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ORIGINAL RESEARCH

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Faculty views of CBE, self-efficacy, and institutional support: An exploratory study

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Abstract

Competency-based education (CBE) is essentially an approach to teaching and learning featuring flexible pacing, robust competencies, and an emphasis on student completion. CBE differs from traditional education that focuses instead more on seat time and credit hours. Though CBE has existed on college campuses in many forms, faculty are often inexperienced in teaching CBE. Facing growing demands for CBE, institutions must find ways to prepare faculty to take part in CBE. This mixed methods study explored faculty views of CBE, their self-efficacy, and beliefs about support mechanisms needed for those teaching and delivering CBE. Findings suggest faculty have mixed though balanced views of CBE, generally high self-efficacy due to the importance of mastery experiences, and believe in the importance of specific learning opportunities in an environment built on collaboration to ensure CBE faculty are supported and can thrive. Findings can help institutions with CBE or those considering it to support faculty and ensure they are trained in teaching courses in this modality.

KEYWORDS

competencies, competency-based education, faculty development, self-efficacy

1 | INTRODUCTION

Competency-based education (CBE) is growing on college campuses, especially in response to the needs of nontraditional students (Hittepole, 2019; Ohio Department of Higher Education, 2016). One of the reasons for this growth is because CBE enables faster completion of courses for students who can capitalize on their prior knowledge from real-world settings (Baker, 2015; WGU, 2020). Often these settings are in vocational fields, and community colleges are commonly incubators for students who wish to pursue such workforce-related programs or credentials (Krauss, 2017). As a result, many community colleges have embraced CBE as one of many strategies to support their students. Moreover, community colleges, who already own a large shareholder presence in the online education realm (Hachey et al., 2013), offer CBE courses online for an even more convenient opportunity for students.

Competency-based education is poised to further expand in the next decade with more than 75% of institutions expecting to grow their CBE programs by 2024 (AIR, 2019). Various challenges will likely come with this growth (e.g., with registration, academic advising, and the role of faculty). As CBE grows, it will require more faculty to take part in CBE and specifically to teach CBE courses, often for the first time. This is challenging in part because teaching a CBE course differs from teaching traditional courses (Gruppen et al., 2016; Ordonez, 2014). For example, faculty teaching in a CBE program also mentor students in not only the course content but CBE as a whole while also performing CBE-related administrative tasks, such as enrollment or test proctoring for individual students as opposed to an entire class at once (Klein-Collins, 2012; Newbold et al., 2017). Most community college faculty and those at 4-year institutions are not expected to complete tasks like these when teaching traditional courses and therefore lack experience doing so and will need support when transitioning into these roles. Differences like these suggest a need to better understand faculty views of CBE, their self-efficacy teaching CBE, and how best to support faculty as they transition to teaching using this approach. To date, there is

little research on these related constructs. Given this and the rising popularity of CBE on community college campuses—especially in an online form—we set out to explore community college CBE faculty views of CBE, self-efficacy, and insights into institutional support. In the following article, we report on the results of our inquiry and implications for future research and practice.

2 | LITERATURE REVIEW

2.1 | Defining CBE

Researchers have struggled to define CBE in the higher education context. In fact, Gervais (2016) noted that, "competency-based education has been defined in multiple ways and interpreted differently across academic programs" (p. 98). The Competency-based Education Network (CBEN), though, created one of the more comprehensive definitions of CBE. According to CBEN (2019), CBE:

> ...combines an intentional and transparent approach to curricular design with an academic model in which the time it takes to demonstrate competencies varies and the expectations about learning are held constant. Students acquire and demonstrate their knowledge and skills by engaging in learning exercises, activities and experiences that align with clearly defined programmatic outcomes. Students receive proactive guidance and support from faculty and staff. Students earn credentials by demonstrating mastery through multiple forms of assessment, often at a personalized pace
>
> (para. 1)

This definition contains four key elements of CBE. First, competencies are perhaps the most defining characteristic of CBE as statements are tied to measurable abilities and are often linked to a vocational or career-oriented outcome (Bornitz & Carnaghan, 2003; Dragoo & Barrows, 2016; Grann, 2017). Second, flexibility is a key aspect of CBE. Movement in a course or program is largely dependent on the student's performance. Unlike traditional academic courses centered on seat time, CBE gives students a chance to learn in a setting where time is variable and the desired outcomes are set (Cavanagh, 2012; Gruppen et al., 2016; Torres et al., 2018). Third, this flexibility is only successful when a prescribed set of materials comprises the structure of a course or program. Materials are structured to permit quicker movement through content or a course or through the use of multiple attempts with intervention measures in place for those needing help (Competency Works, 2012). Finally, the ability to demonstrate mastery of competencies in multiple methods defines CBE. This demonstration of mastery may include a preassessment to gauge prior knowledge for mastery, thus skipping large portions of content, or it may dictate what content needs to be completed if the preassessment was not passed (Burnette, 2016; Hagan-Short & Addison, 2019; Nodine & Johnstone, 2015; Staley & Trinkle, 2011).

