviewed by Henderson and Dancy (2007), and in alignment with McAlpin's et al. (2022) study pointing to the role of faculty's perception of value and perceptions of leadership

support. As Brownell and Tanner's 2012 paper pointed toward the role of identity as a barrier, Gardner's study also explored how faculty's identity as a researcher might influence their role as a teacher. Gardner also found that most STEM faculty were aware of most major EBIPs and those that did try implementation did continue the use of the practice. Perceived preparation time and perceived in-class time were the top identified situational barriers, while leadership support and identity as a researcher over teacher the least factors cited. They also suggested that the results of their survey pointed to perception of situational barriers greater than reality. Teacher's beliefs on the nature of instruction and the value of reform were determined to be indicators of adoption of EBIPs. Most teachers surveyed held transitional or responsive view on the nature of teaching and were not considered reform oriented, and Gardner theorized that those who did identify as reform oriented lacked the knowledge to implement more EBIPs. Gardner found that identity as researcher over teacher was a marginal factor to creating a barrier.

Attempts to Change Educational Instructional Practices

Merle et al. (2022) examined barriers and solutions to incorporating Evidenced Based Practices (EBPs), in primary education. Two school districts and 39 staff participated in the mixed-method study that involved a survey completed by each participant and six focus groups, each district had a focus group consisting of one for faculty, one for teachers, and one for staff (counselors and educational specialist). The survey identified two likely factors preventing implementation, teacher time and lack of administrative support, which the focus groups then discussed for perspectives and solutions. The study research led the researches to conclude that implementation of EBPs would be best led by and dependent upon teachers. Solutions addressing more time focused on providing teachers more flexibility in how they prioritize their time, as most of it is taken up by district or leadership tasks. Solution strategies for addressing leadership

support centered on the need for leaders to create buy-in of teachers for the new practice and to follow that up with cutting out time for teachers to focus on that practice, resourcing the practice with the implementation time needed. Merle et al. pointed to other potentially key factors for creating teacher buy in; addressing the number of initiatives started by the district and the perception of follow through and the perception of the initiative value. Leadership must identify quality control measures, be committed, and provide the resources to systemic long-term implementation.

West et al. (2022) describes the effort of a STEM department at a large university to institute a STEM Faculty Institute (STEMFI) to modify faculty practices to better incorporate EBIPs. West et al. adopted a change strategy by Borrego and Henderson of creating awareness, implementation, reflection, and policy change. Step one, creating buy in, was done by creating two focus groups that included faculty and administration where a charter plan was developed for the STEMFI or new faculty institute. Prior to the workshop, the 14 STEM faculty participants were interviewed and asked 18 questions to better understand the faculty predispositions and needs from the workshop. Each STEMFI workshop was 5 days long providing the time faculty need to develop initial lesson plans, assignments and supporting curriculum. At these workshops faculty were also provided a mentor for the faculty to provide support and feedback throughout the year. In addition, monthly cohort meetings supported faculty as they debriefed on implementation challenges. Faculty were interviewed again at closing and asked similar questions to the one's at opening to measure growth in faculty and faculty practice. At the end of the study, faculty were surveyed regarding their beliefs, attitudes and confidence toward instruction and that on average faculty reported positive shifts. This study suggests implementation of EBIPs requires sufficient leadership support, crafting faculty support from the

beginning, designated uninterrupted faculty time set aside for learning and implementation, significant mentoring, and opportunity for peer encouragement. However, only 2 of 7 faculty significantly changed their practice, as 4 were reported to be already using the methods and their instrumentation for measuring shifts, COPUS profiles, could not measure more.

A 2019 publication by Meste, Herman, Tomkin and West, reports on one university's success in implementing EBIPs and the latent period of 14 years before wider adoption by other departments occurred. Meste makes note that at a research institution, faculty are hesitant to invest in developing their teaching practice when their career is largely governed by their research efforts, and if a faculty member does improve a course, the next faculty to teach it likely does it their own way. But, Meste points to a small group of faculty/teaching professionals who imbedded EBIPs into the large introductory courses and successful implementation of Social Networking Theory whereby they had strong ties between small groups and bridging ties between the unique parties. The reform effort was not prescribed, each department decided on which EBIPs to implement, and faculty were supported by communities of practice and mentors. Leadership has supported the effort with 28 grants to faculty of amounts between $5000 and $100,000, totaling $3M. Merte et al. sums up their system of reform in the following:

- Buy in must occur with the department administration and there must be a small group of like-minded people without demanding consensus of the department
- Focus on specific courses and joint ownership of the courses among the community of practice
- Use mentors to guide the reform
- Fund the initial effort

A 2011 review of literature by Henderson, Beach, and Finkelstein, looked at how to advance change in instructional practices in STEM. The researchers reviewed 191 articles published between 1995 and 2008 and noted that the profession of the researcher often determined how

they framed their research. STEM researches wrote about change in context of curriculum and pedagogy, faculty development researchers wrote about change in terms of developing reflective teaching, and higher education researches wrote in terms of policy change. A fourth classification of change approach not associated with one particular profession was Environment/Emergent, which focused on developing a shared vision, and was found to be the least used approach. Only 21% of the articles reviewed offered strong evidence of the effectiveness of the change sought, whether the treatment was favorable or unfavorable. Henderson et al. determined that testing "best practice" curricular materials was generally ineffective, and also ineffective was a prescribed "top-down" approach to implementation of instructional practices. What they did find effective was seeking to align change with faculty believes or changing the beliefs of faculty, long term commitments to change, and instituting change with recognition and respect for the complexity of the institutions. Barriers this review called attention to was the culture of higher education, which placed "a premium on the autonomy of individual faculty" (p.963), the influence of teacher conceptions are "both supports and barriers" (p.975), and "lack of recognition and rewards for improved instruction, lack of time, and lack of support" (p. 976). The authors conclude that:

> Thus, although it appears to be possible to enact change within this set of barriers, there also appear to be opportunities for more widespread change through the development of strategies that can remove these barriers. (p. 976)

Understanding likely barriers and the root causes to those barriers of change will be imperative to successfully improving educational practice in Career and Technical Education.

Conclusion

Evidenced Based Instructional Practices, EBIPs, are a scientific and reliable method of making sure what is introduced to the classroom works. EBIPs would likely be as much of a benefit to CTE as EBIPs are to other non-CTE disciplines and especially the STEM disciplines which share many common attributes to CTE. There is a research gap in understanding the barriers to implementation of EBIPs within CTE, as few studies were found investigating the barriers to implementing EBIPs within community college CTE programs; however, several studies researching STEM instruction were found likely pointing to common barriers to implementation within CTE.

Research points the following barriers of EBIPs: lack of time and funding, lack of institutional support, cultural, government, and educational bias against CTE, faculty perceptions of value, faculty identity, faculty motivations, lack of faculty knowledge, faculty misgivings of any new initiative and top-down prescriptions from leadership, lack of pedagogical and department faculty support, and university culture. Research also suggests that CTE Leadership perceptions of CTE may have a role in creating barriers to EBIPS within CTE, as faculty have cited lack of incentive, time, and reception by leadership as major barriers, barriers that leadership can to some extent mitigate. Independently motivated leadership factors creating barriers may be the perception of the value of EBIPs, leaderships biases against CTE as non-academic and predominantly “skill-based” learning, and leaderships estimation of curriculum in general as an insignificant factor in student outcomes.

CHAPTER 3

RESEARCH METHODOLOGY

Chapter Introduction

Instructional practices of which the effectiveness of the instruction is based on evidence, evidence based instructional practices (EBIPs) can offer community college career and technical education (CTE) programs a definitive path forward to delivering better quality instruction. However, there is little research into the barriers to the use of EBIPs within CTE at community colleges. The purpose of this research is to advance the use of EBIPs within community college CTE programs by investigating the barriers to implementation of EBIPs within CTE programs. The central question of this research is:

- What are the barriers to implementing EBIPs within CTE at County Community College?

Sub questions within this study are:

  - How are community college CTE instructors experiencing barriers to improving their instruction and how does the educational culture contribute to barriers adopting use of EBIPs?
  - What is the "felt-need" for EBIPs among faculty, faculty development staff, and CTE administrators?
  - What is the nature of instructor's experiences generating resistance to use of EBIPs in the classroom?

This chapter describes why and how the Qualitative, Action, and Phenomenological research approaches were used to research barriers toward use of evidence based instructional practices at County Community College through interviews of faculty, faculty development staff

and college leadership, and concludes by describing my positionality within the study, research data collection procedures and the data analysis process used.

Research Methodology

A Qualitative Approach – Definition and Reason for Use

This study leveraged a qualitative research approach. Qualitative research has been narrowly defined by the source data and materials it is based on, such as interviews, observations, document or audiovisual data for purposes of describing how individuals relate routine or problematic events in their lives (Creswell & Creswell, 2018; Denzin & Lincoln, 2005). Strauss and Corbin (1990) took a broader approach to defining qualitative research as "all that research which excludes use of statistical procedures or other means of quantification" (p. 17). Perhaps a better defining and more comprehensive definition is found in the Aspers and Corte (2019) paper, *What is Qualitative in Qualitative*, where they conducted a lengthy review of qualitative research and determined that qualitative research is "generating and analyzing empirical material in an iterative process in which one gets closer by making distinctions" for "an improved understanding novel to the scholarly community" (p. 155). Per Aspers and Corte, questioning predefined variables or factors to a problem, researching for new factors or new distinctions, and/or researching for new concepts related to any phenomenon within the framework of scientific inquiry is the essence of qualitative research.

Because the qualitative research method best captures unknown or unanticipated factors, concepts, and new distinctions to a problem, it was the method selected for this study. Factors influencing this study question are not completely known because there is a lack of research into the barriers of use of EBIPs specifically within the community college CTE program settings. While barriers to EBIPs have been researched in other educational settings such as within STEM

4-year programs, the instructors within those programs have a unique educational culture, instructional training, instructional goals and teaching perspectives apart from those of CTE programs within 2-year community college institutions. Therefore, it cannot be assumed all the same barriers apply to community college career and technical education programs.

Using qualitative methods to research a problem that research says is often inherent to human experience and perceptions allows the researcher the possibility of gaining a wider band of reasons for barriers from the study participants, as they have the opportunity to express their values as they see them without being confined to a rigid survey instrument such as a Likert Survey. Given the scant research, it should not be presumed by the researcher that the community college CTE instructors teaching experiences, values, and perceptions related to the problem are fairly understood. Further, this study inquired into perceived barriers, how perceptions and values of teaching and their perceived role of teacher may create barriers, and how instructor's experiences within the community college CTE educational culture promotes or impedes barriers to adaptation of EBIPs. Using the qualitative method will allow the study participants to use their own words and unfettered insight into the problem such that the researcher can glean the common themes and concepts that organically immerge.

Advantages and Disadvantages

The advantages of using a qualitative approach will be to gather reasons for potential barriers to use of EBIPs by community college CTE instructors in their own words without assuming that other educational settings, cultures, and types of institutions generate the same barriers. Disadvantages will be a smaller survey sample because of the time required of interviews and less ability to quantify my evaluation of the central tendency of the themes that emerge, that is less ability to use statistics to demonstrate the conclusions of my results. An

additional disadvantage is that, inherent to qualitative research, the researcher is an active instrument of the study and unsure how they may be influencing participant responses, although the same applies to quantitative surveys as no one can be sure of how a survey respondent is being biased by their reading of a survey or who it may be from. As an active participant in the data collection, the investigator may be leading study participants in their responses to some degree and introducing a systematic error. In acknowledgement of that bias, this study explores the position of the principal investigator to bring as much reflexivity to the study as possible (Creswell, 2018).

An Action Research Approach

A Description of Action Research and Justification for Use

Mertler (2020) references the work of Richard Schmuck and lays out a foundational quality of action research as a study of "a real school situation with a view to improve the quality of actions and results within it" (p. 14). The purpose of this study is for the results to be leveraged as soon as practical for a current problem facing the community college educational environment. This study explores barriers to use of EBIPs for the purpose of advancing use of EBIPs within the CTE community college setting. Mertler (2020) also states "The main goal of action research is to address local-level problems of practice with the anticipation of finding immediate answers to questions or solutions to those problems" (p. 15). This study is focused on a local problem within the educational area of the principal investigator, the need to improve instructional practices within CTE, with the hope that it will be of immediate usefulness for improving practices within CTE. Mertler continues to identify action research as "done by particular educators, on their own work, with students and colleagues" (p. 19). The principal

investigator of this study is dependent upon colleagues to help examine this issue facing the community college they are part of, so that together action can be taken to address the problem.

