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Learning Beyond the Content:

A Dissertation in Practice on Workforce Skills Development at Community Colleges

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ABSTRACT

In this article, we present an example of a student's recently completed dissertation in practice (DiP) to demonstrate how the DiP can serve as culminating evidence of a student's successful preparation as a scholar-practitioner. The purpose of this DiP was to determine to what extent students develop workforce skills while completing a community college education and what institutions can do to better prepare students to be successful upon graduation. Results from this mixed-method study (N = 77) suggest that graduates perceived learning a considerable amount of workforce skills during their time at the institution. However, respondents also reported that more hands-on learning would have enhanced their skill development. Through this study, the doctoral candidate was able to gain substantive results while addressing key CPED guiding principles.

KEYWORDS

workforce skills, soft skills, community colleges, experiential learning, teaching and learning

Preparing educators to practice as scholars is at the heart of the professional practice doctorate in education as defined by the Carnegie Project on the Education Doctorate (CPED) framework (CPED, 2022). One who practices as a scholar (or scholar-practitioner) works to identify and improve upon complex problems through effective collaboration, systematic inquiry, as well as their own practical wisdom, skills, and knowledge (CPED, 2022). In professional practice doctoral programs, dissertations in practice (DiP) often serve as program capstones that provide evidence of students' emergence as scholar practitioners who can apply systematic inquiry and professional skills to improve educational outcomes (CPED, 2022). In addition to signaling the successful preparation of individual students, successful DiPs also serve as clear evidence for professional practice doctoral programs that they have successfully developed students to continue their scholarly practice in their future roles as educational professionals.

CPED GUIDING PRINCIPLES FOR PROGRAM DESIGN

Although CPED member programs are individually designed to fit the specific contexts and constituencies that they serve, they ideally align with six guiding principles for program design offered in The CPED Framework (CPED, 2022). These principles take shape in professional practice educational doctorate programs within a combination of both coursework and out-of-course opportunities. Broadly conceptualized, these experiences involve guiding students in the identification of a complex problem of practice, framing it through multiple lenses, and learning how to apply systemic inquiry to better understand or improve upon the problem. The DiP then serves as the culminating evidence of a students' successful completion and preparation.

PURPOSE

In this article, we present an example of a student's recently completed DiP to demonstrate how the DiP can serve as culminating evidence of a student's successful preparation as a scholar-practitioner. We also demonstrate how the DiP exemplifies many of the guiding principles and offer reflection on how the DiP influenced the student authors' development as a scholar practitioner.

The DiP is presented in the following section. It details a study regarding the development of workforce skills, a pervasive problem

of practice at all levels of education. The student author's identification of the complex problem of practice began in the first semester of coursework, but developed over time as he experienced courses on equity, social justice, theory, and research design, directly aligning to several of the CPED guiding principles. The student author's abilities further developed as the result of a job change in which he was introduced to a new context with new opportunities for collaborations, demonstrating the key role that practitioner wisdom and knowledge plays in the process of improving educational outcomes.

The implementation of the study for the DiP took place in the student's workplace that provided the field-based opportunity to study the problem of practice within the local context. Through this process, the student author demonstrated his abilities as a scholarly practitioner by applying systemic inquiry to better understand this particular problem of practice to form improvements that, when successfully applied, can positively impact the lives of students, their families, and communities. The student author, at the time this study was completed, served as a mid-level administrator overseeing faculty and staff professional development at a mid-sized community college in West Texas. As such, he recognized his privilege in being able to access certain resources and sought to be mindful of any potential biases that could have impacted the design of the study or any conclusions derived from its results.

DISSERTATION IN PRACTICE

Student enrollments in higher education are down nationwide. According to the National Student Clearinghouse (NSC) Research Center (2021) higher education enrollments have been steadily declining for the past decade. The coronavirus disease of 2019 (COVID-19) pandemic introduced additional barriers and variables that have caused overall postsecondary enrollment to continue to decline. The closing of businesses and the lack of consistent employment has negatively impacted students and their decision to enroll in college. Specifically, Black, Latinx, and other minority students have indicated the least amount of confidence in being able to attend and afford college (MAPS, 2021). This concerning trend suggests additional barriers for first generation college students and traditionally underserved populations.

While these declining numbers highlight an industry that is in trouble, declining enrollment and challenges caused by the COVID-19 pandemic are just a few of the many issues currently plaguing higher education. As society and the economy continue to evolve and innovate, it has become apparent that institutions of higher education are no longer fully meeting the needs of employers, students, the community, and society as a whole. For instance, one-third of college presidents believe that higher education is moving in the wrong direction, and 57% of Americans do not believe that the cost of higher education provides a sufficient return on investment (Craig, 2015).

Furthermore, the Association of American Colleges and Universities (AAC&U) has released a series of employer reports that reflect a disconnect between the skills recent graduates have obtained and the expectations employers have for their new hires (Hart Research Associates, 2013, 2015, 2018; Finley, 2021). To remain relevant as an industry, higher education institutions need to be able to demonstrate that their students are growing in not only content knowledge, but also the development of important workforce skills (Eddy, 2019).

Data reported in a recent labor market analysis report by the Strada Institute for the Future of Work suggest employers now see greater value in soft skills education and the development of people skills (Weise et al., 2018). Although advanced technical skills have long been a priority of employers when looking for potential new employees, these skills are now far more vulnerable to automation. An increase in highly technical training, such as coding boot camps or employer-sponsored training, has made it even more apparent that the soft skills gap can and should be filled by institutions of higher education. According to Meeks (2017), soft skills can be defined as "competencies that can help an individual better meet the needs of a particular job and help an individual advance in his or her career" (p. 1). Throughout this article, the terms soft skills and workforce skills will be used synonymously and interchangeably.

The purpose of this study was to explore the problem of practice presented in this introduction, a lack of workforce readiness of college graduates, and how higher education institutions are preparing students to enter the workforce meeting the needs of their core constituents. The following research questions (RQs) were created to guide the development of this research.

- RQ1: To what extent do students develop workforce skills while completing a community college education?
- RQ2: From the students' perspective, what can community colleges do to enhance the workforce skill development of their students?

REVIEW OF LITERATURE

Workforce Skills Development in Higher Education

One issue to consider with this underlying problem of practice is the disconnect between what employers expect from recent college graduates and the skills these graduates are demonstrating in entry-level positions upon graduation. AAC&U periodically surveys employers across the nation to gain knowledge on how they perceive the higher education industry and the graduates it produces. Results of these studies from over the past decade show an increasingly critical perspective from employers with regard to how institutions of higher education are preparing their graduates to succeed in the workforce (Hart Research Associates, 2013, 2015, 2018; Finley, 2021).