2.2 | Assessment models

Colleges and universities who employ CBE often use one or more models of assessment in their CBE programs. First, direct assessment permits a student the chance to demonstrate mastery of a set of competencies (Book, 2014; Nodine & Johnstone, 2015). A notable example of this model in action is the University of Wisconsin System's UW Flexible Option (University of Wisconsin, 2020). Second, the course/credit model, a method used by Western Governors University and Northern Arizona University (NAU, 2021; WGU, 2020), places competencies into bundled packages in the format of courses with equivalent credit hours (Book, 2014; ODHE, 2016). Finally, prior learning assessment (PLA), a peripheral approach, provides a student an opportunity to demonstrate or earn credit for previous learning, skills, or abilities gained from experiences that include employment, military service, or independent learning (Akos et al., 2019; Albanese et al., 2008). Although PLA is a peripheral approach to assessment, it has a place in CBE due to its ability to provide an individualized CBE experience (Brower et al., 2017). Granting credit or competency for such past experiences could reduce a student's time to completion. Assessment is further discussed later in this article.

2.3 | Strengths and criticisms of CBE

Discussing the strengths and criticisms of CBE is necessary not only to properly evaluate its use in higher education but also to interpret the findings of this study. Proponents of CBE have identified a number of strengths of the approach. For example, the literature has detailed a relationship between CBE and the preparation or retraining of the workforce through access to educational completion not previously possible (California Edge Coalition, 2019; Henrich, 2016; Krauss, 2017). To this end, CBE also emphasizes the expansion of opportunities for nontraditional students through quicker completion, flexible pacing, and leveraging prior knowledge or credits (Baker, 2015; Edcor, 2020; Golod, 2014; Kelchen, 2016). CBE is also flexible in terms of when and where learning takes place, includes online and in-person sessions, and accommodates the unique demands placed on nontraditional students, especially those who are working adults (Krauss, 2017). Students prefer CBE courses largely due to the flexibility it offers (Wang, 2015).

Competency-based education also has its critics. A common criticism of CBE is the disaggregated role of faculty who move from traditional content experts to become mentors or guides (Burnette, 2016; Neem, 2013; Oleson & Hora, 2013). Both Fain (2014) and Monahan (2015) noted that faculty struggle with this changing role. Shifting roles may also lead to issues with the rigor of student learning in CBE. Ashworth and Saxton (1990) raised concerns more than 30 years ago that assessments of competencies would be ineffective at measuring learning. Similarly, Ward (2016) expressed that an overemphasis on bankable vocational skills as opposed to a more liberal arts-infused approach would reduce overall knowledge. A further

concern focuses on the economic and employer-driven concerns of CBE. Franklin and Lytle (2015), in their survey of nearly 500 employers, found more than 50% of employers lacked an understanding of CBE or its benefits for employers. Robbins (2017) and Viola (2016) attribute this confusion to the lack of a common definition of CBE. Not only do employers struggle with understanding CBE, institutions also grossly underestimate the resources necessary for CBE; existing systems and processes are often designed for traditional courses and mindsets (Boyer & Bucklew, 2019; Lieberman, 2019; Robbins, 2017; Viola, 2016). Finally, CBE is often constrained by policy and accreditation. Valenzuela et al. (2016) found each of the seven major accrediting bodies affiliated with the Council for Higher Education Accreditation approached evaluating CBE differently. At the federal level, Busta (2019) and Lieberman (2019) raised concerns over financial aid policies and how they interact with CBE, especially in terms of interaction in CBE courses.

2.4 | Faculty development for new ways of teaching

The role of faculty development—especially in CBE—is noteworthy because most faculty enter teaching in higher education as content experts (Oleson & Hora, 2013). Faculty development programs are mostly intended to help faculty grow their understanding, abilities, and actions as they relate to teaching (Steinert, 2014), lie on a continuum (Koellner & Jacobs, 2015), and often include workshops, courses, and mentoring by other faculty (Levinson-Rose & Menges, 1981). Stes et al. (2009) analyzed 36 articles about faculty development; they found faculty development programs usually address learning through specific domains (e.g., skills or instructional attitudes), they often serve a larger institutional need especially related to policy shifts, and they strive to gauge their impact on student perception of instructional quality.