Action research does not require an educational setting, but it does require an element of being part of an action plan. Kurt Lewin, a social scientist often considered the founder of action research, believed that research should bring about near term change, even though it may only be part of the planning and evaluation process (Adelman, 1993). Like John Dewey, a contemporary of Lewin's, Lewin was a pragmatist who felt that experimental inquiry should be the integration of science and practice (Hildebrand, 2018; Adelman, 1993). Adelman continues that per Lewin, if actions/treatments were part of the research, implementation would be an iterative process of evaluation and refinement.

One of four types of action research Lewin declared was Diagnostic Action Research, whereby the goal is to diagnose the problem and recommend a course of action (Adelman, 1993). This study may be best described as Diagnostic Action Research, holding to the pragmatic action tenets of Dewey and Lewin, and part of a plan of action directed toward advancing more effective instruction within CTE at County Community College, where the retention and completion rates hover at a dismal 40%, a problem that cannot continue to wait to be addressed.

Whatever form of Action Research, the goal of Lewin's research was to build research that analyzed the problem well, identify options to solve the problem and determine the most actionable effective solution to the problem (Burnes, 2004). For this study a qualitative method was chosen to capture all possible data related to implementation barriers with a goal for the analysis and conclusions to identify actionable solutions. While this study does not include implementing a proposed treatment, careful analysis pointing toward actionable solutions is the

first phase to solving a critical problem, more effectively harnessing evidence based instructional practices in CTE.

Advantages and Disadvantages

The primary advantage of action research is that it is practical research by practitioners in their field focused on solving immediate problems through sound scientific research and analysis (Mertler, 2020; Burnes, 2004; Adelman, 1993). The Diagnostic Action Research qualities of this study translate to addressing a critical issue in community college education now. The greatest likely disadvantage of classic research methods would be that the results would likely be used to formulate another study in search of greater perfection of understanding of the issues specific to community college career and technical education and further delaying the possibility of change. Lewin believed that you cannot fully understand a situation without trying to change it (Burnes, 2004). If that is so, it would be folly to believe that one could understand a problem, especially a sociological related problem, completely before proposing a solution.

A Phenomenological Qualitative Research Approach, Description and Justification

The particular qualitative research method this study leverages is a Phenomenological approach. Smith (2018) writing on phenomenology in the Stanford Encyclopedia of Philosophy states “Phenomenology is the study of our experience – how we experience” (Smith, Phenomenology and Ontology, Epistemology, Logic, Ethics section, para. 2). Alexander (2006) defines experience per the great American Education Philosopher John Dewey as the amalgamation of a person’s lived events and their environment and that “all inquiry, whether in the present or human sciences, is about resolving problems that present themselves in experience” (p. 213). Creswell and Creswell (2018) reference these historical roots of the Phenomenological approach within philosophy and psychology and how this approach is used to

investigates one's experiences usually through conducting interviews in search of the "essence of the experiences" (p. 13); that is "the most important indispensable quality or constituent element" resulting from those experiences (Oxford University Press, n.d.a).

A Phenomenological Qualitative approach was selected because of this methods effectiveness in discovering how the community college CTE instructor's experiences, that amalgamation of person's history and environment, foster or create barriers to use of EBIPs. The individual instructor's experiences within community college CTE programs are unlike those of other teachers/instructors/professors in other settings researching barriers to EBIPs and will thus generate unique perceptions of barriers to use of EBIPs. Those barriers can be readily best discovered by not assuming factors and variables and letting people relate their experiences as directly and freely as they can in as unbiased of a setting as can be fashioned.

A Hermeneutical/Eclectic Phenomenological Approach

A phenomenological approach in the tradition of Manen was chosen reaching "to grasp the nature of things" (Manen, 1990, p. 177), mainly, the nature of instructor's experiences generating resistance to use of EBIPs in the classroom. Max van Manen, the educator who developed and applied Phenomenological ideals to pedagogy, coined the term hermeneutical phenomenology (Giorgi, 2017; Creswell et al., 2007). In van Manen's phenomenological approach, an interpretive process is included in which the researcher makes an interpretation as to the meaning of the data and experiences. Like Manen, this study sought to interpret how experiences, stated values and meanings could link the data to themes, the literature review, and theories. This approach has similarities with Charmaz's variant of Grounded Theory where the interpretive tradition of qualitative research is upheld with a focus on discovering the experiences of the situations, relationships, and culture (Creswell et al., 2007).

This study began rather bogged down in which qualitative approach should be used and exactly how it should be carried out until reflecting on the insights of Miles, Huberman, and Saldana (2020) in their text Qualitative Data Analysis. Within their text they describe how "as pragmatic realist, we no longer adhere slavishly to one school of thought, or practice solely within the boundaries of one particular methodological approach" (Miles et al., 2020, 6). Miles et al. carry out an eclectic approach to their research governed by the mission of "describing and analyzing a pattern of interrelationships" (Miles et al., 2020, 14). In the end, this researcher set aside if this study should lean more toward a grounded theory or phenomenological approach and learned into analyzing the character and relationships of the data.

Research Context

Research Setting

The research setting County Community College, a public, state, community college in the state of Illinois that is part of the Illinois Community College system. The college is accredited by the Higher Learning Commission. The college has associate degree programs identified as primarily for the purpose of transferring to a four-year program referred to as transfer programs, associate degree programs identified as primarily for the purpose of gaining employment known as Career and Technical Education (CTE) programs, as well as adult education courses and continuing education courses. The college is one of the larger community colleges within the state and identified as a Hispanic serving institution with an enrollment over 25% Hispanic. The CTE programs vary in size, typically have one to four full-time instructors, and are grouped within several different academic divisions of the college.

The specific setting for the interview was always at a location of the interviewees choosing. Approximately half of the interviews were via Zoom with the participant residing at a

place convenient for them, which was likely more comfortable for the participants. Duration of the participants involvement or interview was approximately one hour and sometimes near one and half hours, if permission was granted to go past one hour.

Participant Recruitment and Selection

Participants were identified and recruited based on their positions within CTE as faculty, faculty development staff, or college leaders at County Community College. First, a wide range of CTE disciplines from various divisions with the college were identified using the college online overview of programs with one CTE program from each area of the divisions being randomly selected to invite to the study. A minimum of one year of experience was required for all participants. Faculty associated with those identified programs were contacted based on information available from the public web site. Participants were recruited by a recruitment letter sent via email (see Appendix A) and sometimes with a follow up phone call by the principal investigator (see Appendix B). There was no anticipated benefit or harm of participation in this study to any person or group of people. More interviews of faculty were completed as the population of faculty was significantly greater than that of the faculty development experts or leadership and with the assumption that the faculty population would contain a much wider range of perspectives on barriers to EBIPs requiring more data to validate themes and common answers. Consent letters (see Appendix C) followed via email at either the time of the invite or after an expressed interest to participate by the invitee and emailed back to the investigator. The data sample composition was appreciably influenced by the willingness of faculty and staff to be interviewed.

Participants

Ten study participants were interviewed in all, seven community college CTE faculty, two faculty professional development experts, and one community college administrator in a CTE faculty leadership role. All participants were currently working within the Academic Affairs unit of County Community College. The sample comprised participants from three out of the four divisions within Academic Affairs; four form one division, two from a second division, one from a third division, and two from a division focused on faculty professional development. One participant had a general administration role. Faculty were from unique disciplines and various programs with no participant belonging to the same CTE program or discipline. The CTE program disciplines sampled represented disciplines within five career clusters as defined by Advance CTE with faculty development and administrator participants shown within the Education and Training career cluster (Advance CTE, 2023). All programs that faculty were part of were considered CTE programs, that is programs created for the purpose of employment at the conclusion of the degree and without a matching program at a four-year institution, although some transfer agreements did exist to other four-year institutions into various general majors. The majority of participants had attained a Master's degree and four participants possessed various types of Doctorate degrees. Four participants were women. All faculty had worked in industry before teaching. Refer to Table 4 for further participant information.

Researcher Positionality

Holmes (2020) defines positionality as an "individuals' worldview and the position they adopt" in research (p. 1). Our personal traits influence the position we take within our research before we begin, as Holmes sites positionality is rooted in an individual's ontological and epistemological assumptions, or as what Smith (2018) simply states, our view of what is and how know it. Positionality is more fundamentally defined as the position the researcher has

adopted during the research and is normally determined by the position of the researcher in three settings; the position of the researcher in relation to the subject under investigation, the position of the researcher in relation to the research participants, and the position of the researcher in relation to process and context of the study (Holmes, 2020).

Table 4

Characteristics of Participants

	Number	%
Participant Role		
Full-time Faculty	7	70
Faculty Development	2	20
CTE Administration	1	10
Highest Degree Attained		
Associates	0	0
Bachelors	1	10
Masters	5	50
Doctorate	4	40
Gender		
Male	6	60
Female	4	40
Years at Institution		
1 to 5	5	50
5 to 10	1	10
10 or more	4	40
Academic Division		
Division A	1	10
Division B	4	40
Division C	2	20
Division D	0	0
Faculty Dev/Gen. Administration	3	30
Program Career Cluster or Professional Role		
Transportation, Distribution and Logistics	1	10
Manufacturing	2	20
Science, Technology, Engineering & Mathematics	1	10
Health Science	2	20
Education and Training	3	30
Arts, A/V Technology & Communications	1	10

Within this study, the position of the principal investigator (PI) in relation to the subject of this research can be principally defined by their history as a community college CTE

instructor for 11 years prior to a position within community college administration now. The PI history of as a community college CTE instructor was typical in that they were hired because of their professional experience in industry and did not have teaching experience or teaching training. When the PI started their new role as full-time faculty, there was little provided to them in terms of lesson plans or prepared instructional materials or guidance on instructional practice. The PI instituted for instructional practice what they had observed of teaching from past professors when a student at a big Big Ten University 15 years prior. More support would have helped the PI as a new teacher, and EBIPs are viewed by the PI as one tool for systematically providing a basis for lesson planning and course instructional practices for teachers new and old. A method to objectively guide CTE instruction would likely be far superior to being guided by tradition of practice, outdated theories on instruction, or instructor preference. This research is part of the PI's action toward advancing use of EBIPs within community college CTE programs.

The PI's position as researcher in relation to the research participants is a fellow employee of County Community College. The PI's position as center director provides me a small staff, but all faculty interviewed report to the dean in another unit of the college. Although the PI is not their supervisor, some faculty may associate them with administration and may be guarded in some way when answering the interview questions. It should be noted also that the state in which County Community College resides has strong teacher unions and the authority of administration over faculty after they gain tenure is limited, which creates more space for faculty to speak their mind.

The position of the PI in relation to the research process and context is that of a participant. The PI is asking the research questions, prompting the interviewee to expand on the answers when assessed they have more to add to the response or when the PI wants to

understand more from their response. The PI was always conscience that their words can lead or sway a participant's response. Within the context of this study, the PI created the questions based on research of the subject of common researched reasons for barriers within other educational domains or settings. The PI's experiences as an educator, personal history, and personal biases will have influenced those question formations to some extent. The PI was principally responsible for conducting the analysis of the study.

Research Methods

Data Collection

This was a qualitative study examining barriers to EBIPs within CTE. The data sources for this study were semi-structured interviews of community college CTE faculty, faculty professional teaching development experts, and a college administrator. A structured list of interview questions, one for faculty and one for professional development staff and administrators, was developed before the interviews began (see Appendix D and E). The same list of questions was used throughout; however, there was not always time to ask all interview questions and follow-up clarifying questions that were not predetermined were often asked. The goal of the question format was to move from general questions on instruction and instructional improvement toward more specific questions on EBIPs. The interviews occurred between the beginning of September 2023 and the end of December 2023 and all interviewees were current employees of County Community College.

Data Collection Procedures

The principal means of data collection was electronic audio recording of the interviews. All participants agreed to electronic audio recording with the understanding and assurance that all participants would be kept anomalous and assigned a pseudo name. The college was assigned

a pseudo name, County Community College. Initial transcripts were made using a transcription service or Zoom transcription software that was reviewed and edited by the study investigator. Notes were taken by the investigator at the time of the interview and were used mainly by the investigator to help follow along/understand what the interviewee was stating and formulate follow up questions. There were follow up questions sent to some participants via email to clarify some of the statements they made after review of the interview questions. Emails were then printed off and filed in a location only available to the interviewer. All procedures were done with what would be considered within normal standard professional practice with professional courtesy from one professional to another always being guarded.