In AAC&U's 2013 study, 40% of the 318 employers surveyed reported that higher education institutions are doing a "fair" job preparing students for success in today's economy (Hart Research Associates, 2013). Furthermore, employers reported a high priority on active teaching and learning strategies with 75% of respondents reporting they want colleges to place greater emphasis on teaching intellectual and practical skills. Nearly 60% of employers expressed less interest in the traditional lecture class format and more interest in devoting more class time to discussions and debates, problem-solving, and collaborative group work as they believed these pedagogical practices better prepare students for success outside of the classroom once they graduate.

AAC&U's study two years later garnered similar results. They found employers were concerned about recent graduates having the desired range of skills, such as communication and teamwork, to be able to perform the functions of a job within their organization (Hart Research Associates, 2015). Specifically, fewer than three out of 10 employers found that recent graduates were prepared in critical

thinking skills and written and oral communication skills, skills that are essential to succeeding in professional real-world settings.

Key findings from AAC&U's 2018 study revealed colleges and universities need to make improvements to how they are preparing their graduates to ensure they have the required skills and knowledge to succeed in entry-level positions (Hart Research Associates, 2018). Consistent with past studies on this subject, the results of this study suggested that a preparedness gap exists between what skills and knowledge employers desire of recent college graduates and the actual skill and knowledge level that exists among recent graduates who join their companies in entry-level positions.

AAC&U released its latest report in 2021. Similar to findings in past employer reports, a preparedness gap remained between skills employers believe are important and the number of college graduates who enter their companies who are very well prepared in these skills (Finley, 2021). This particular study found the following skills as the most important among employers: (a) critical thinking skills, (b) the ability to work effectively in teams, (c) the application of knowledge and skills in real-world settings, (d) the ability to analyze and interpret data, and (e) digital literacy.

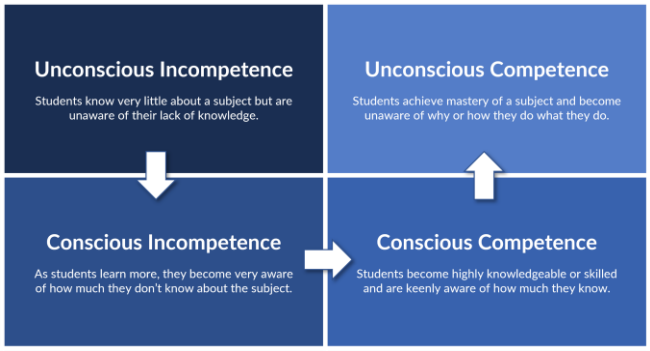
Other studies have been released that further support the conclusions of the AAC&U employer reports. A survey conducted by the Society Human Resource Management in 2019 found that more than half of their members believe that education systems are doing very little to address the skills shortage of important skills such as problem-solving, critical thinking, creativity, and communication (Wilkie, 2019). A 2018 survey by the National Association of Colleges and Employers (NACE) revealed a significant discrepancy between employers who rated recent college graduates proficient in a variety of workplace competencies and how the actual college graduates rated themselves (Bauer-Wolf, 2018). Almost universally, recent graduates rated themselves more proficient than employers did in the eight essential competencies necessary to be able to succeed in the workplace identified by the NACE.

The Four States of Competence Model

Relevant to the results of these studies is a competence model that has been used to track learners' progress through the learning process. This model, which is named the Four States of Competence model, includes four states of teaching and learning that highlight and explain how a learner experiences new information and skills (Adams, 2021). The four states of this model include (a) unconscious incompetence, (b) conscious incompetence, (c) conscious competence, and (d) unconscious competence.

The first state of the Four States of Competence model is unconscious incompetence, which refers to students who know very little about a subject but are unaware of their lack of knowledge (Broadwell, 1969). The next state is conscious incompetence, which is when the learner realizes just how much they do not know. The third state is conscious competence, which is when a student becomes highly knowledgeable or skilled and is keenly aware of just how much they know or how good they are. The final state is unconscious incompetence, which is when a student has reached such a high mastery of knowledge or skill that they become unaware of the reasons why or exactly how they do what they do. Through intentional teaching and learning and direct communication, higher education institutions are poised to not only teach the skills students need to be more prepared when they enter the workforce, but also help students become more self-aware of the areas where they are unconsciously incompetent.

Figure 1. The Four States of Competence Model (Broadwell, 1969)



The Importance of Applied, Active, and Experiential Learning

Research in teaching and learning has continually shown that students benefit when faculty apply effective pedagogical practices in their instruction and fully engage their students in the course (Brooks & Solheim, 2014; Bunce et al. 2010; Freeman et al., 2014; Hyun et al. 2017; Stalp & Hill, 2019; Yen & Abdous, 2011). This concept is firmly rooted in experiential learning theory, which is all about how students make sense of their experiences in the learning environment context (Kolb, 1976). The premise of experiential learning theory is simple: Students will learn best when they are fully immersed in the learning experience with opportunities to reflect, interpret, and apply concepts to aid in their understanding of the material. Many educational experts, including Kolb, posit that experiential learning is the best way to not only teach students content knowledge but also prepare them for the demands of a complex and ever-changing personal and professional life.

Intentional student engagement efforts by faculty can lead to higher final course grades. The researchers of a longitudinal, quasi-experimental study wanted to know what impact the transformation of an instructor's pedagogical approach had on student success (Brooks & Solheim, 2014). The study involved the same instructor, teaching in the same active learning classroom (ALC), and teaching the same personal finance course one year apart. The difference from the first year to the second year was a total transformation of the course to one that uses more active and engaging instructional and assessment methods. The researchers found that the average final course grades from the second-year students were significantly higher than the year before.

The researchers of another study, which included the largest and most comprehensive meta-analysis of undergraduate STEM education literature to date in 2014 (225 studies on the impact of active learning were analyzed), found students in lecture only classes were 1.5 times more likely to fail than students in classes that incorporated active learning (Freeman et al., 2014). Another study conducted by Yen and Abdous (2011) found that the more faculty had students interact in a course the more likely those students would earn better final course grades. The data from this study revealed that the higher the reported faculty engagement, the higher the learner satisfaction as well as the predictive relationship

between faculty engagement and students' final grades. When the faculty engagement scores increased, as did the probability of a better final course grade.