In another study, Steinert et al. (2016) reviewed more than 116 studies. Steinert et al. not only echoed the work of Stes et al. (2009), but added that most faculty have generally positive views of faculty development. Moreover, they found that faculty generally reported an increase in skills, knowledge, and attitudes of their abilities. Finally, Matthias (2019) found three themes about faculty development: (a) faculty are individuals with careers at varying stages, (b) the immersion of new teaching knowledge must be contextual, and (c) collaboration and cooperation must be encouraged to improve teaching practice.

There is limited research in the CBE context. For example, Kelly and Columbus (2016) evaluated 380 studies and found scant references to faculty development focused on CBE. One example found that not only was CBE teaching knowledge essential, but also the overall context of the CBE concept was necessary for success (Dath & Iobst, 2010). In the context of shifting faculty roles and learning how to embody them in CBE, Echols et al. (2018) surveyed 70 faculty members who were developing CBE curriculum and noted the need to support faculty but that this support could follow a CBE-type model in its delivery.

2.5 | Self-efficacy and teaching

Bandura's (1977) theory of self-efficacy served as the theoretical framework for the study. This theory suggests internal expectations of confidence are a driving force behind the success of an individual in an experience (Bandura, 1977). Further, a person's belief in their ability determines whether or not they might even attempt to adjust to a given scenario and if so, how long they might actually pursue success within the task (Bandura, 1986).

Bandura (1977) argued that self-efficacy is the driving force behind one's success. He believed (1986) those with high self-efficacy were internally motivated, interested, and embraced challenges as opposed to those with low self-efficacy who were more likely to give up. Questions remain on how self-efficacy is developed in teachers. Faculty self-efficacy is a teacher's personal views of their ability to oversee the learning process for students and to keep them engaged (Guskey & Passaro, 1994). Faculty self-efficacy can affect one's capability to influence the learning process (Ross, 1994; Tschannen-Moran & Woolfolk Hoy, 2001; Wertheim & Leyser, 2002; Woolfolk Hoy, 2004). Thus, increasing the self-efficacy of faculty should help them improve their ability to teach CBE courses. CBE as a challenging approach to teaching may elicit all four sources of self-efficacy. These include mastery experiences, vicarious experiences, verbal persuasion, and emotional or physiological states (Bandura, 1977; Muretta, 2004). Questions remain on the best ways to increase CBE faculty's self-efficacy as there is limited research connecting the two. The goal of this study was to explore what CBE faculty think of CBE in hopes of finding ways that institutions can better support CBE faculty through investigating the following research questions:

1. What are competency-based education faculty's views of CBE?
2. How do faculty involved with CBE rate their own self-efficacy?
3. How can institutions better support faculty to teach CBE courses?

3 | METHODS

3.1 | Research design and context

A mixed methods exploratory sequential design (Creswell, 2015) was used to answer the research questions (Scoles et al., 2014). In this design, the results of qualitative methods informed the creation of a quantitative survey with results then integrated into key findings and interpretations (Creswell, 2015).

The study took place at a large, Midwestern community college, which we will refer to as Five Rivers, with robust CBE program offerings. For more than 10 years, Five Rivers has used CBE in areas such as retail management and computer science for students to earn formal credentials. Faculty who teach CBE courses do so primarily online in this context and are provided with both required and optional training on the institution's learning management system and strategies for teaching CBE. The college uses a direct assessment model within traditional academic terms where all coursework must

be completed by the end of the scheduled term that matches non-CBE schedules. The annual retention rate in CBE programs at Five Rivers is 70% (NCES, 2020).

3.2 | Research procedures

In the first phase of the study, 10 faculty participated in interviews. Faculty participants in both phases constituted a convenience sample as the lead researcher is a staff employee at Five Rivers. Questions are displayed in Table 1 and were influenced by Bandura's (2006) *Guide to Constructing Self-efficacy Scales*. Results were analyzed using NVivo (QSR International Pty Ltd., 2020) with themes emerging that were used as constructs in the survey delivered in phase 2. First cycle in vivo coding produced key phrases such as "student-centered" and "had to get involved" to help describe meaning in the data based on spoken words of participants (Manning, 2017). Second cycle pattern coding (Miles et al., 2014) then broke first cycle results further through nodes that take larger chunks or blocks of data and put them into more manageable pieces. For example, the first cycle codes listed above translated into patterns such as "ideally centered for students" and "compulsory participation." Self-efficacy items were coded under the four sources of self-efficacy as these sources naturally emerged in reviewing and analyzing responses in second cycle coding.