Data Collection Timeline

Interview request began in September 2024 and continued through December of 2024 with the pace and number of requests being dictated by acceptance rate and interviewees schedule. Interviews occurred principally between October 2024 and December of 2024, with wrapping up in January of 2025.

Validity and Reliability Procedures

Creswell and Miller (2000) suggest that triangulation be used for research when based on the single lens of the reviewer and a worldview is held where the researcher needs to uncover hidden assumptions about how the narrative was constructed. Creswell and Miller cite four types of triangulations: data, methodological, investigator and theory. To establish confidence in major emerging themes of common or related descriptions of participant experiences, data triangulation was used. To gain greater confidence that the participant sample is providing feedback representative of the population being sampled, Miles et al. (2020) recommends increasing the number of cases; this study used data from 10 interviews, approximately 11% of CTE faculty,

and further interviewed professional development staff and administration for their perspectives. As advised by Miles et al. (2020), to minimize the biases and inaccuracies from participants not relating their entire thoughts and feelings, consciously or unconsciously, because of the researcher, every interview began with the interviewer stating plainly their reasons and interest for the interview, as to make sure the intentions of the interviewer were clear to the participants.

While data was used from all interviews, data was mined from some interviews more than others. The evidence was weighted for trustworthiness based on how well the interviewee explained their position or experience and their standing with the college. The majority of the interview data came from faculty who had been at the institution for longer than 20 years and provided the most detailed explanations as to their experiences and motives. Member checking was used to further substantiate an observation or conclusion; transcripts of the interview were provided to the participants with the request they validate their testimony and provide feedback as to noted themes and coding. However, the feedback was sparse and not all ten provided feedback, but the feedback cited few and insignificant errors in the data.

Finally, in regards to making and verifying conclusions of outlier data, outlier data was used if it did not appear to contain deception or ulterior motives. Miles et al. (2020) states: “you need to find the outliers and then verify whether what is present in them is absent or different in other, more mainstream examples” (p. 296). Outlier data in which a context or relationship to its meaning or cause could be deduced, was included and often provided more insight to the common findings.

Data Analysis

A coding process was used as defined by Creswell and Creswell (2018) whereby data having some unique quality related to the questions at hand was identified and assigned a unique

code or identifier. Similar data that pointed to a similar theme, idea, or concept would receive a similar code. Aspers and Corte (2019) initially looked for what they called “notions” to group their data. Per Creswell and Creswell, in some instances researchers will begin with a cookbook of defined codes; this study began with a short list of predefined code categories, such as environmental or external barriers shown to be part of a unique code group from research related to other educational settings. After identifying key data and coding and categorizing the data into themes, common themes as well as interrelationships and correlations within the data were then searched for, such as how might instructors who were more favorable toward EBIPs have experienced a work culture different from those that did not. A hermeneutical phenomenological approach was used to interpret how experiences and stated values and meanings might connect the data to themes or back to the literature review.

In the spirit of the qualitative approach in which “research studies are said to have emergent research questions and methodologies” (Mertler, 2020, p. 94), this investigation sought to maintain the pragmatism and the scientific method of Kurt Lewin and John Dewey, while seeking a path forward to analyzing the problem at hand.

Data Analysis Timeline

Initial data was analyzed January 2024 through May of 2024. Initial pertinent data and data coding was conducted February through mid-March of 2024 with data summaries for validity were conducted principally within March. While substantial data analysis occurred in Spring of 2024, review and analysis continued through the formation of conclusions to this study through August of 2024.

Chapter Summary

This chapter described why and how the Qualitative, Action, and Phenomenological research approaches were used to research barriers toward use of evidence based instructional practices at County Community College. Data was collected through interviews of faculty, faculty development staff and college leadership. This chapter described my positionality as a past CTE community college teacher and current administrator and concluded with the research data collection and data analysis process used. Chapter Four will report and discuss the study's findings; overt external barriers found, themes within instructor experiences and culture, evidence of felt-need, and how the nature of instructor's experiences may be generating resistance to use of EBIPs in the classroom.

CHAPTER 4

FINDINGS

Chapter Introduction

Greater use of evidence based instructional practices (EBIPs) will likely improve community college career and technical education (CTE) program instruction, yet there is little research into the barriers to the use of EBIPs within CTE at community colleges. This qualitative study was a series of interviews with ten community college CTE faculty and staff (seven faculty, two professional development staff, and one administrator), to broadly examine issues impeding the use of EBIPs within CTE programs. The central question of this research was:

- What are the barriers to implementing EBIPs within CTE at County Community College?

Sub-questions within this study were:

  - How are community college CTE instructors experiencing barriers to improving their instruction and how does the educational culture contribute to barriers adopting use of EBIPs?
  - What is the "felt-need" for EBIPs among faculty, faculty development staff, and CTE administrators?
  - What is the nature of instructor's experiences generating resistance to use of EBIPs in the classroom?

Three prominent themes were found to be influencing barriers to adoption of EBIPs: culture, time, and teaching philosophy. While aspects of these findings were common to those found in 4-year university and K-12 environments, this research points to additional unique barriers to use of EBIPs within community college CTE programs.

Findings

Findings primarily coalesced around three prominent threads or themes: time, culture, and teacher's philosophy or goals. These themes and larger sub-supporting themes are presented in Figure 1. These factors were discerned as directly or indirectly impeding EBIPs, that is contributing as a barrier, or as in some cases, contributed to the use of EBIPs.

Figure 1

The Prominent Threads Found Impacting Barriers to EBIPs

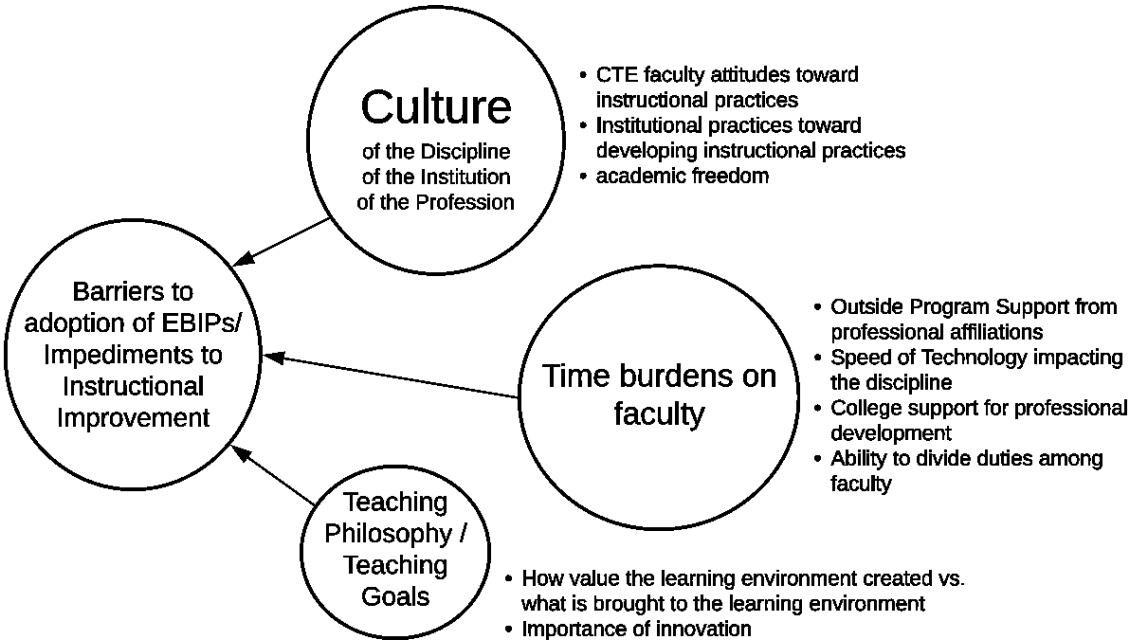

Figure 1 represents this study's findings of major themes/threads impeding instructional improvement and/or leading to barriers of adoption of EBIPs. More sub-themes were associated with culture and time, as represented by the larger circles. Culture was defined by the practices, philosophies, and attitudes of the disciplines, institutions, and profession acting upon adoption of EBIPs (Oxford University Press, n.d.c). Time shows major sub-themes impacting faculty taxing their ability to incorporate more EBIPs. Teaching Philosophy/Goals likely were a part of

influencing the felt-need for adoption of EBIPs among faculty and are discussed further in these findings. Following is a discussion of findings on how demands placed on instructor time, the culture surrounding faculty, and teaching philosophy influenced adoption of EBIPs. Presented first are factors found impacting an instructor's time: curriculum support, dependence of the program on technology and the speed of change of that technology, institutional financial support, and how program duties are dispersed among faculty. The second major finding presented will be the influence of culture on adoption of EBIPs, especially, CTE's culture, the institutional culture and the culture of the community college teaching profession. Finally, findings on how teaching Philosophy Influence instructional priorities and teaching goals within community college faculty at County Community College will be presented.

Findings Associated with Time as a Contributing Barrier

A prominent thread found in the interviews was that the time demands of CTE faculty job duties impeded instructional development necessary for exploration and incorporation of EBIPs. Instructors related three program characteristics impacting their capacity for instructional development necessary to implementing EBIPs: the amount of curriculum development support available to the program, speed of technological change associated with the program, and ability of the chair to divide curriculum development among a larger department staff. Two other findings related to time were the influence of mandated time for professional development and that faculty from different programs conveyed unequal demands on their time.

Programs Receiving Outside Support

Instructors described their programs and program demands as part of the interviews. Some programs were supported by accrediting program agencies or associations that provided curriculum guidance to remain current in pertinent industry skills and provided revised program

and course learning outcomes. Moreover, these supporting agencies provided relevant and pertinent course instructional materials in the form of textbooks, videos, manuals, and assessments. Instructors were relieved of determining new directions for the program and developing a substantial amount of course material. As one instructor noted, “We'll be like, hey, go home and do this module; this is the homework; they'll do a (manufacturer provided) module on (X) or (X) diagnosis” (transcript 3, p. 16).

Instructors within programs not receiving content support through an accrediting agency or association expressed dire time constraints on time, despite expressing desires to capitalize on EBIPs. One instructor stated “John, I have to tell you that, for us, the biggest challenge is time. We have so much we want to achieve, and so little time, so many things. I feel stretched thin very much” (Transcript 1, p. 10). Another instructor within a program with little outside support noted “I'm driven and I'm passionate about it, not necessarily because I'm being compensated for it. There's just not the time-- there's time, but it comes at the expense of something else” (Transcript 6, p. 20).

Speed of Technology Demanding Time

Pace of change within the program related to the professional discipline the program taught to was a major factor determining time constraints. Many CTE programs are highly technical with student learning program outcomes that demand they teach to the latest technologies impacting the profession. Not only do technologies change within products a program may be teaching toward, but new technologies are constantly being added to existing products or new annual versions of software being introduced. As one instructor put it,

> We're always developing our courses, our industry knowledge, not necessarily our teaching. Another level on what we've already had to learn. It's not like all (products) are

> the same, we're learning 15 different systems for 15 different (products). It's always more and more. (Transcript 3, p.11)

Mandated Time and Support for Instructional Learning

Some instructors reported that their professional development was mandated and financially supported because of licensure or accreditation requirements thereby creating time for faculty training on instructional practices while being financially supported. As one instructor reported, “There's, they're off the charts of amount of professional development that they do. Our state requires. I think it's (x) h every (x) years” (Transcript 2, para. 190), and further emphasized that “when given opportunities for professional development, we are seeing some innovation coming out of that and action” (2, paragraph 195). This is in contrast to non-accredited or non-licensure programs where there was no college contractual mandate nor financial incentive to further instructional training. Mandates may help faculty justify and budget their time as well as justify financial support from the college.