Stalp and Hill (2019) confirmed student benefits of active learning courses with accompanying ALC setups. What the researchers found was that because of the format of the classroom and the active way the course was taught, students reported an increase in their ability to connect with their peers, work collaboratively as a group, and their ability to be more open-minded and consider varying perspectives. This led to not only an increase in learning, but also an increase in the development of skills that are in high demand by employers such as teamwork, collaboration, and communication, skills that are in high demand by employers (Finley, 2021).

Supporting this conclusion, Llorens et al. (2017) conducted a study that examined which student engagement strategies led to the development of the professional skills desired in the information and communications technology (ICT) field. Using a qualitative research design which involved querying 17 experts in the ICT sector, the researchers found that active learning teaching methods such as problem-based and project-based learning, cooperative learning, and problem-solving exercises were related to the attainment and development of the skills needed to succeed in the ICT field such as decisiveness, communication, innovation, and teamwork.

In two recent AAC&U employer reports, employers surveyed believed strongly that applied and project-based learning experiences gave students an edge in getting hired and succeeding in their chosen careers (Finley, 2021; Hart Research Associates, 2018). Because active and experiential pedagogy assists in the development of these important skills, this presents an even greater need to examine exactly how higher education faculty are teaching students and promoting the development of these skills in their courses.

METHOD

In this mixed-method study, graduating students who earned a bachelor's degree, associate's degree, workforce certificate, or occupational skills award in the Spring 2022 semester at a mid-sized community college in West Texas were asked to complete a questionnaire that included a series of questions about the skills they gained as a student at the institution. The relationship between the graduating students' perception of their own workforce skill development during their community college education and several demographic items including information on the students' background, academic history and performance, and employment history were examined in this study. A convergent parallel mixed method design (quantitative plus qualitative) was used to conduct the study, in which the quantitative and qualitative data were collected concurrently and analyzed with equal importance (Creswell & Guetterman, 2019).

Only Spring 2022 graduates were eligible to participate in this study. Graduating students were targeted as the purposive sample for this study because these students should have been able to speak holistically about their experience as a student at the institution from start to finish and reflect on what they learned throughout the time it took them to complete their program.

On April 29, 2022, which was within the last two weeks of the Spring 2022 semester, an email was sent to graduating students that invited them to participate in the study by completing a questionnaire. Of the 574 graduates, 541 were reachable. A total of 77 responses were received for this study, which reflects a 14% response rate. A profile of the respondents can be found in Table 1.

Table 1.

Credential Earned	***n***	**Race/Ethnicity**	***n***
Bachelor's Degree	6 (8%)	Hispanic, Latin, or Spanish	31 (40%)
Associate's Degree	57 (74%)	White	24 (31%)
Workforce Certificate	9 (12%)	Black or African American	7 (9%)
Occupational Skills Award	5 (6%)	Multi-Racial	15 (19%)
Length to Complete Program	***n***	**Age**	***n***
1-2 Semesters	3 (4%)	18-29	49 (64%)
3-4 Semesters	31 (40%)	30-39	16 (21%)
5-6 Semesters	26 (34%)	40-49	8 (10%)
7-8 Semesters	10 (13%)	50+	1 (< 1%)
Reported GPA	***n***	**First-Generation Status**	***n***
3.5 – 4.0	35 (45%)	First-Generation Student	40 (52%)
2.4 – 3.4	37 (48%)	Non-First-Generation Student	35 (45%)
1.5 – 2.4	5 (7%)	Unsure	2 (3%)
Attended a College or University in the Past	***n***	**Spent Time in the Workforce (PT or FT)**	***n***
Yes	51 (66%)	Yes	49 (64%)
No	26 (34%)	No	28 (36%)
Major	***n***		
General Studies	29 (38%)		
Business & Org. Mgmt.	14 (18%)		
Nursing	8 (10%)		
Cosmetology	5 (7%)		
Other	21 (27%)		

Note. Other majors represented include Air Conditioning, Heating, & Refrigeration, Alcohol and Drug Abuse Counseling, Automotive & Diesel Technology, Criminal Justice, Education, Energy Technology, Health Sciences & Information Management, Healthcare, Information Technology & Computer Science, and Welding.

The instrument used in this study was a questionnaire that included quantitative items, qualitative items, as well as a variety of demographic items. This questionnaire was developed and sent to participants on the Google Forms platform. The main part of the questionnaire included 10 rating scale items and three open-ended questions. The overall question for the 10 rating scale items asked students how much their experience as a student at the institution helped them develop certain skills. Each of the rating scale items included a skill or grouping of skills to which the students indicated how much of that skill their education helped them develop.

The skills included in the questionnaire were curated from the latest employer report from AAC&U because this list is not only holistic in terms of range of skills but it also represents the most recent list of skills that employers from across the country indicated were very important for success in the workforce (Finley, 2021). The skill groupings for these 10 rating scale items are listed below.

1. Working effectively as part of a team
2. Critical thinking and complex problem-solving
3. Data analysis and interpretation

4. Applying knowledge and skills to real-world situations
5. Technology and digital literacy
6. Written and oral communication
7. Research and data-informed decision making
8. Creative thinking
9. Working and communicating with people from different backgrounds
10. Ethical judgment and reasoning

For each item, respondents indicated whether their experience as a student at the institution helped them develop the listed skill (a) a great deal, (b) a considerable amount, (c) a moderate amount, (d) a slight amount, or (e) none. The wording of the items in this section of the questionnaire was adapted from a survey instrument created by Meyer (2016). The data collected from these 10 rating scale items were used to answer RQ1.

The questionnaire also asked about demographic items including students' backgrounds, academic history and performance, and employment history. Of these items, three key independent variables were identified that included (a) higher education history, (b) workforce history, and (c) number of semesters to program completion. We used these items to determine the relationship between these items and the students' perception of their own workforce skill development to further answer RQ1. To further analyze this relationship, we ran a series of multivariate analysis of variance (MANOVA) statistical tests for each of the three independent variables after verifying the assumptions had been met.