The survey (see Table 2) used Likert items with options as Strongly Disagree, Disagree, Neutral, Agree, and Strongly Agree and was completed by 48 faculty from a population of 62 for a response rate of approximately 77%. Analysis of survey data using SPSS produced descriptive statistics as provided in the results section below. A numerical value was assigned to each response option (i.e., 1 for Strongly Disagree, 3 for Neutral, etc.) before entry in SPSS. While the study was not field tested, Cronbach's alpha for reliability was used to gauge the survey's reliability and produced a highly reliable result (42 items; $\alpha = .86$).

The interviews and survey were both administered at the first author's home institution and as such present ethical issues. While the researcher was a practitioner, he ensured objectivity by bracketing out personal experiences in reporting of results as well as common practices for validity and trustworthiness such as member checking, referential adequacy, and triangulation (Tracy, 2010). These strategies prompted rigorous validity of results and thus findings without inherent bias emerging in the study.

4 | RESULTS

The study used an exploratory sequential mixed methods design (Creswell, 2015) with both interviews and a survey of CBE faculty. In this design, results from a qualitative method (in this case interviews) are used to guide the development of a quantitative instrument (a survey in this case) with all results integrated into findings. Below the results are reported by each phase of the study. All participant names used are pseudonyms to protect the identities of participants.

4.1 | Phase 1: Interview results

Faculty interviewed had an average of 5.2 years of experience in CBE. Two faculty had 10 years of experience, whereas on the other end there was one instructor with 3 years of experience, one with

TABLE 1 Research question and interview question alignment

Interview question	Research question
1. How long have you been teaching CBE?	Demographics
2. Why did you begin teaching CBE courses?	
3. Generally speaking, what are your impressions of CBE?	RQ1
4. What do you like or dislike about CBE?	What are CBE faculty's views of CBE?
5. Do you think it is a good way for students to learn? Can you explain why or why not?	
6. Can you describe what you like or don't like about teaching CBE courses?	
Self-efficacy is defined as the way one believes in their internal ability to take on a challenge, stay with it, and ultimately persevere	
7. How satisfied are you with your interactions with students in CBE courses?	RQ2
8. How confident are you in your ability to teach a CBE course?	How do faculty involved with CBE rate their own self-efficacy?
9. How confident are you with providing content instruction?	
10. How confident are you with specifically providing support or intervention?	
11. What has shaped or influenced your confidence to teach CBE?	
12. How did you learn to teach a CBE course?	RQ3
13. How prepared were you when you first began teaching CBE courses?	How can institutions better support faculty to teach CBE courses?
14. What kinds of support do you think faculty new to CBE need to be successful and confident?	
15. How can the institutions improve faculty views of CBE?	

TABLE 2 Phase two survey questions and alignment

Survey question	RQ	Construct
Approximately how many years have you been involved with CBE? (options from less than 1 to 10)	NA	Demographics
How long have you been in higher education? (options from less than 1 to more than 20)		
Do you have industry experience outside of the academic setting? (option of yes or no)		
What is your gender? (option of male, female, gender fluid or nonbinary, prefer not to answer)		
View of CBE		
The premise of CBE is appropriate for certain vocational fields	RQ1	Theory/background
CBE is a niche for a select group of students		
My involvement with CBE began through my own curiosity or interest		Origins of teaching CBE
I began working with CBE because it was a logical "next step" for my career		
CBE's flexible pacing supports the personal situations of students		Student focus
The ability for students to apply prior knowledge or experience means they can earn credentials faster than their peers		
The instructor is more of a guide or mentor in CBE courses than anything else		General tenets
I am satisfied with the way our institution uses CBE		
I like teaching CBE courses		Teaching/delivery of CBE
I view the CBE workload is unmanageable compared to other course delivery formats		
Self-efficacy		
I am confident in my ability to interact with CBE students in general	RQ2	Interaction
I struggle to provide meaningful interaction with students since CBE students don't require much interaction		
I reflect on my confidence in terms of interacting with CBE students each time I teach a CBE course		
I am confident in teaching CBE courses		Teaching ability
My experience in industry leads to a higher confidence teaching CBE		
Experience teaching in other modalities translated into confidence to teach CBE		
I am confident in the content of CBE courses		Content instruction
My confidence in CBE course content is due to my mastery of such content		
I feel as confident in the content of CBE courses as I do in other modalities		
I am confident in providing support or intervention for CBE students		Support/intervention
I am confident pointing CBE students to the resources available to support them if I am unable to		
Handling CBE student issues is easier than handing student issues in more traditional course settings		
Knowing there is institutional support for CBE faculty makes me feel confident to teach CBE		Influencing factors
Faculty training or development focused on CBE helped me become confident		
My confidence level with respect to CBE is often driven by student performance in courses or their feedback		
Institutional support		
I learned to teach CBE through a specific training program, such as a course, workshop, or seminar	RQ3	Learning to teach CBE
Most of my knowledge as to teaching CBE came from self-exploration or being "thrown into the deep end"		
Trial and error or student performance is the most effective way to learn the specifics of CBE		
Faculty new to CBE must have a mentor or coteacher the first time they teach CBE		Relationships or roles
Faculty should take a CBE course before teaching one		
Creating mentorship programs or cohorts to share resources, experiences, and concerns would lead to a feeling of support		