Burden Falling on One

A final notable thread found in the interviews related to lack of time for EBIPs related to the size of the department or the culture for sharing workload within the department. Some faculty interviewed were part of programs with only one full-time faculty, themselves, and noted that all program duties fell upon them, such as chair duties. A few programs had more than one faculty, but the chair would take lead in all curriculum and instructional development. Programs that did have more than one faculty and shared instructional development duties, fared much better in time as noted here:

> …we actually break that down. It's funny the more I talk to people about it, they're like, "Oh, that's how you guys do it." We might not be doing it how everyone else in the

> college does it. When we split up, so here we have four full-time instructors, and we each have our specialty. (Transcript 3, p. 4)

Varying Faculty Perceptions of the Time Barrier

Not all faculty reported the same program demands on time. Instructors from different programs conveyed unequal burdens on their time leaving varying degrees of time to accomplish other tasks such as instructional development; their perceptions likely related to the characteristics of the programs. Faculty member one, who reported not enough time for developing EBIPs and expressed a severe lack of time, was part of a program without support of an accrediting body or industry association, while part of a frequently changing technology discipline demanding faculty time to learn the new technology, discern what new technology needed taught, and then developing new curriculum for that technology. Faculty member two stated an adequate amount of time for developing instructional materials, and although part of a program requiring accreditation, was supported by content and standards from an accrediting body, was part of a discipline with much slower technological changes, quote, “You know, (the discipline) hasn't changed much, but instruction has” (Transcript 2, para. 38) and was part of a slightly larger department of faculty members; all three factors likely helping to alleviate the time burdens associated with program curriculum maintenance. When asked about program workload, one instructor again part of a program with more faculty and with curriculum set by the accrediting agency, replied that the majority of workload arose from their own election for a very large teaching workload, and that faculty guided by the accrediting but that “we have four full-time instructors, …….. one instructor is in charge of coming up with that course, making sure that all objectives are going to meet our (accrediting body) standards”. More time is being afforded with more faculty sharing load and what to teach is being set by an accrediting body.

Several other faculty members interviewed who related severe time demands were part of only one-person programs, and were required to define and develop much of their own course content. In summary, there is evidence of a correlation between characteristics of the program or discipline and how instructors shared the burdens of work within the department and how much time instructors felt available to them for other pursuits such as EBIPs.

Findings of Relationship to Culture

A prominent thread found in the interviews related to culture, "the philosophy, practices, and attitudes of an institution, business, or other organization" (Oxford University Press, n.d.c). Through the interviews, sources of culture emerged regarding instructional practices and likely rooted within the cultures of the discipline, institution and the profession.

CTE's Culture as a Discipline

A prominent thread through the interviews related to the attitudes of instructors within the CTE discipline toward instructional improvement advanced by the college's professional development faculty, a likely indicator for CTE faculty's readiness to adopt EBIPs. All full-time faculty interviewed provided strong evidence of their dedication toward great instruction and student success, yet, a majority of CTE faculty made a distinction between the usefulness of instructional practices advocated by the college's professional development team and those useful for CTE instruction. Various active learning strategies, often foundational to EBIPs, were cited by faculty as being advocated for by the college's professional development team in which faculty did not see appropriate for their classroom learning environments. When asked about the relevance of EBIPs toward EBIPs, one instructor stated "With CTE technical information, …There's no substitute for another human being coming up and showing you exactly how

something is done" (Transcript 6, p. 15). Another instructor noted on the institution's professional development efforts toward active learning strategies:

> I'm teaching technology area. Therefore, as you know, we are more focused on the hands-on real lab oriented here, instead of lecture. If I give one example, … maybe Shakespeare, in English major. Shakespeare, therefore, the lecture was Shakespeare, blah, blah, blah and then what do you think? That is nothing to do with (my) program. (Transcript 9, p. 16)

Another instructor noted that "a lot of the CTE instructors, they're like, this isn't for us. This is for all the other transfer programs" (Transcript 3, p. 13), That instructor previously provided a description for classroom instruction as fairly traditional, "using the theory and operation that I taught them in a traditional classroom setting with the PowerPoint or using demonstrations or videos or whatever I decided to do" (Transcript 3, p. 8).

A Notable Thread of Exceptions.

Two CTE faculty, also program chairs, did not draw a line of distinction between what should be instructional practices of CTE and transfer programs, and spoke of a desire to have more EBIPs within their program courses. One of these two faculty, outlier one, provided their evaluation of the attitude and practices of their department faculty as "innovative instructors who are kind of making it happen in terms of …..resources that they're using to speak to different types of learners" (2, paragraph 139). This faculty, who's department required accreditation through a national accrediting body and faculty to meet state requirements, continued:

> I also have to show evidence of teaching methodology. They (instructors) might take a course on innovative practice, some type of thing like that. I'm going to apply (it in) my

> classroom. So again, we have this really awesome parameter or standard, and we're kind of like forced to do it. (Transcript 2, para. 190)

After referencing the benefits of instructional standards set by accreditation, outlier one concluded: "when given opportunities for professional development, we are seeing some innovation coming out of that and action" (2, paragraph 195). The instructional culture of the department demonstrated innovation, meeting instructional standards, and saw the results in a favorable light.

The second outlier faculty, although stating heavily burdened with maintaining the program, impressed on me how she and her fellow department faculty held a high-standard for continuous learning. In regards to the college's faculty development course referred to by college staff as ACUE, a 25-module course on Effective Teaching Practices developed by the Association of College and University Educators, the second outlier stated "I also was thinking, …how I feel that ACUE it's a good structure. …(the adjunct) used ACUE to basically redesign (the course) with everything ready by the end of the ACUE class" (Transcript 1, p. 16). The outlier went on to relate how it was an adjunct faculty who led a successful course redesign based on principles learned through ACUE. Further in the interview, outlier two related her departments unique dedication to professional development stating "each one of us, every faculty member who survived, I think over the years, we have engaged in active learning ourselves, training ourselves, and we also got, for many years now there's a professional training website" (Transcript 1, p. 8). Concluding on the department's dedication to professional development and the standards and practices within the department, outlier two stated:

> We all, in our program, even during our interview of the adjunct faculty members, we make sure they share the same value, which is we can't stop learning, we can't stop

> improving ourselves, and we make sure we tell our students also that the program just gets them started and once they enter the industry, they have to keep learning. (Transcript 1, p. 9)

Within this outlier program where the chair of the department embraces new instructional practices and the colleges attempt at bringing in new practices, is a culture so dedicated to professional development that it screens new hires for a dedication to their learning culture.

Findings Related to Institutional Culture

Three threads through the interviews pointed back to the practices and attitudes of the institution hampering adoption of EBIPs. One practice is to define instructional practices as evidence based if programs are meeting program outcomes or there is evidence that they are a common practice among other colleges, but as I expand on later in my analysis of findings, this is not necessarily evidence of optimum use of EBIPs. Second, the focus of the college department of faculty development has been on instructional technology support and not instructional design support, as one professional development expert said “just the culture of the college leaned myself and the folks I work with more towards just working with the tools versus working with the instructional design” (Transcript 5, p. 4). There is a shift in institution culture toward improving instructional practice as reflected in the institution’s recent work on standards for online courses. Further elaborating on the recent shift, the faculty development expert stated, " That's new, to have a foundation to say, here's what research says works in online courses. How do we make sure that we're doing a lot of that in the courses that we're providing?” (Transcript 5, p. 4). Third, practices at the institutional level related to funding. As one administrator put it, “There's a competition for funding for initiatives, but when the institution makes it part of the strategic plan and strategic priorities, then it's something that usually will move forward”

(Transcript 4, p. 7). Supports that would promote EBIPs appeared to be losing the battle for funding, as funding for the department that supports faculty professional development was viewed as too low:

> At every budget cycle, we're begging for more funding. Our budget compared to some of our sister colleges is laughable and it's really, really challenging to do the work that we really need to do to really develop that culture of teaching and learning excellence so that every single faculty member is on board. (Transcript 8, p.3)

The need for additional funding included a need for staff with expertise in instructional design skills and to "more (than) just the break-fix person of technology" (Transcript 5, p.5).

Additionally, there was indication funding decisions stemmed from an institutional culture that within CTE the most important instructional practices relate to student's performing tasks related to the discipline in which they are studying. As one interviewee within administration stated:

> They're looking for that (work) experience. If we can give them those experiences as part of our classes, in the labs, in simulated environments, out in the workforce with an internship, all these parts of our instruction will help them reach their goals, which is just getting a job, ultimately. I think that's why they are here. (Transcript 4, p.3)

In summary, while findings indicated a college seeking to promote EBIPs through a new faculty development program required of all new full-time faculty and shifting the department of professional development more toward developing teaching practices of the faculty, threads related to an institutional culture still in transition to fully promoting EBIPs were present. The institution's practices of how EBIPs should be assessed, a legacy of the department of professional development limited to instructional support, limited funding, and a mindset that

providing workforce environments needs to be the focus of instruction within CTE all could serve as institutional barriers to promotion of EBIPs within CTE.

Findings Associated with Professional Culture

A prominent thread through the interviews was the cultural conception that instructional decisions, such as whether to use an EBIP, was at the discernment of the instructor. Throughout the interviews, even from those most open to greater exploration of EBIPs, was the notion that instructors had the privilege to decide what occurred in their classroom. Stated desires for better instruction in the classroom were qualified with statements such as "I feel how each instructor handles their classroom, that's their academic freedom" (Transcript 1, p. 9), and "What I mean by that is I think there's a lot of autonomy here, whether that's I'm going to utilize publisher material, or I'm going to create content on my own, or maybe there's even sponsored content" (Transcript 5, p. 8).

Findings Associated with Teaching Philosophy toward Instructional Priorities/Teaching Goals

A prominent thread through the interviews was the juxtaposition of teaching philosophies centered on the teacher's role of creating the learning conditions and surroundings, part of the learning environment, versus centered on the role of content expert. Relating a dedication to adopting a practice that would improve the learning conditions, one faculty said:

> The importance is not just on getting the information to you, or actually no, the importance is getting the information to you, but in a way that works best for you… If there is a new way that can help me get what I want to convey to my students, that works for them, …. I want to learn it. I want to adopt it. (Transcript 1, p.16)

Another faculty spoke of the highest value of a teacher being to establish a humanistic learning environment:

> Well number one for me is a humanistic culturally…teaching in a humanistic way. I think the highest value that you can do is to provide an environment in which students feel valued, where they can make mistakes and not be punished. Their mistakes are valued… I feel like our greatest impact is the way in which, how do, how do we provide a learning environment? (Transcript 2, para. 88 - 90)

Faculty One emphasized the importance of their role in supplying information in a way that is best for the learner to learn, while Faculty Two emphasized their role in establishing a learning environment where the learner felt valued and at ease. These adopted faculty roles were not necessarily in contrast to, but alongside other faculty who pointed to the highest value an instructor brings as being an expert in content. One faculty summed up their job as, "our job is to make sure we're current with (technology of the discipline)" (Transcript 3, p.11); the emphasis of their role being content expert. Another professional development expert spoke of the importance of content knowledge through experience in the profession:

> I would say subject matter expert because I feel like in the classroom the most valuable thing usually comes from experience, stories. Sharing what's actually happening in the area that you're looking at... They're usually very foundational. It's the rest around it… that can often even be the more motivational part of the learning. (Transcript 5, p. 9)

The administrator interviewed for this study cited content knowledge as critical to capture a student's buy in:

> For CTE, that's one of the critical things, because unless we can connect the content to the workforce and how those are going to see how it is you're learning, what you're

> learning is going to be applied on the job, it's hard to hook in the students. (Transcript 4, p. 9)

Faculty One and Faculty Two, both content experts in their field, used the words “the importance” and “the highest value” when describing their teaching goals. Faculty One was willing to take on the responsibility of meeting the student’s needs for how they best consume information, while a goal of Faculty Two’s was to establish a learning environment where students felt valued and at ease. These faculty focused on environment cited the need to meet students where they could learn best and provide the psychological safety necessary to effectively learn. This was in contrast to Faculty Three, Faculty Six, Faculty Seven, and Faculty Nine, a professional development expert, and the administrator, who referenced the priority attribute of a CTE instructor as being a content expert able to relate industry experiences and provide context for what the students were learning. There appeared to be a dichotomy in philosophy of teaching between those educators emphasizing the primary attribute of instructors to be knowledge expert with the role of dispersing knowledge and experiences and those who saw the primary role of instructor as creating a learning environment.

The faculty most inclined toward engaging more EBIPs in their classrooms and departments were those with an environmentally centered philosophy, Faculty One and Faculty Two. Faculty with a teaching philosophy more centered on content knowledge, Faculty Three, Faculty Six, Faculty Seven, and Faculty Nine, related EBIPs as less applicable toward CTE instruction. Thus, there may be a correlation between motivation to adopt EBIPs and teaching philosophy. While both perspectives of primary faculty roles would not need to be exclusive of each other, different philosophies of faculty’s role in learning may motivate how a faculty will position themselves in directing learning.