The first open-ended item asked students in what ways their experience as a student helped them develop any of the skills listed in the previous section. The responses to this question were used to help answer RQ1 along with the 10 rating scale items and coded using the causation coding method (Saldaña, 2016). The other two open-ended items included in this questionnaire were used to answer RQ2. The second open-ended item asked students to list any skills they were hoping to gain, but did not, during their time as a student at the institution. The third and final open-ended item included in this questionnaire was also used to answer RQ2. This question more directly asked students what the institution can do to better help students develop skills that would make them more marketable to potential employers. Responses to open-ended items two and three were coded using the structural coding method. According to Saldaña (2016), structural coding categorizes like segments and responses from a dataset, such as an interview or an open-ended questionnaire response. Structural coding acts as an indexing and labeling device to better assist researchers with accessing and analyzing data.

Establishing a trustworthy study was key in carrying out the selected mixed method research design. For the quantitative components, we mitigated threats to the study's internal validity, or the extent to which the study design could be expected to result in an accurate representation of the phenomenon under investigation (American Psychological Association, n.d.), by ensuring the measurement validity of the instrument as well as a thorough review by faculty members external to the implementation of the study. Because the study was designed to investigate the problem of practice in a local context, external validity, or the degree to which study results could be expected to apply to additional samples beyond the local context (American Psychological Association, n.d.), was less of a priority, but still applicable for those samples for which characteristics could be similar. We mitigated threats to external validity by invoking clear criteria for selection of participants and the local context, which are both described within this article.

For the qualitative component, we used several strategies to ensure trustworthiness of study results, addressing study credibility, transferability, dependability, and confirmability as suggested by Lincoln and Guba (1985), Lincoln (1995), Guba (1981), and Shenton (2004). The triangulation offered through concurrent examination of both quantitative and qualitative data enhanced the credibility of findings as well as peer scrutiny of the study design and results. Similar to quantitative external validity, transferability of results was enhanced through the use of clear criteria for selection of participants and the local context. Dependability was strengthened through the use of a clear and comprehensive methodological design. Finally, confirmability of results was enhanced through triangulation of the quantitative and qualitative results as well as knowledge of the primary researcher's position and mitigation of potential biases.

RESULTS

To answer RQ1, descriptive statistics were run. See Table 2 for a summary of the means and standard deviations for the 10 skills-based items on the questionnaire. The exact wording of the 10 skills-based items question in the questionnaire was as follows: "How much did your experience as a student [at the institution] help you develop the following skills?" The lowest mean was for the skills of working effectively as part of a team (M = 2.96, SD = 1.19, N = 77).

Table 2. Results of Skills-Based Questionnaire Items (N = 77)

Skills	*M*	*SD*
Working effectively as part of a team	2.96	1.19
Critical thinking and complex problem-solving	3.36	.87
Data analysis and interpretation	3.08	.98
Applying knowledge and skills to real-world situations	3.26	.94
Technology and digital literacy	3.12	.99
Written and oral communication	3.36	.93
Research and data-informed decision making	3.32	.88
Creative thinking	3.22	.85
Working and communicating with people from different backgrounds	3.29	1.09
Ethical judgement and reasoning	3.36	.96

Note. Mean based on a 0-4 scale where 0 = none and 4 = a great deal.

The highest mean was a three-way tie between critical thinking and complex problem-solving (M = 3.36, SD = .87), written and oral communication (M = 3.36, SD = .93), and ethical judgment and reasoning (M = 3.36, SD = .96).

Next, we sought to determine the degree to which some of the key independent variables collected in this study were related to how the students answered the 10 skills-based items on the questionnaire. The first independent variable examined was students' work history. Specifically, this independent variable indicated whether or not the students had spent any time in the workforce as a full-time or part-time employee. See Table 3 for a summary of these results.

A majority of the respondents reported they had spent time in the workforce (n = 49) as compared to not spending any time in the workforce (n = 28). The means for the 10 skills-based items were

Table 3. Results of Skills-Based Questionnaire Items by Work History

	Had Served in the Workforce (*n* = 49)		Had Not Served in the Workforce (*n* = 28)	
Skills	***M***	***SD***	***M***	***SD***
Teamwork	2.82	1.36	3.21	.74
Critical thinking & problem-solving	3.33	.94	3.43	.74
Data analysis & interpretation	3.00	1.10	3.21	.74
Real-world application	3.22	1.03	3.32	.77
Technology & digital literacy	2.98	1.05	3.36	.83
Written & oral communication	3.29	1.00	3.50	.79
Research-based decision-making	3.22	.96	3.50	.69
Creative thinking	3.16	.92	3.32	.72
Cross-cultural communication	3.18	1.22	3.46	.79
Ethical judgement and reasoning	3.31	1.07	3.46	.74

Note. Mean based on a 0-4 scale where 0 = none and 4 = a great deal.

consistently higher for the students who had not spent in the workforce. The lowest mean was teamwork for both students who had served in the workforce (*M* = 2.82, *SD* = 1.36) and students who had not served in the workforce (*M* = 3.21, *SD* = .74). In addition to teamwork, data analysis and interpretation tied for the lowest mean for students who had not served in the workforce (*M* = 3.21, *SD* = .74). The highest mean for students who had served in the workforce was critical thinking and problem-solving (*M* = 3.33, *SD* = .94) and a tie between written and oral communication (*M* = 3.50, *SD* = .79) and research-based decision-making (*M* = 3.50, *SD* = .69) for students who had not served in the workforce.

The third independent variable examined was students' higher education history. Specifically, this independent variable indicated whether or not the students had attended another college or university in the past, before their current time at the institution. See Table 4 for a summary of these results.

A majority of the respondents reported they had attended another college or university in the past (*n* = 51) as compared to students who had not attended another college or university in the past (*n* = 26). The means for the 10 skills-based items were consistently higher for the students who had attended another college or university in the past, with the exception of one skill, real-world application, where students who did not attend a college or university in the past reported greater skill development (*M* = 3.38, *SD* = 1.02) than those who had (*M* = 3.20, *SD* = .90). The lowest mean was data analysis and interpretation for students who had attended a college or university in the past (*M* = 3.14, *SD* = .96) and teamwork for students who did not attend a college or university in the past (*M* = 2.69, *SD* = 1.29).

Table 4. Results of Skills-Based Questionnaire Items by Higher Education History

	Has Attended a College or University in the Past (*n* = 51)		Has Not Attended a College or University in the Past (*n* = 26)	
Skills	***M***	***SD***	***M***	***SD***
Teamwork	3.10	1.12	2.69	1.29
Critical thinking & problem-solving	3.43	.81	3.23	.99
Data analysis & interpretation	3.14	.96	2.96	1.04
Real-world application	3.20	.90	3.38	1.02
Technology & digital literacy	3.20	.96	2.96	1.04
Written & oral communication	3.43	.88	3.23	1.03
Research-based decision-making	3.41	.78	3.15	1.05
Creative thinking	3.31	.79	3.04	.96
Cross-cultural communication	3.35	1.09	3.15	1.08
Ethical judgement and reasoning	3.43	.94	3.23	.99

Note. Mean based on a 0-4 scale where 0 = none and 4 = a great deal.

The highest mean for students who had attended a college or university in the past was a three-way tie between critical thinking and problem-solving (*M* = 3.43, *SD* = .81), written and oral communication (*M* = 3.43, *SD* = .88), and ethical judgment and reasoning (*M* = 3.43, *SD* = .94). The highest mean for students who did not attend a college or university in the past was real-world application (*M* = 3.38, *SD* = 1.02).

The third independent variable examined was the number of semesters it took students to complete their respective program. See Table 5 for a summary of these results. A vast majority of the respondents reported they took 3-4 semesters (*n* = 31) and 5-6 semesters (*n* = 26) to complete their program as compared to 7+ semesters (*n* = 17) and 1-2 semester (*n* = 3). The means for the 10 skills-based items were consistently lowest for students who took 8+ semesters to complete their program and fairly consistently highest for students who took 5-6 semesters to complete their program. The lowest mean out of all of the groups was teamwork for students who took 8+ semesters to complete their program (*M* = 2.00, *SD* = 1.41). The highest mean out of all of the groups was ethical judgment and reasoning for students who took 5-6 semesters to complete their program (*M* = 3.65, *SD* = .49).

To further analyze the relationship between the key independent variables and how students responded to the 10 skills-based items on the questionnaire, we ran a series of MANOVA statistical tests for each of the three independent variables. According to Salkind and Frey (2019), MANOVAs should be used when there is more than one dependent variable. The data for the current study includes 10 dependent variables (one for each of the 10 skills-based items), therefore, the MANOVA was selected as the method to test statistical significance. MANOVA tests were conducted using Bonferroni adjusted alpha levels of .01 per test, based on the standard alpha level divided by five (.05/5). Overall, MANOVA results indicated that none of the key independent variables had statistically significant differences in terms of the amount of skills the graduates reported gaining during their time as a student. A summary of the MANOVA results can be found in Table 6.

Next, we analyzed the first open-ended item to further answer RQ1. This item was worded as follows on the questionnaire: "In what ways did you experience as a student help you develop any of the skills listed in the previous section? Explain." This response was optional on the questionnaire and not all respondents provided an answer. To analyze the responses, we utilized the causation method of coding qualitative data. According to Saldaña (2016), the causation coding method involves extracting attributions (i.e., causal beliefs) from participant responses to determine what caused the outcome as well as the reasons why the cause led to the specified outcomes.

Multiple sources indicate that the process of causation coding involves three aspects to identify. The method was based on the recommendation of Munton et al. (1999) who specifies that three

Table 5. Results of Skills-Based Questionnaire Items by Number of Semesters to Program Completion

	1-2 Semesters (*n* = 3)		3-4 Semesters (*n* = 31)		5-6 Semesters (*n* = 26)		7-8 Semesters (*n* = 10)		8+ Semesters (*n* = 7)	
Skills	***M***	***SD***	***M***	***SD***	***M***	***SD***	***M***	***SD***	***M***	***SD***
Teamwork	3.00	1.00	2.97	1.20	3.27	1.08	2.80	1.14	2.00	1.41
Critical thinking & problem-solving	3.33	1.16	3.42	.89	3.58	.58	3.10	1.10	2.71	1.11
Data analysis & interpretation	3.33	1.16	3.13	.96	3.31	.79	2.90	1.10	2.14	1.22
Real-world application	3.33	1.16	3.45	.93	3.42	.70	2.80	1.03	2.43	1.13
Technology & digital literacy	3.33	1.16	3.16	1.10	3.23	.86	3.10	.74	2.43	1.13
Written & oral communication	3.33	1.16	3.42	1.03	3.54	.58	3.20	1.03	2.71	1.25
Research-based decision-making	3.33	1.16	3.35	.95	3.50	.71	3.10	.88	2.86	1.07
Creative thinking	3.33	1.16	3.19	.91	3.46	.71	2.90	.74	2.86	1.07
Cross-cultural communication	3.33	1.16	3.45	.96	3.50	.81	3.00	1.33	2.14	1.57
Ethical judgment and reasoning	3.33	1.16	3.45	1.00	3.65	.49	3.20	.79	2.14	1.46

Note. Mean based on a 0-4 scale where 0 = none and 4 = a great deal.

Table 6. Results of MANOVA Analysis of Skill-Based Item Question Responses by the Independent Variables

	Wilks' *Λ*	*F*	*df*	Error *df*	*p*	Partial *η2*
History in the Workforce	.92	.580[a]	10	66	.82	.08
Higher Education History	.87	.974[a]	10	66	.47	.13
Number of Semesters to Program Completion	.62	.813	40	240.74	.78	.11

Table 7. Causes That Contributed to Reported Level of Skill Development

Primary Themes	Frequency of Primary Themes	Sub-Themes	Frequency of Sub-Themes
Assignments, Activities, and Exercises	28	Hands-on / experiential learning	7
		In-class presentations	6
		Class projects	2
		General responses highlighting assignments, activities, and exercises	13
Interactive Course Components	27	In-class discussions	7
		Group projects	4
		Generally working with others	16
Instructional Support	15	The instructors themselves	12
		Academic support services	3
General Experiences as College Students	9	The structure of online classes	2
		Course lectures	1
		Participation in Student Govt. Association	1
		General responses highlighting the benefit of attending college and completing courses	5

Note. Themes and sub-themes determined through the causation coding process of qualitative data analysis.

elements of the attributions found in the coding process should be identified. These three elements include (a) the cause, (b) the outcome, and (c) the link between the cause and the outcome (Saldaña, 2016).

The cause is the first element of the attribution and answers the following question: What were the components reported by students that led to the skill development or lack of skill development? For the cause element, the first author coded 58 responses that reflected generally positive student comments regarding the skills they developed and their learning experience while at the institution.