CHAPTER 5

ANALYSIS AND IMPLICATIONS

Chapter Introduction

The purpose of this research is to advance the use of EBIPs within community college CTE programs by investigating the barriers to implementation of EBIPs within CTE programs. The central research question and sub-questions guiding this investigation were:

- What are the barriers to implementing EBIPs within CTE at County Community College?

Sub questions within this study are:

  - How are community college CTE instructors experiencing barriers to improving their instruction and how does the educational culture contribute to barriers adopting use of EBIPs?
  - What is the "felt-need" for EBIPs among faculty, faculty development staff, and CTE administrators?
  - What is the nature of instructor's experiences generating resistance to use of EBIPs in the classroom?

This chapter begins with a discussion and analysis of the findings relating to three overarching themes: time, culture, and teacher's philosophy or goals. Factors around these themes were discerned as directly or indirectly impeding EBIPs or potentially contributing to the use of EBIPs. This is followed by a discussion of how well the study answered the guiding research question and sub-question, and concludes with a series of assertions of the implications of these findings: implications for confronting the barriers related to faculty time, navigating the instructional culture of the CTE disciplines, lowering institutional barriers, implications of

academic freedom, and mitigating faculty philosophies of instruction as they impact instructional practices.

Analysis and Discussion

Regarding Lack of Time as a Barrier

Three threads in the interview data related to lack of time as a barrier: the structure of the program, mandated training to help facilitate time for instructional development, and faculty variance in their views on time available for work on instructional development. Regarding program structure or characteristics, there were three threads impacting perceived time: amount of curriculum support provided by outside organizations, how substantially technology was a part of the program and how quickly that technology changed, and ability of the chair to divide curriculum development among a larger department staff. These findings indicated a likely correlation between extent of program duties and the size of the program and instructors' perception on time for program improvement related to EBIPs, as CTE programs varied significantly in structure and characteristics.

In regards to alternative explanations for these findings, while there appears to be significant variances between programs that would likely link to a variance in job duties and demands, these findings depended on faculty perceptions and individual perceptions of one's circumstances. This study did not have a means to measure faculty effort in each of these categories and they may have been more equivalent than related. In addition, faculty may have different personal standards and methods of instruction requiring different levels of work.

Research indicated lack of time to learn new instructional practices would be cited by faculty as a major barrier for them not implementing more EBIPs (Drage, 2010; Henderson & Dancy, 2007). The demands of community college CTE program faculty are likely as large or

larger than those of faculty within Universities and K-12. CTE faculty duties include responsibility for program recruiting, maintaining the program relevancy and accuracy by keeping the program current in technology and industry skill demands, developing relationships with industry for support and guidance, often program accreditation reviews or program reviews, developing students who are often unprepared college level courses and who are likely balancing work and family obligations, as well as coping with the common teaching demands of grading, classroom instruction ranging from 15 to 30 hours per week, committees, office hours, school functions, tutoring students, and other.

Findings Influenced by Culture

The Instructional Culture of the CTE Disciplines

There was a common thread indicating common practices and attitudes toward instruction and instructional development within the CTE disciplines. Most CTE faculty as well as some professional development staff, viewed CTE instruction as unique from many of the liberal arts programs and thus many of the espoused teaching strategies by the institution as not applicable to them. Perhaps interviewee nine summed it up best, almost mocking non-technical discipline instructional practices and declaring their technical program as having nothing to do with non-technical programs. Within this group, instructional practices required the current regimen of instruction.

However, the CTE culture toward instruction and innovation of instruction was not monolithic, and a smaller outlier group expressed a desire more open to embrace instructional practices advocated for by the college's faculty development group. The attributes of those programs may have relevance for removing barriers to use of EBIPs within CTE. Those attributes were an outside accrediting body over the program that evaluated instructional practice

as part of accreditation, the cultural norms for learning and improvement established by the department, and the presence of more than one carrying the load for instructional development. The cultural norms of the department were likely mostly governed by the department chair who is the department leader, and in this case, was a founding faculty member. These findings indicate that cultural outlook on instructional practices may be able to be influenced by the need to make standards, the disposition of the chair and department, and the weight of additional advocates for change within the department.

An Alternative Explanation for the disparity between programs readiness to adopt practices championed by the college faculty development group may relate to a difference in character of CTE disciplines faculty represent. The two programs inclined toward embracing EBIPs may simply have been outside of the sphere of the culture of the manufacturing, engineering, and trades programs. Faculty One is chair of a health care program and Faculty Two is chair of a CTE program outside of Engineering, while the other faculty are part of more engineering/mechanical programs. Further, as noted in chapter 3 of the study findings, a culture of conformity which accreditation can foster was referenced by the interviewee as a barrier to innovative teaching practices as faculty were afraid to go too far outside of standard practice.

In regards to an alternative explanation regarding the influence of accreditation and the innovative teaching practices cited by Faculty Two as part of accreditation, conforming to norms can also limit instructional practice advancement, if there is fear that change will take one out of the realm of standard practice. While faculty Two cites the benefits of accreditation for teaching, at one point in the interview, Faculty Two also cites accreditation as a barrier to implementing more EBIPs because of a perceived risk of accreditors not recognizing new instructional practices as within standards.

Comparing to the research, findings in this study agree with findings of McAlpin (2022), which found that faculty conceptions of the value EBIPs impacted adoption of the practices. Many CTE faculty were separating technical education, CTE, from non-technical education, and relating the institutions advocacy of active, collaborative, learning strategies as not applicable to them. They conceived that the instructional practices advocated by professional development as not effective or useful to their discipline; they had not bought in and were not embracing the practices. These CTE faculty assumptions were in line with National Science Foundation assumptions that EBIPs are distinct to the academic discipline. Recognizing that STEM disciplines have unique priorities, worldview, knowledge, and practices, was the basis of the National Science Foundation (NSF) requesting the National Research Council (NRC) to conduct a synthesis study of empirical research on undergraduate teaching and learning limited to methods and theories within science and engineering (National Resource Council, 2012). As that research focused on instructional strategies and practices within the science and engineering disciplines, it was categorized as discipline based instructional practices (DBIP). The NRC study did not attempt to discern which strategies and practices which might be unique to any discipline. However, the study assumed that research into general scholarship of teaching and learning (SoTL), which included the humanities, social sciences, and natural sciences, would have varying degrees of value and application to DBIPs. The need for a DBIPs approach is supported by a Darling-Hammond et al. (2017) literature review of effective professional development strategies, which suggested that an important factor of professional development effectiveness related to a focus on discipline content and provided further evidence that increasing pedagogical content knowledge of the discipline improved student outcomes.

While this study found a CTE culture of instructional on the basis that CTE was unique from other disciplines, this study also found evidence that if a program required accreditation from an outside body, the process of accreditation influenced the culture of instruction. Findings that accreditation may be influencing the department culture toward conforming to instructional practices advanced or expected by the accrediting body runs parallel to findings by a 2012 National Research Council study researching evidence-based instructional practices in science and engineering. Many two-year and four-year college engineering programs seek accreditation from the Accreditation Board for Engineering and Technology, ABET. The National Research Council (2012) linked ABET accreditation standards within engineering and technology programs as a cause for improvement in engineering and technology instruction; within this process an outside accrediting body observed and evaluated faculty instructional practices. Assuming that improved student engineering and technology student outcomes were the result of a change in the attitudes and practices, or culture of engineering and technology faculty driven by ABET accreditation, Faculty Two's department's proclivity towards adapting new instructional practices was likely influenced by outside accreditation.

In regards to the influence on instructional practices when more than one, the account of Faculty One describing how support of a second faculty was the catalyst to instructional innovation agrees with findings of McAlpin (2022) that as more faculty adopt EBIPs, more faculty will follow. Although Faculty One had demonstrated an inclination toward adoption of EBIPs, it was a second supporting faculty that brought the necessary number of people to influence a change in instructional practices. There were cultural norms being established by the department chair, and the presence of a resource to champion development.

Findings that the department chairs who more eager to embrace new instructional practices also align with research suggesting that faculty who are reform oriented are more likely to adopt EBIPs (Gardner et al., 2021). Findings of faculty outliers to the conception that CTE was separate from non-technical programs also presented as reform oriented by declaring their desire to capture best teaching methods possible.

Institutional Barriers and Biases

Three threads likely lead to institutional cultural acting as a barrier to adoption of EBIPS: assumptions regarding evidence of use of EBIPs by faculty and administration, an only recent change in faculty development support away from instructional technology support to broader instruction design, and a lack of funding by the institution.

Program effectiveness is not necessarily evidence of validity or optimization of instructional practices for student learning within a program. Clearly if program outcomes are being achieved, then there must be a sufficiency to the instructional practices to meet the outcomes. However, an instructional sufficiency is not the same as instructional optimization. The point to engaging in innovative, reflective teaching practices, and applying those EBIPs that should apply to a discipline, is to optimize student learning. Students meeting program outcomes are not demonstrating a comprehensive use of instructional practices validated by research. If faculty and administration are leaning on program outcomes to demonstrate use EBIPs, then that is a barrier to implementation of EBIPs. Efficacy of EBIPs can only be gaged through research in efficacy of student learning, whether done internally by the college or not. Program benchmarks such as measuring student employment could likely be met with outdated or subpar instructional strategies. Likewise, common practice or even standard practice, is not meeting the definition of

EBIPs, which are only those practices in use because they have been researched and their effectiveness established.

In regards to recent changes within the department of faculty development, interviews described an institutional shift in faculty professional development toward a more focused emphasis on instructional professional development, as evidenced by adoption of online course design standards and directing professional development more toward instructional design. The institution is just beginning to take some important steps toward demonstrating an institutional culture that strengthens faculty culture toward discovery and use of EBIPs.

Institutional altitudes toward EBIPs may also be reflected in funding for the department of faculty professional development and funding of faculty toward professional development. Under funding of the faculty instructional development staff, as one faculty development expert judged, can be a barrier to motivating faculty towards the often-extra work required to bring about a change in instructional practice.

A possible alternative explanation is that the college may believe it is at capacity for spending on faculty professional development. Indeed, there has been a shift to set standards in online courses and courses have been established to improve faculty instruction. If instruction is sufficient to meet program goals, then that is evidence that instructional improvement may not be critically necessary.

In comparison to research, findings on demonstrated effectiveness of EBIPs espoused by faculty and staff conformed to literature on community college effectiveness. A widely referenced set of core indicators of effectiveness for community colleges, published by the American Association of Community Colleges, is the Comprehensive Effectiveness Model by Alfred et al. (1999). The Alfred et al. model list 13 measures of effectiveness related to student

progress within five mission areas: workforce development, general education, transfer preparation, developmental skills, and community outreach. However, Alfred et al. states their model leaves out "important dimensions of organizational performance for community college leaders to monitor either as causes of or as proxies for quality" (p. 38), and goes on to propose that multiple modes of instruction and multiple instructional approaches, such as collaborative learning and problem-based learning methods, be included as factors of quality for community colleges to consider in their assessment of effectiveness. Alfred et al. point to a need for more comprehensive measures of college effectiveness, but until better evaluations of use of EBIPs are available, evaluations of use of EBIPs will likely be left mingled with overarching effectiveness outcomes.

Findings of an institutional culture not fully supporting development of instructional practices matched the findings of Gardner et al. (2021), which measured faculty perception of intuitional support as a factor in adoption of EBIPs and found that between two study sites, while there was a difference in the findings, only 24% and 42% respectively perceived college support.

In regards to funding, findings were similar to research that showed underfunding contributing to a barrier in implementation of EBIPs. Stieha et al. (2016) and Brownell and Tanner (2012) found evidence that faculty buy-in was influenced by institutional funding for faculty time learning and developing EBIPs within curriculum, and West et al. (2022) found sufficient leadership support in funding for faculty development critical to removing barriers to use of EBIPs. Meste et al. (2019) outlined a successful effort to implement EBIPs and pointed to a large commitment by the institution for funding of faculty development, totaling $3 million dollars divided among just 28 faculty, as a key factor for success.

The Influence of the Collegiate Professional Culture

Findings showed a strong thread of faculty independence for discernment of instructional practices founded in the notion of academic freedom. The ideals of academic freedom are deeply ingrained in the faculty culture of County Community College and delineated within the college contract. The interpretation of academic freedom related by faculty is that instructional practices faculty select is their privilege, and as conceived, may be a significant barrier to use of EBIPs, if faculty inclination is to maintain the status quo.

As an alternative explanation, while faculty and administration were usually quick to qualify their responses regarding instructional practices to include a statement recognizing instructor autonomy, this may have been an ingrained cultural response not necessarily quantifying how strongly they felt about holding onto their current instructional practices. Systemic cultural changes may quickly outweigh a culture of instructor knows best.

Findings were of a professional culture among CTE faculty and staff that held privilege for determining instructional practices. In comparison to research, these findings were in general agreement with research that found a long-standing ideal of academic freedom or faculty autonomy within the college profession in particular (Henderson et al., 2011). The concept of academic freedom is a relatively new concept in the United States, first formally articulated by the American Association of University Professors in 1915 with the publication of the 1915 Declaration of Principles on Academic Freedom and Academic Tenure (De Witte, 2023). The modern views of academic freedom come from the 1940 revision of the 1915 statement, the 1940 Statement of Principles on Academic Freedom and Tenure, and has been widely endorsed by educational associations (AAUP, n.d.a). The 1940 version lays out three tenants of academic freedom: freedom in research, freedom in the classroom which teachers are “entitled to freedom

in the classroom in discussing their subject" (AAUP, n.d.a, para. 4), and the freedom of speech without fear of university retribution or censorship. Currently, AAUP policy states that faculty have the "right of the faculty to select the materials, determine the approach to the subject, make the assignments, and assess student academic performance in teaching activities for which faculty members are individually responsible" (AAUP-1, n.d.b, para. 3). When addressing freedom in the classroom, the 1940 statement of Academic Freedom implies a context of freedom to discuss controversial issues or subjects through academic means. However, the current position held by AAUP seems to have expanded freedom of discussion of a subject to selection of instructional practices when declaring faculty should have freedom to determine the approach to the subject. While the professional culture of autonomy of instructional practices may be a twentieth century phenomena, it is a national culture nationally espoused and findings showed an entrenched attitude within CTE faculty of the right to use instructional practices they deem best.

Further, Brownell and Tanner (2012) explored the role of identity as a barrier to use of EBIPs in the classroom, and found that adoption of EBIPs was linked to how faculty identified themselves. If faculty identity is linked to authority over instructional practices in the classroom, then that could be a barrier to adoption of EBIPs if standards of instructional practice are perceived as degrading the instructor's authority in the classroom.

Barriers Stemming from Teaching Philosophy and Instructional Priorities

A finding of this study was a possible correlation between motivation to adopt EBIPs and teaching philosophy. Those with a teaching philosophy centered on the instructor's primary duty as being content experts dispersing content knowledgeable were found less likely to embrace EBIPs than those with a teaching philosophy with more emphasis on the teacher's role of

creating a learning environment where student's felt valued, at ease, and with options in learning resources to learn from; the latter philosophy having attributes of Humanistic learning theory. Humanistic learning theory founders held that "the goal of education is to facilitate student's development and self-actualization", while striving to be empathetic to the learner's challenges, show unconditional positive regard, and be transparent as to their own struggles or limitations (Purswell, 2019, p. 359). Humanistic educators focus on their ability to provide a facilitative learning environment, see themselves more as facilitators of learning, and hold that self-directed learning is the most effective mode of learning. More Humanistic inclined educators look more closely at how students feel in their learning environment and what learning resources may make the student's learning more productive other than one set prescribed learning path or resource, while less Humanist educators would see their role as limited to directing instruction and being resident expert providing more knowledge content.

As an alternative explanation, not all faculty may have been accurately relating their views on faculty instructional roles and may have been speaking more to their perceptions of barriers caused by limited time with the students versus what they would like to accomplish. Also possible, was that the disciplines faculty One and Two were part of did not have the same instructional culture defining instruction as the other programs; that program culture formulated instructional philosophy more than internal faculty philosophy.

In comparison to the research, these findings agree with the analysis of Tisdell and Taylor (2000) whereby "theory informs practice and practice informs theory". Tisdell and Taylor summarize how traditional Liberalism grounded in the enlightenment philosophy aspires toward rationality; where rational knowledge is convened through experts and the role of faculty is to deliver knowledge in the most expeditious method possible, usually lecture. In contrast, a

Humanist philosophy sets out to meet the needs of the adult learner through a more self-directed learning approach with an emphasis on meeting the needs of the individual learners. Tisdell and Taylor go on to further propose additional new categories of teaching philosophy based on philosophical goals. McAlpin et al. (2022) concluded that faculty's perception of the value of EPIPs was linked to their adoption of EBIPs and conforms with these findings that faculty with a philosophy holding instructor knowledge paramount, do not see a need for instructional practices removing the instructor from the center of the classroom and instruction. Henderson and Dancy (2007), found faculty teaching goals to create a better learning environment in line with a willingness to adopt EBIPs.

Answers to the Study's Research Questions

Principal Question

The principal question of this study is what are the barriers to implementing EBIPs within CTE at County Community College?

Barriers were found centered around themes related to time, culture, and teaching philosophy.

A theme within these findings was the perception of many faculties of too little time to learn and implement EBIPs, which correlated to research that faculty perception of too little time would be a likely barrier to adoption of new instructional practices or new EBIPs by CTE faculty (Drage, 2010; Grubb, 1999; Henderson & Dancy, 2007). However, the severity of lack of time correlated to the characteristics of the department in which faculty were associated with; those characteristics were outside curriculum and instructional support for the department, how quickly technological change was impacting the department, and the size of the department. Faculty who related having time for instructional development needed for advancing EBIPs were associated

with departments supported with curriculum and course instructional materials from outside agencies (governing bodies, professional societies, or other associated professional organizations), were also less impacted by changes in technology associated with the program, and/or were part of departments large enough for faculty to share department duties. Conversely, faculty associated with departments having little curriculum and instructional support from outside agencies, or faculty part of programs where rapidly changing technology demanded constant changes in related technology curriculum, or where program duties fell on a few faculties related little time for instructional development and assimilation of EBIPs into their programs. This correlation between a perception of time available, size of the department, and magnitude of duties required aligns with Griffith and Altinay (2020) findings whereby they analyzed faculty workloads at a university using a conceptual model of workload comprised of three major faculty duties with course preparation being one factor within teaching duties; they concluded there was a threshold at which teaching load had an adverse effect on faculties ability to perform all of their primary duties and too great of a workload set faculty up for failure. Further, West et al. (2022) found faculty perceptions of EBIPs shifted with peer encouragement and when supported by workshops to develop course materials and mentors for implementation, variables related to number of faculty and university support.

Barriers or impediments to implementing EBIPs within community college CTE programs were found relating to the instructional culture of the CTE disciplines. Most CTE faculty perceived EBIPs as not applicable to them and related a classroom instructional culture grounded mostly in lectures and demonstrations, which correlated to research that an adherence to mostly lecture instructional methods within the classrooms would be a common finding (Grubb, 1999; National Research Council, 2012). There was an outlier group of two faculty

within two different departments, one part of a program requiring outside accreditation and one not, who related being proponents of EBIPs and cited instances of use of EBIPs within their departments. Research indicating possible reasons for the outlier group being that programs with accrediting bodies which set standards for instruction can influence program instructional norms, as ABET has influenced engineering instruction (National Research Council, 2012), that faculty who are more reform oriented are more likely to adopt EBIPs (Gardner et al., 2021), and/or that EBIPs were serving a felt-need of the faculty which was inspiring a change in practice (Burnes, 2004).

Barriers to implementing EBIPs within community college CTE programs were found relating to the culture of the institution and the profession. The culture of the institution likely impeded use of EBIPs as reflected by the college not making EBIPs a funding priority and linking use of EBIPS with program outcomes such as graduation rates as opposed to more direct assessments for their use. Funding can be critical for faculty buy-in (Meste et al., 2019; Stieha et al., 2016; West et al., 2022), and while research demonstrates a correlation between quality of instruction and student outcomes (Blikstad-Balas et al., 2021), determining instructional practices requires a means of direct assessment through classroom observation or instructor feedback (Grubb, 1999; Junker et al., 2006). In regards to the professional culture of the CTE faculty, a culture of academic freedom was found at the college awarding faculty the authority of making all instructional decisions; which could be a barrier to advancement in instructional practice in the hands of non-reformed minded faculties (Gardner et al., 2021).

A possible barrier to implementing EBIPs within community college CTE programs was found relating to the instructional philosophy or teaching perspectives of the CTE faculty, as

there was an observed correlation between faculty instructional goals and inclination toward use of EBIPs. This correlation is explored further in sub-question two regarding felt-need for EBIPs.

Sub-Question One

The first sub-question asked how are community college CTE instructors experiencing barriers to improving their instruction and how does the educational culture contribute to barriers adopting use of EBIPs?

Some faculty related their experience of instructional improvement as discouraging because of too little time to perform many required community college CTE program duties unrelated to instruction. Duties for community college faculty, especially chairs, are numerous (Grubb, 1999), and this finding correlated to research where instructors within K12 districts felt duties would have to be removed to allow time for learning and implementing EBIPs (Merle et al., 2022).

The CTE instructional cultural perspective, that is the standards and practices of most CTE faculty, was generally dismissive of the significance of EBIPs to improve CTE instruction as presented through courses on teaching and the college's faculty professional development department. CTE faculty viewed their disciplines as unique from other disciplines, especially liberal arts, which corresponded to research that held educational disciplines have their own "unique priorities, worldview, knowledge, and practices" (National Research Council, 2012, p. 186). CTE faculty culture was generally to share content knowledge as methodological and as quickly as they perceived possible and then guide students through authentic work experiences related to the profession. EBIPs were seen as potential obstacles to conveying facts and principles in an efficient manner, and was in line with the Henderson and Dancy (2007) finding that faculty did not believe they could cover the content required if time was spent on alternative

instructional practices. The Henderson and Dancy finding also cited the influence of department norms on instructional practice whereby faculty were inclined to follow their peers' instructional practice; CTE faculty conceptions of EBIPs as not applicable to them was similar to a finding of the National Research Council (2012) citing the need to change faculty conceptions on research-based instructional practices in order to achieve wider adoption within engineering and the sciences. McAlpin et al. (2022) found perception of value a driver of faculty adoption and the number of faculty implementing EBIPs a driver of perception.

Further influencing the CTE faculty culture was the professional culture of the community college faculty. Faculty embrace the policies of the American Association of University Professors regarding academic freedom, and thus faculty perceptions have an avenue to become a primary influence in use of EBIPs despite faculty possibly having little pedagogical knowledge and/or being new to teaching. Henderson et al. (2011) noted the significance of the culture within higher education for faculty to be able to act autonomously. These cultural findings are in line with research that the nature of instructor experiences is significantly influenced by the culture of their work environment. Kurt Lewin believed that "the group to which an individual belongs is the ground for his perceptions, his feelings and his actions" (Burnes, 2004, p. 981).

Sub-Question Two

The second sub-question asked what is the "felt-need" for EBIPs among faculty, faculty development staff, and CTE administrators?

A further finding of this study was a possible correlation between teaching philosophy and motivation to adopt EBIPs establishing a felt-need for EBIPs. Kurt Lewin, an early pioneer in organization and cultural change management, determined that for change to be successful

there must be a felt-need for the change by an individual or group considering change (Burnes, 2004). This study found two threads of instructor's perspective or philosophy on teaching; one perspective that held the primary role of the teacher is to bring content knowledge and direct instruction, and another perspective, a more Humanistic learning theory approach, which held the primary role of the instructor as master facilitator of the student's learning environment where the student constructs their knowledge and is in control of their learning, (Jankowski, 2017; Purswell, 2019; Tisdell & Taylor, 2000). Those with a teaching philosophy centered on the instructor's primary duty being content experts charged with dispersing content knowledge were found less likely to embrace EBIPs than those with a more Humanistic teaching philosophy. Those with a more Humanistic philosophy place more emphasis on the role of teacher as facilitator of a learning environment where student's feel valued, feel at ease in the learning environment, and empowered by multiple learning resources to learn from (Purswell, 2019). Those with a more Humanistic philosophical bend were more supportive of EBIPs, possibly because they saw EBIPs as more useful to advancing the learning environment they wanted to create; they had determined a greater felt-need for EBIPs.