The result of this analysis process was 79 codes that the first author synthesized and categorized into four themes. An example response that was coded as both instructional support (the instructors themselves) and interactive course components (generally working with others) is as follows: "The teachers taught on an understanding level and really made me feel like it was easier than it was. Also the other students around me helped when we were able to collaborate." A summary of these themes, including the frequency of the codes found in the themes and sub-themes found in the responses, can be found in Table 7.

The outcome is the next element of the attribution and helps to answer the question: What outcomes did the students report they experienced as a result of the causes they identified? For the outcome element, the first author coded 40 responses that reflected generally positive student comments regarding the skills they developed and their learning experience while at the institution.

The result of this analysis process was 53 codes that the first author synthesized and categorized into six themes. An example response that was coded as enhanced communication skills and enhanced personal development (confidence) is as follows: "Communication skills, I was able to gain confidence to speak in front of a class room and make new friends." A summary of these themes, including the frequency of the codes found in the themes and relevant sub-themes found in the responses, can be found in Table 8.

The link is the final element in the causation coding process and helps to answer the question: How can connections between the causes and the outcomes be explained? For the link element, the

Table 8. Outcomes That Indicate How Students Were Affected by The Skill-Development Causes

Primary Themes	Frequency of Primary Themes	Sub-Themes	Frequency of Sub-Themes
Enhanced Communication Skills	17	-	-
Enhanced Personal Development	11	Enhanced confidence	8
		Enhanced self-reflection and awareness	3
Enhanced Personal Responsibility	10	Enhanced time management skills	4
		Enhanced independence	6
Enhanced Critical, Analytical, and Logical Thinking Skills	7	-	-
Enhanced Teamwork Skills	4	-	-
Other	4	Enhanced technology skills	2
		Enhanced creativity	1
		Enhanced understanding of diversity and inclusion	1

Note. Themes and sub-themes determined through the causation coding process of qualitative data analysis.

first author coded 41 responses that reflected generally positive student comments regarding the skills they developed and their learning experience while at the institution. The result of this analysis process was 46 codes that the first author synthesized and categorized into five themes. An example of a respondent's answer that was coded as because the professor was helpful, caring, and supportive is as follows: "The excellent teachings of my professors helped me to learn, understand new and different skills to help me be successful." A summary of these themes, including the frequency of the codes found in each theme, can be found in Table 9.

Table 9. Links That Explain the Connection Between the Causes and the Outcomes Identified by Students

Themes	Frequency
Because the professor was helpful, caring, and supportive	13
Because of the interaction with classmates	13
Because the assignments, activities, and exercises were relevant and applicable	11
Because the learning experiences provided new and challenging opportunities	5
Because the courses provided opportunities to practice and explore technology	4

Note. Themes determined through the causation coding process of qualitative data analysis.

Results from the second and third open-ended items contributed to answering RQ2. The exact wording of the second open-ended item in the questionnaire was as follows: "Were there any skills you were hoping to gain, but didn't, during your time as a student [at the institution] (beyond learning the content of each course)? Explain." The exact wording of the third open-ended item in the questionnaire was as follows: "What can [the institution] do to better help students develop skills that would make them more marketable to employers?"

The first author analyzed these open-ended items using the structural coding method of analyzing qualitative data Saldaña (2016). Because of the nature of the data set for both open-ended items two and three, the responses to both of these items were combined into a single dataset and analyzed together. When analyzing the second and third open-ended items, the first author coded 58 total responses; 23 for the second open-ended item and 35 for the third open-ended item that contributed to answering RQ2. Not all students provided usable responses for these open-ended items, and some students provided responses that contributed to multiple codes for this qualitative analysis. The result of this analysis process was 70 codes that the researcher synthesized and categorized into eight themes that directly answered RQ2. One respondent's answer was coded as both hands-on learning and general skill development: "Teaching more skills-based and less centered around assignments and essays. While I know writing is important, it is not as important as actual hands on job skills." A summary of these themes, including examples and frequencies, can be found in Table 10.

Table 10. Themes That Represent Gaps in Skill Development or Recommended Institutional Improvements

Themes	Theme Definition & Examples	Frequency
Hands-On, Experiential, & Collaborative Learning	Responses in this theme indicated a desire for more experiential learning in their courses including internship opportunities, increased collaboration with others, and more hands-on assignments and exercises.	11
Effective Use of Current Technology	Responses in this theme highlighted students' desire to learn more technology skills, the need for the institution to maintain current technology on campus, and the need for instructors to more effectively utilize technology to enhance their instruction.	9
Critical Thinking and Problem-Solving	Responses in this theme represented students' need for more opportunities to learn the process of effective and critical thinking, how to critically analyze data, and how to apply complex problem-solving to their respective field of study.	5
Career Readiness	Reponses in this theme reflected a desire for more networking opportunities to enhance communication skills, more opportunities for developing résumé writing and interviewing skills, and more assistance from the college to help make students more marketable to employers.	5
Applicability to the Real-World	Responses in this theme indicated a lack of learning opportunities for students to apply what they had learned to actual real-world situations that are relevant to their field of study or industry.	4
General Skill-Development	Responses in this theme highlighted students' desire for more skill development across the board, without highlighting any specific skills.	3
Other Skills	Responses in this theme highlighted skills mentioned in student responses that did not fit into any other theme. These skills include personal finance, creative thinking, and the fundamentals of learning.	3
Nothing	These responses indicated that students were pleased with the skills they had learned and did not have any recommendations for the institution for improvement in this area.	12

Note. Themes determined through the structural coding process of qualitative data analysis.

DISCUSSION

The results of this study suggest that, on average, students reported learning a considerable amount of all 10 skills included in the questionnaire. The highest overall mean for the 10 skills-based items was 3.36 (*SD* = .93, *N* = 77) and the lowest mean was 2.96 *(SD* = 1.19, *N* = 77), using a scale where zero represents no skill development and four represents a great deal of skill development. This suggests students reported learning about the same amount of each of the 10 skills.

However, students reported gaining less teamwork skills during their time as a student at the institution than any of the other nine skills listed on the questionnaire. This was true for the general mean across all respondents as well as for most of the key independent variable analyses. A possible reason for this could be the increase of online courses and decrease of in-person courses during this cohort of students' tenure at the institution (Li & Lalani, 2020). In fact, one respondent reported that the reason they did not gain as many skills as they would have liked is because they took mostly online courses to complete their program.

Most students who participated in this study experienced significant disruptions during their college experience due to the COVID-19 pandemic and subsequent shutdowns (Zerbino, 2021). Students who would have otherwise preferred in-person courses were forced to take online courses, and therefore, were likely unable to work with and collaborate with their instructors and classmates as much as they would have been able to if the classes were taught in-person. It has long been noted that creating a sense of community in online classrooms, though important, is more difficult to accomplish than in face-to-face classrooms (Bejerano, 2008; Ouzts, 2006). This could explain why students reported lower levels of teamwork skill development, because they simply had fewer opportunities for meaningful collaboration and interaction. A major theme found in the qualitative analysis supports this conclusion. The qualitative analysis revealed that students who reported low levels of skill development would have liked more hands-on and collaborative learning in the courses they took to complete their program.

The skills students reported learning the most across all respondents were critical thinking and problem-solving, effective written and oral communication, and ethical judgment and reasoning. When analyzing the skill development through the lens of the key independent variables, these three skills were fairly consistently the skills students reported learning the most. Due to the pervasive educational focus on infusing critical thinking and problem-solving skills into the curriculum for students of all ages for the past several decades, it is no surprise that it has emerged as a top skill in this study (Murawski, 2014). One student reported opportunities to practice critical thinking prepared them for their entire chosen career: "As a nursing student critical thinking and judgment plays an important role in the healthcare field. I feel that [the institution] has help me prepare for my chosen field."

Effective written and oral communication, arguably the easiest skill on the list to interpret and apply, likely emerged atop the earned skills list because writing assignments and oral presentations are two of the most common assignments in higher education (Graves, 2017). One student commented on how their program provided opportunities to develop and practice critical thinking and communication skills: "The respiratory care program is all about critical thinking skills. We learn to think fast and outside of the box. We also did many presentations throughout the program and eventually presented an educational PowerPoint on vaping to 300 students."

The high rating of ethical judgment and reasoning can likely be attributed to the major theme of helpful, caring, and supportive instructors as the character of these individual instructors has the potential to influence the students' reported ethical judgment and reasoning skill development. This conclusion is supported by Yen and Abdous (2011) and Hyun et al. (2017) who found a predictive relationship between positive interaction with the students and the students' overall satisfaction with their learning experience. One respondent was very pleased with their experience at the institution, in particular their instructors: "Everything about this college is to like. Professors are so nice and actually care about your education."

Overall, students mostly attributed the skills they learned to (a) engaging, relevant, and interactive assignments, activities, and discussions, (b) the opportunities they had to work with and interact with their peers, and (c) caring, helpful, and supportive instructors. However, there was not a definitive variable that predicted the amount of skills students reported learning during their time completing their program at the West Texas community college. While the key independent variables had no statistically significant impact on reported skill development, students who had not spent time in the workforce as a full-time or part-time employee reported consistently higher levels of skill development across all 10 skills when compared to those students who had spent time in the workforce. This was also true when analyzing the independent variable of higher education history. With the exception of one skill (real-world application), students who had attended a college or university in the past reported consistently higher levels of skill development across all 10 skills than those students who were attending college for the first time. This was also true for analyzing the independent variable of number of semesters to program completion. Students who took six or fewer semesters to complete their program reported consistently higher levels of skill development across all 10 skills when compared to students who took seven or more semesters to complete their program.

Based on the Four States of Competence model, students who are more experienced learners (e.g., students who have attended another college or university in the past), should be much more aware of the skills and knowledge they have learned and how to best apply those skills and knowledge (Broadwell, 1969). Students who attend college and drop out or do not complete, with the exception of those who did so because of extenuating life circumstances, likely entered state two of this model, which can be overwhelming and demotivating. On average, the students who had attended another college or university in the past in this study did so about seven years ago. In their renewed attempt to finish college, these students likely advanced to state three during the time they completed their program. This would place these students in a state where they fully know what they learned and why it is important, and therefore, why they reported higher levels of skill development on this questionnaire.

Perhaps the students who took seven or more semesters to complete their program, given their extended tenure at the institution, entered state four of the model which would make them more unaware of what they have learned and what they are good at because the knowledge and skills exist unconsciously (Broadwell, 1969). In this state, students have a more difficult time articulating why they do what they do, or how they learned what they learned.

This could explain why the students who took the longest to complete their program reported the lowest level of skill development, not because they did not develop the skills, but because their unconsciously competent state makes it difficult for them to articulate those learnings.

It is generally understood that learning about something and actually doing it are two completely different processes. This claim is supported by employer reports which indicate a disconnect between how students and employers perceive recent graduates' skill levels (Bauer-Wolf, 2018; Hart Research Associates, 2015). Students who have not spent time in the work force and whose only experience is at institutions of learning may not be as aware of the skills they have yet to learn and master and may also have a false sense of their own skill level. This would place them in state one, unconscious incompetence (Broadwell, 1969). Therefore, they may perceive to have learned or even mastered certain skills, but until they actually have the opportunity to apply them in a work setting in the real world, they may not be able to progress to the rest of the states in the competence model. This would explain why students who had not spent time in the workforce reported consistently higher levels of skill development than students who had spent time in the workforce.

While the majority of students reported positive skill gains and were generally pleased with the skills they learned, some students reported skills they were hoping to gain during their time as students, but did not, such as critical thinking and problem-solving, general career readiness skills, and overall more applicable skills across the board. For example, one graduate reported the following: "I was hoping to learn how to use data to think critically." Another respondent reported wanting more from their time at the institution: "Push boundaries a bit more, get students outside of their learning comfort zones. Students need to learn more about how to think. Remembering and reciting can only carry one so far."

Furthermore, students reported that an increase of hands-on, experiential, and collaborative learning, as well as more effective use of up-to-date technology by their instructors, would have helped them develop even more skills. One respondent reported wanting a greater variety of instructional strategies and assignments to help them develop more skills: "I would have hoped to gain more knowledge as far as new styles and techniques and not do the same activities every other week." Another graduate reported wanting more opportunities to connect what they learned to the real world: "Add things to our courses that concern real life situations or lessons." These findings are supported by literature that indicates these practices can lead to an increase in workforce skill development (Finley, 2021; Hart Research Associates, 2013; Kolb, 1976; Stalp & Hill, 2019).

The contradictory nature of some of the student responses reflect the complexity of the student learning experience. The amount of skill development students experience can largely depend on a variety of factors and variables, including the key independent variables analyzed in this study, but also factors such as the individual instructors that taught their courses and the teaching style of those instructors.