The two professional development faculty interviewed did not express an equal felt-need for EBIPs in CTE. The faculty development staff member with a CTE background, who had been in their position for more than a decade, expressed a felt-need more in line with most CTE faculty advocating for a CTE discipline approach to instructional practices, and related how industry experience was a critical component of establishing a content expert and bringing that expertise to the classroom. The faculty development staff member with a liberal arts and general education background, who had been in the faculty support position for less than five years, more fervently embraced EBIPs being advocated for by the college within professional

development. Here again, as was found with the Humanist and non-Humanist faculty perspectives, these varying professional development staff perspectives aligned with research that one's philosophy of teaching drives practice (Tisdell & Taylor, 2000). Further, historically at the college the practices of instructional development staff had been directed by the college primarily for faculty technology support, which may have also influenced the professional development staff members perceptions of EBIPs, especially that of the long-standing instructional support specialist, and correlates to research indicating that practice follows policy, political, and institutional influences (Henderson and Dancy, 2007).

In regards to what is the felt-need for EBIPs within CTE by the institution, the college administrator interviewed pointed to the potential value of EBIPs to help the college achieve retention goals which is consistent with research that improved instruction improves retention rates and increases institutional revenue (Brown & Kurzweil, 2018). As evidence of the college's efforts to improve instruction, the administrator pointed to the college's recent requirement for all new faculty to participate in a two-year faculty development program. However, one professional development staff also pointed to the severe limits of funding by the institution for the department of professional development implying limited felt-need for improvement of instruction among existing faculty by the administration. The fact that one professional development staff member was also not seeing a critical need for EBIPs within CTE also likely reflecting the college's priorities, as practice inclines to follow institutional priorities (Henderson & Drake, 2007). An underfunding of the faculty professional development department would call into question the college's dedication to instructional improvement, yet be consistent with research of systemic underfunding (Gauthier, 2010; Grubb, 1999).

Sub-Question Three

The third sub-question asked what is the nature of instructor's experiences generating resistance to use of EBIPs in the classroom?

A theme of the instructor experience generating resistance to use of EBIPs was feeling burned out and not properly supported by the institution toward instructional development; these experiences correlated to the small departments and those who had little outside support in creating new curriculum. This theme coincides with research on the barriers to working in isolation and lacking institutional support. Henderson and Dancy (2007) found that little support from other faculty was a primary barrier to EBIP implementation. West et al. (2022) found a favorable change in faculty perceptions toward use of EBIPs when faculty experienced peer support, more time allocated for instructional development, and more institutional support. Meste et al. (2019) reported overcoming implementation barriers when a group of like-minded people could work together, experienced mentorship, and their efforts were subsidized by the institution. Stieha et al. (2016) found a culture of collaboration and support was critical to providing the perseverance needed to bring EBIPs to fruition and that it was a group effort that overcame the hindrance of minimal institutional financial support.

Implications for Practice

Confronting the Time Barrier

A finding of this study was that some instructors expressed severe time constraints related to the characteristics of their program; the implication being that these program specific time constraints will have to be addressed before EBIPs can be more readily adopted. Some programs have no accrediting agency or little to no outside professional affiliation to help maintain program occupational relevancy and provide curriculum support. For these CTE programs with little outside support, there will have to be broader external curriculum support

found or developed, or the program administration will have to allocate more instructional assistance for developing EBIPs to these programs. Other instructors spoke of programs with fast-changing technology at the core of the program requiring substantial time for them to learn and evaluate the new technology, as well as often making annual curriculum modifications. For these CTE programs near continuously under the influence of advancing technologies, administration needs to allocate the appropriate amount of time for professional learning as part of workload, and, in addition, if the program has little support from outside organizations, also allocate more instructional assistance to these programs in the form of staff aiding EBIPs development and execution. Finally, some programs had only one full-time instructor with no opportunity to share program duties severely limiting time available for instructional development. For these CTE programs of only one or very few instructors, the implication is again that additional targeted instructional support will be required to help them overcome time barriers. In summary, CTE administrators should carefully examine the dynamics of a program in determining what assistance and resource allocation is needed toward developing EBIPs.

Recognizing Culture

Navigating the Culture of the CTE Discipline

The findings of this study suggest that like science and engineering, CTE has its own unique priorities, worldview, knowledge, and practices that form a culture which must be more fully recognized and understood to advance EBIPs within CTE. For CTE faculty to buy into a broad set of EBIPs across the scholarship of teaching, professional development and administration will have to significantly change the attitudes of the CTE faculty, or alter the types of practices advocated for. Creating greater CTE faculty buy-in would likely be accomplished through professional development departments learning of more specific EBIPs

that apply toward specific CTE disciplines such as those in the STEM fields (National Research Council, 2012). As McAlpin (2022) found, creating buy-in among the CTE faculty will be critical for expanding adoption of EBIPs.

One outlier to the prevailing CTE instructional culture was the culture of faculty within a department requiring accreditation by an outside accrediting body. Within this department was evidence of a culture of innovation, yet conformity to accepted standards as established by the accrediting body that reviewed teaching methodology and content. Thus, there may be a link between this culture of instructional practice and outside accreditation standards, as there was a link between improvement in practice and accreditation found by the National Research Council (2012). If so, an implication would be that standards of practice, as defined by a discipline based outside authoritarian body, could improve faculty use of EBIPs. More broadly, practice among CTE faculty has been shown to be influenced by norms established by an authoritarian body, or in its broadest implication, instructional standards influence instructional culture. If community colleges wish to improve use of EBIPs among CTE faculty, they can look to outside authoritative bodies within the disciplines to establish or validate EBIPs within the discipline, and in doing so, more likely overcome the professional biases currently acting as barriers. Absent of accrediting bodies within the discipline or accreditation that does not examine instruction, community colleges will have to look further to establish researched standards that can further shape CTE instructional culture.

Further characteristics likely influencing the culture within the discipline and/or department were the characteristics of the department chair, or faculty leadership, and the presence of more than one proponent of innovation within the department; implying that leadership buy-in and a critical mass of more than one is needed to advance EBIPs with CTE.

Lowering Institutional Barriers and Biases

Findings of this study indicated that some of the attitudes and practices of the institution impeded adoption of EBIPS; specifically, the institution not accurately assessing for use of EBIPs, underfunding professional development efforts, and a faculty professional development department role that is substantially focused on supporting instructional technology. For County Community College, these findings imply a need to better assess use of EBIPs among CTE departments through direct measures such as classroom observations, better funding to support faculty in their use of EBIPs as part of their instructional design and practice, and advancing the role of the department in support of teaching and learning as an imperative role in support of improving the efficacy of student learning and student success. Charles Prosser, the first National Director of Vocational Education whose maxims for vocation education are still cited today, advocated for an educational culture that separated vocational education from academic education (Martinez, 2007), and as Gauthier (2020) found, many biases toward CTE broadly impact CTE education today. Substantial teaching is being done by CTE educators in a typical academic classroom setting, and institutional leadership and institutions as a whole should reflect on how institutional cultural biases may be acting as a barrier toward advancing EBIPs in the CTE classroom.

Negotiating the Culture of Academic Freedom

A finding of this study was that academic freedom was a part of the professional culture of CTE faculty, and their interpretation of academic freedom included the right to determine instructional practices. The implication is that establishing a culture of using EBIPs to their optimum extent will need to conform to the college culture of academic freedom to gain faculty acceptance. This study found evidence of two programs where a culture of instructional

advancement did not appear at odds with the instructor's privilege in determining instructional methods; one program where accreditation was part of the program, and two programs where the faculty, also department chairs, expressed strong support for EBIPs, and both department chairs cited examples of their department faculty taking a lead role in developing courses to incorporate new teaching methods. One of the pro-EBIPs faculty made the following statement about their instructional practice and what they saw as imperative to their practice:

> So, I always like to think as a teacher that I have this opportunity to impact them (CTE students) in a short amount of time. And so, I'm always extremely mindful of, kind of what (are) the intangible things about our art and science in our field. So, you know, I know that I could teach (x) great. I know I could take those concepts and give them in a, you know, a relevant way and assess them. But most of the time I'm really thinking about, how do I model them as a professional (and) how do I grow them in those intangible things? You know." (Transcript 2, para. 71)

For this instructor, pursuit of academic freedom, at least in part, meant the freedom to model professionalism and other intangible things they saw as necessary for the profession implying many instructional practices encompass academic freedom for faculty. It also implies that faculty can simultaneously hold a dedication to EBIPs and academic freedom, as long as they have the ability to hold on to those practices they value.

Mitigating Philosophical Barriers

Indications of this study were that faculty with a teaching philosophy placing a higher priority on the student learning environment, a more Humanist Philosophy, placed a higher value on implementing EBIPs than those holding to classical Liberalism where the role of faculty is content expert and disseminators of knowledge. This may be because faculty embracing a more

Humanistic Philosophy were more motivated to find instructional practices creating better learning environments for their students. The implication is that a key motivating factor for faculty adoption of EBIPs may lie in faculties philosophy on teaching; that persuading faculty to expand or alter their teaching philosophy toward a more Humanistic approach may be a source for providing the necessary intrinsic motivation for faculty to adopt EBIPs; "theory informs practice and practice informs theory" (Tisdell and Taylor, 2000, p. 10). Thus, as a method for creating more buy-in for broader use of EBIPs, faculty development experts should consider demonstrating to CTE faculty the benefits of teaching practices which include consideration for the broader learning environment, "the intellectual, social, emotional, and physical environments in which…students learn" (Ambrose et al., 2010, p. 170).

Limitations

This study was limited to one community college, ten participants, and the ability of the researcher to draw out participant perceptions within a single approximately one-hour interview. While the community college that was part of this study would be considered a typical public state community college in terms of size, programs, faculty, administration, and governing body, this study only examined the one community college and is limited to the perceptions of the faculty at that institution. Not all CTE faculty were interviewed and the sample size was limited to seven out of approximately 63 CTE faculty, or approximately 11% of the total college CTE faculty. The characteristics of the participants as outlined in table 4 is fairly broad and representative of the college faculty and professional development staff, but not all academic divisions were represented and four of the seven faculty came from one of the four divisions. A larger pool of faculty may have provided more data themes or perhaps contrary data. The one-hour interview allowed participants to put into their own words barriers they faced to

implementing EBIPs; however, biases within the interviewee questions must be assumed to have been present and acting upon the interviewer response to some extent. Additionally, while most faculty and staff accepted the invitation for an interview, not all did, and the values, perceptions, and biases of those willing to interview may not have been the same as those unwilling to interview.

The interviewer provided a definition of EBIPs to the interviewees and all interviewees had been exposed to the term EBIPs at least once through a prior college survey prior to the interviews. However, this study did not attempt to measure faculty and staff knowledge of EBIPs. Most faculty and staff conceptions of EBIPs may have been rooted within active learning strategies that were promoted by the college through the faculty professional development team. As faculty knowledge of EBIPs increases, their perceptions of barriers to their use may change.

Suggestions for Future Research

This study found multiple data threads indicating possible cause and effect influencing adoption of EBIPs. This author recommends further study within these possible influences, specifically:

- The influence of program accreditation toward establishing a culture of conformity to standards of instructional practice
- Further exploration into a possible link between faculty buy-in of EBIPs and faculty predisposition toward a more Humanist philosophy of teaching.
- Further research is recommended by highly respected organizations such as the National Research Council to establish a core set of EBIPs that would most likely improve instruction within CTE and related STEM programs.

- Further research is recommended into instructional practices across the instructional spectrum to more conclusively establish the value and credibility of those instructional practices which would rise to the category of EBIPs to create a canon of EBIPs.
- As culture, the attitudes and practices of the department, is likely a key impetus for improvement of instructional practice, further research is called for into determining the most influential elements of CTE program culture toward instructional practices.

To address the limited sample size of this study and better establish the applicability of this study to community colleges in general, a final recommendation for future research is to expand this study to other CTE faculty and staff at other community colleges across the United States and in varied geographic settings.

Conclusion

This qualitative study investigated the issues impeding the use of EBIPs specific to CTE programs within a community college. This study indicated barriers associated with faculty time, the cultures faculty were part of, and the teaching philosophy faculty were inclined toward. Many of the barriers to use of EBIPs were common to other researched educational settings, such as limited funding for the faculty professional development department and faculty development. Other findings were more likely specific to CTE faculty and programs within a community college such as lack of capacity within some CTE programs to accommodate new instructional practices, CTE faculty views on instructions, and a lingering bias toward CTE instruction vs. other academic instruction.