For example, when asked what helped students develop the skills they reported learning, one of the top answers students provided was because of their helping, caring, and supportive instructors. As indicated by past studies, the role the instructor plays in the course including how it is structured, how they communicate with students, and how they overall facilitate learning can have a positive effect on not only how much the student learns but also how satisfied the student is with their overall learning experience (Hyun et al., 2017; Yen & Abdous, 2011). Furthermore, effective and supportive instructors understand the importance of building community among their students to enhance their learning experience (Bejerano, 2008; McKinney et al., 2006; Ouzts, 2006). This conclusion further underscores the importance of attentive, caring, and helpful instructors who know how to adequately facilitate learning that enhances the student experience.

IMPLICATIONS FOR PRACTICE

There are strategies that institutions can implement to place a greater widespread focus on workforce skill development. Faculty need strategies, resources, and training to transform their curriculum to place a more intentional focus on teaching workforce skills. The New World of Work (NWOW) curriculum from the state community college system in California could offer a template from which to start for this type of major transformation (Nelson, 2016). Regardless of the actual intervention, there would need to be prescribed curriculum changes, not just general training and recommendations.

For a workforce skill development initiative to be successful, there must also be a focus on meta-cognition and reflection for students regarding their own skill development, what they are learning, and how it can be applied. Directing students to participate in these reflective practices and calling attention to the "why" of the skills being learned are valuable strategies to help ensure the learning sticks and the students see the importance and value of what they have learned (Finley, 2021; Stefano et al., 2016). Engaging in these practices also helps the students advance through the Four States of Competence model (Broadwell, 1969).

Lastly, innovative strategies have been implemented in higher education in an effort to help improve workforce skill development among graduates. These include workforce skill development transcript designations or specialized workforce skill certificates (Chen, 2018; Parker, 2019), co-teaching approaches to separate out the presentation of the content and the ways in which the content can be practically applied in the workforce (Durden, 2020), and the incorporation of ePortfolios to highlight students' collection of work to demonstrate the skills and abilities they have developed (Farrell, 2020).

LIMITATIONS AND FUTURE RESEARCH

There were a few limitations within this study. First, the overall sample size for this study was lower than desired. Of the 541 graduates asked to participate in the study, 77 completed the questionnaire which represents a 14% response rate. A more appropriate sample size for this study would have been closer to 120 respondents, which would reflect a 20% rate and approximately +/- 8% margin of error. In addition, some of the group sizes for the MANOVA analyses were very small, which represents another limitation associated with the sample size.

Another limitation is that this study only represented self-reported student responses. This one-sided perspective does not holistically represent the entire reality of what was actually learned, experienced, or mastered. Gaining perspectives from the faculty as well as local employers would have supplemented the results nicely.

A third limitation of this study was the gaps in information that existed when analyzing and interpreting the results. For example, when interpreting the low teamwork result, assumptions were made about the impact of the COVID-19 pandemic and the increase in online course offerings. Including questions related to COVID-19 in the questionnaire would have aided in the analysis and interpretation of the results.

This study prompts considerations for future research on this topic. As previously mentioned, this study only represented the perspectives of the students. Surveying employers about the skills the institution's graduates exhibit and what skills they value from graduates in this region would provide valuable insight into how the institution can best prepare their students based on what the employers want. Similarly, surveying faculty about the skills students exhibit and the strategies they find help students develop these skills would add a valuable perspective in this discussion.

Beyond survey studies, an experimental investigation of instructional strategies that are aimed at helping students develop key workforce skills would contribute greatly to literature on this topic. The results of this type of study could provide important information regarding the effectiveness of particular strategies compared to others. Lastly, as previously mentioned, there were gaps in knowledge when analyzing and interpreting the results. Studies that include focus groups of students and/or faculty would allow researchers to ask clarifying and probing questions to fully explore this topic with much more specificity than a survey study allows.

Another consideration for future research is the role that artificial intelligence (AI) plays in not only the ways faculty teach critical thinking and problem-solving skills in their courses, but also how students are learning these skills. According to Chan (2023), critical thinking has become an even more essential skill with the rapid rise of AI technology. Students need to be able to evaluate the outputs and decisions made by AI applications to determine whether or not what is being produced is in alignment with the goals and values of the entity it represents. Simply using AI chatbots, such as ChatGPT, without applying critical thinking to what it produces, can potentially eliminate the necessity for students to think through complex problems on their own. Therefore, a study that investigates how higher education institutions are integrating AI while still promoting the development of critical thinking and problem-solving skills would be prudent for this topic.

CONCLUSION

As indicated by past literature on this topic, the public's perception of higher education has changed (Craig, 2015; Hart Research Associates, 2018; Wilkie, 2019). Not only is the general public questioning the return on investment for a college degree, employers are finding themselves wanting more from the recent graduates who get jobs at their companies (Bauer-Wolf, 2018; Finley 2021; Hart Research Associates, 2013, 2015, 2018). With the higher education industry struggling, academic leaders must consider alternatives to business as usual for the sustainability of the industry (Eddy, 2019).

The results of this study, along with the outcomes of past studies on this topic, suggest that the higher education industry should focus more on workforce skill development among their students across all disciplines and programs. This is important not only to enhance student learning outcomes, but also for the future of the higher education industry. While some skill development occurs by the very nature of how higher education courses are structured and taught, what is being done is not enough. Employers and society expect more. To be able to give them what they want, academic leaders must consider widespread changes across the curriculum to make workforce skill development a key part of the student learning experience in order to maintain higher education's relevance to society.

REFLECTION ON THE INQUIRY PROCESS

Completion of this DiP offered the student author the opportunity to demonstrate the knowledge and skills acquired through successful completion of a CPED member program. The program, designed to directly align with the guiding principles for program design (CPED, 2022), offered opportunities to conceptualize and refine the problem of practice by applying varying lenses to the problem through the progression of coursework that included topics such as educational equity, theory, research design, and methods. The student author is now well prepared to continue to serve as a scholar-practitioner, applying a systematic process of inquiry to study and improve upon problems of practice that emerge in their ongoing practice as an educational leader.

In addition to the student author's development as a scholar-practitioner, we recognize that the DiP inquiry process yielded interesting, informative, and substantive results, from which the local community college can craft informed action. The process also yielded results that will be useful to the larger community of scholar practitioners, who like the student author who conducted the study, have a vested interest in improving the lives of students by improving the postsecondary instruction they receive. Therefore, this study fit well within the role of scholarly practitioners who seek to identify and address relevant problems of practice to make positive changes across the higher education industry.

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