CTE faculty conceptions of EBIPs were generally negative and construed as not applicable to CTE, although there were outliers who took a more favorable stance toward use of EBIPs. The characteristics of the outlier faculty and programs may point to methods for

overcoming barriers to EBIPs within CTE; sufficient department resources to allow faculty to develop EBIPs, program accreditation standards that establish a culture of conformity toward teaching practices, program leadership inclined toward EBIPs, and an inclination among outlier faculty toward a more Humanistic teaching philosophy. While these findings suggest CTE has its own standards and practices that form a culture which must be more fully understood to create CTE faculty buy-in for EBIPs, they also show CTE faculties leading the way toward more use of EBIPs and CTE faculties driven to do the best for their students.

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Appendix A

Recruitment Letter Sent to Study Participants via Email

Email subject: (Re) An invitation to provide feedback for a study.

Dear Invitee:

I am writing to request your participation in a research study because of your experience working with Career and Technical Education programs at community colleges. I am Jon Hardbarger, the Principal Student investigator, and this study is to meet part of my requirements for an EdD degree from Bradley University.

Your insights into instruction within Career and Technical Education would be immensely helpful to me and I believe others. This study is completely voluntary and confidential. You would be one of approximately a dozen Career and Technical education experts being recruited because of your unique experiences within CTE at community colleges. All participants will be full-time faculty, community college staff or leadership.

I am requesting that we meet for an interview that would take no more than 60 minutes at location of your choosing convenient for you or via zoom**.**

The results of this study will be confidential, with names of study participants known only to the researchers and secularly kept. There will be no link between your name and the published study. Taking part in this study is voluntary. You may choose not to take part or may leave the study at any time. You may also skip specific questions.

There will be no compensation for your participation in this study other than a gift card of a small amount to show my appreciation for your time and insight. If you have interest in participating in this study, please review the attached consent form enumerating your rights as a participant. Your consent must be provided in writing via email or a signed consent form

All questions regarding this study are welcome. Please direct them to the researcher, Jon Hardbarger at 262-957-7342, jhardbarger@clcillinois.edu, or the research advisor, Dr. Jeff Bakken at (309) 677- 3997, or jbakken@fsmail.bradley.edu**.** If you have general questions about being a potential research participant, you may contact the Committee on the Use of Human Subjects office at (309) 677-3877.

Thank you for your consideration of this. Sincerely, Jon Hardbarger

Appendix B

Format of Recruitment Phone Call to Study Participants

Hi, my name is Jon Hardbarger, and I am following up on an email I sent you asking if I might interview you as part of a study to meet part of my requirements for an EdD degree from Bradley University.

This study is completely voluntary and you would be one of approximately a dozen Career and Technical education experts being recruited because of your unique experiences within CTE at community colleges. All participants will be full-time faculty, community college staff or leadership.

Your insights into instruction within Career and Technical Education would be immensely helpful to me. This is not a little request, but I am asking for no more than an hour of your time at location convenient for you or via zoom.

This interview will be completely confidential and great care will be taken so that there will be means to identify you as an interviewee.

There will be no compensation for your participation in this study other than a small gift card to show my appreciation.

All questions regarding this study are welcome. Please refer to the email I sent for my email or that of my research advisor, Dr. Jeff Bakken.

Thank you for your consideration of this. Sincerely, Jon Hardbarger

Appendix C

INFORMED CONSENT FOR EXEMPT STUDIES WITH MINMUM RISK

Interview Participants

Barriers to Instituting Recognized Best Practices in Curriculum Design as Part of CTE Courses

You are invited to participate in a research study regarding instructional practices in Career and Technical Education at community colleges. This study consists of a private interview with only the researcher at a location of your choosing, or via Zoom. The nature of the questions will be your views on instructional practices, the role of the instructor, and barriers to implementing new instructional practices. Your participation in this study will take approximately 60 minutes. The results of this survey will be confidential, with names of study participants known only to the researchers and secularly kept. There will be no link between your name and the published study. Taking part in this study is voluntary. You may choose not to take part or may leave the study at any time. You may also skip specific questions. With your permission, the audio of the interview will be recorded and that recording will be kept under lock with the SPI.

Compensation for your participation in this study will consist of only a gift card of small monetary value provided at the interview. Demographic information requested will be number of years within profession of or related to teaching in increments of 5 years, Gender as they identify (Woman, Man, Non-binary, Transgender, Fill in:_____, Prefer not to say), role in the college (CTE faculty, professional teaching development expert, non-executive or executive administrative leader), and education obtained (Associates, Bachelors, or Graduate level). Each demographic category inquiry will have the option of "prefer not to say." This will be used to compare life experiences with perspectives on instructions.

Questions about this study may be directed to the researcher, Jon Hardbarger at 262-957-7342, jhardbarger@clcillinois.edu, or the research advisor, Dr. Jeff Bakken at (309) 677- 3997, or jbakken@fsmail.bradley.edu**.** If you have general questions about being a research participant, you may contact the Committee on the Use of Human Subjects office at (309) 677-3877.

You are voluntarily making a decision to participate in this study. Your decision to participate or not participate will have no affect on your employment or standing with your institution. Your signature on this form or affirmative response via email regarding participation in this study means that you have read and understand the information presented and have decided to participate. Your participation also means that all of your questions have been answered to your satisfaction. If you think of any additional questions, you should contact the researcher(s).

I (Please print your name):

_____

provide my consent for this interview.

Please provide your signature: _____Date: _____

Appendix D

Base Template of Faculty Questions

Base or core CTE faculty questions asked each participant during the interviews with possible follow up questions to elicit more response such as "Could you explain your response more?". These questions may not necessarily be presented in the order provided at the time of the interview and not necessarily all questions could be asked.

1. Please tell me about your training and experience and how you got into CTE, and how long you have been teaching in CTE.
2. The Board has decided to invest 1 million dollars in your program, or a program of your choosing. Would it be on a) Instructional equipment b) Additional faculty c) Facility renovation, d) Student scholarships, e) Revamping instructional presentations and content materials (many presentations are now online). How would you allocate the money and why?
3. A teacher can have many roles and has to where many hats sometimes. As an instructor, teaching development expert, or CTE teaching leader, which of the following do you see the most important role/task of an instructor and why: a) Content expert and course creator, b) Mentor/coach c) Class Conductor, setting the pace of the class and making sure learning occurs before moving to next step d) Subject Matter Expert of your profession to learn from (resident master and learning resource) e) Instructional designer creating the daily lesson plans and presentations?
4. From your experience, what would be the greatest contributors to student success, and what would you say is the most effective thing that could be done now to improve student success?
5. As a teacher or teacher in the past, what is that part of your role as teacher that makes the job for you? (What is that part of the job that provides the crucial meaning to make the job meaningful?)
6. I remember visiting my children's elementary school and being amazed at how different the classrooms were compared to when I was a kid; I saw collaborative tables, reading areas, and lounge areas all within the contemporary classroom. I am sure instruction has changed as much as the classroom. Where do we need to go with instruction in Career and Technical Education and how do we get there?
7. What would you say is the greatest thing that could be done now to improve teacher instruction? (Possible follow up if answers are very brief:
    a. What do you see as the greatest barriers to implementing better instruction in the classroom?
    b. Do teachers have enough time to develop new teaching methods, lesson plans, or better presentations?)

8. What are your goals for improving teaching methods or strategies, types of presentations, and how the instructor provides feedback during the course class and outside of class and how are you going about that? What are the barriers to those goals?

9. From your experience and observations of your program, how much difference will better presentations, teaching methods and instructional practices in the classroom and lab make in student performance in the course?

10. CTE education, and any discipline for that matter, requires its own pedagogical knowledge. Given that, is there really any room for EBIPs in CTE? (Or framed another way, given the differences between transfer degrees, liberal arts specifically, do you believe EBIPs really have a place in CTE? Note: Ask this question to faculty and admin. Or simply admin.)

11. Could EBIPs offer an authoritative benchmark to compare and evaluate various instructional practices? Why and why not?

12. If the college came to you and said we will fund you and your colleagues coming together to review your program course teaching practices/strategies, lesson plans, and presentations, do you your colleagues would support it and why or why not?

13. How would CTE faculty welcome a more committee approach to course development, including lesson planning, teaching methods, and creating presentations?

14. Do you believe that EBIPs should carry more authority than common practices, or best practices, or the instructor's favorite practices and where do you see them fitting into college initiatives? (Faculty and Admin. question)

15. What do you see as the greatest barriers to implementing EBIPs (or better instruction) within CTE? Possible sub questions to elicit more detail:
    a. Does the college provide enough support improving instruction, presentations, and lesson plans?
    b. Possible sub question to elicit more detail: Does the college provide enough incentive for faculty to invest in improving their course instruction? (Question for faculty and admin.)
    c. Possible sub question to elicit more detail: Does the college provide enough funding to improve faculty lectures, presentations, lesson plans and institute new classroom activities?
    d. Possible sub question to elicit more detail for Administrators only: How large of a barrier is the faculty contract, which provides a lot of autonomy to what goes on in the classroom?
16. Did you take the ICAT survey, and if so, how did you answer the ICAT question, "Do faculty demonstrate evidence-based, innovative, and reflective teaching practices as a result of professional development? (ICAT, 2022)"? Do you think faculty demonstrate EBIPs?

Appendix E

Base Template of Staff and Administrator Questions

Base or core CTE staff and administrator questions asked each participant during the interviews with possible follow up questions to elicit more response such as "Could you explain your response more?". These questions may not necessarily be presented in the order provided at the time of the interview and not necessarily all questions could be asked.

1. Please tell me about your training and experience and how you got into CTE, and how long you have been within CTE administration.
2. The Board has decided to invest 1 million dollars in an initiative of your choosing. What would it be and why? You can have more than one initiative.
3. A teacher can have many roles and has to where many hats sometimes. As an instructor, teaching development expert, or CTE teaching leader, which of the following do you see the most important role/task of an instructor and why: a) Content expert and course creator, b) Mentor/coach c) Class Conductor, setting the pace of the class and making sure learning occurs before moving to next step d) Subject Matter Expert of your profession to learn from (resident master and learning resource) e) Instructional designer creating the daily lesson plans and presentations? What I am trying to gain insight here on is this, if teacher's thought of their jobs, identity as faculty, and duties differently, would they be more motivated to embrace EBIPs?
4. I remember visiting my children's elementary school and being amazed at how different the classrooms were compared to when I was a kid; I saw collaborative tables, reading areas, and lounge areas all within the contemporary classroom. I am sure instruction has changed as much as the classroom. Where do we need to go with instruction in Career and Technical Education and how do we get there?
5. How do you think CTE faculty would welcome a more committee approach to course development, including lesson planning, teaching methods, and creating presentations?
6. What would you say is the greatest thing that could be done now to improve teacher instruction?
7. CTE education, and any discipline for that matter, requires its own pedagogical knowledge. Given that, do we have any room to advocate for EBIPs in CTE? (Or framed another way, given the differences between transfer degrees, liberal arts specifically, do you believe EBIPs really have a place in CTE? Note: Ask this question to faculty and admin. Or simply admin.)
8. What do you see as the greatest barriers to implementing EBIPs (or better instruction) within CTE? Possible sub question to elicit more detail:
    a. Does the college provide enough support improving instruction, presentations, and lesson plans?
    b. Does the college provide enough incentive for faculty to invest in improving their course instruction? (Question for faculty and admin.)

c. Does the college provide enough funding to improve faculty lectures, presentations, lesson plans and institute new classroom activities?
d. How large of a barrier is the faculty contract, which provides a lot of autonomy to what goes on in the classroom?

9. The inside opinion page from February 2023 issue of Higher Ed. stated the following: *"Innovative community colleges have advanced many crucial priorities—introducing pathways, restructuring student services to improve the student experience and tackling barriers to student success outside the classroom. But they will never achieve their mission of achieving better student outcomes until they face the most difficult and important challenge: creating a culture of teaching and learning excellence on their campuses….(which) will require more community colleges to introduce evidence-based instructional practices to foster student learning."* Do you agree with that statement? Why or why not?
10. In 1999, Norton Grubb completed an extensive study of community college teaching. He found great teaching, but far too much subpar teaching. Grubb stated that "*The question we pose throughout is whether emerging practices, everywhere apparent in community colleges, will expand to become common practice, or whether they will remain limited and incomplete*" (Grubb, 1999, pg.245). Where do you think we are as community colleges in that respect, and what about this community college?