(Continues)

TABLE 2 (Continued)

Survey question	RQ	Construct
To support faculty teaching CBE, they should've ongoing access to an instructional designer even if the course is already designed		Existing resources
Supporting faculty means letting them see a CBE course from a previous term to learn from		
The support of faculty in other modalities can be easily applied to supporting CBE faculty		
To get faculty buy-in to CBE requires a grassroots approach versus one that is top down		Perceptions-communicate and promote
Faculty would view CBE more positively if there was a logical-emotional appeal		
The institution needs to clarify expectations for delivery of CBE to improve perceptions		Perceptions-expectations
To impact or affect faculty's interest in CBE requires evaluating the infrastructure, compensation, and workload of CBE faculty		
Clarifying student benefits would help improve perceptions of CBE		
Showcasing student or faculty success stories would improve how faculty view CBE		Perceptions-actionable research
Realignment with industry partners and leading CBE institutions would improve its views on campus		
I think faculty would like to create CBE versions of courses they currently teach based on what they may learn about CBE		

2 years of experience, and one with 1 year of experience. Seven faculty were in full-time tenured or tenure-track positions, and three were adjuncts. These participant responses to the interview questions are described in the following section.

4.1.1 | Interview results focused on views of CBE

Three key themes emerged from the questions about views of CBE. When asked why they began teaching CBE courses, faculty responses indicated a sense of compulsory participation suggesting a push for involvement either from a chair or an opportunity to teach further courses. One of the faculty, Tom, noted that, "I was made aware of it because I'm an adjunct and because I am an adjunct I want to take advantage of as many class opportunities as I could. So I just said 'let's give this a try.'"

Faculty were then asked a series of questions on their overall thoughts on CBE, appropriateness for student learning, and views of teaching CBE courses. Responses to these items produced a theme of student-centeredness as a positive view. Faculty believe there are many benefits of CBE for students. For example, Mark and David who had five and seven years in CBE (respectively) noted CBE's usefulness for nontraditional students with industry experience. David explained:

> Especially in the IT world, where you can get a job… and not have a degree…so you can take a worker who's been in the field for a period of time, quickly assess where the gaps in their knowledge are, and fill those gaps in and let them progress.

Conversely, negative views of CBE noted calls from faculty for general improvements to infrastructure for CBE delivery at the college including in facets such as recruitment/enrollment, or class sizes. One of the most notable concerns came from Karen, who felt CBE was a niche option for certain students, but not all. She explained, "We allow the audience to be a bit too broad…we're not making sure they can succeed in the environment before we allow them to try it." Another infrastructural concern was in regards to working conditions given the flexible pacing and larger enrollments of CBE courses. Cheryl, one of the most experienced faculty, explained that:

> When the numbers in the CBE program were really, really large…they've leveled down a little bit, there was a period of time where I had I think 47 students in it pressing me. And it was just killing me….I was completely overloaded with my other classes too

4.1.2 | Interview results focused on self-efficacy

The second set of interview questions focused on self-efficacy and asked faculty questions about their confidence in different aspects of teaching including interaction, content, and support and intervention.

The first theme suggested that faculty had variable ratings in views of their own confidence ranging from little or no confidence to very confident. Though the identification of such ratings skewed toward higher levels, there were those with lower confidence as well hence the variance.

The second theme suggested that practice makes perfect in the sense that repeated teaching of CBE courses or obtaining related knowledge over time would lead to higher confidence. Both Allison and Claudia, with 10 and 4 years of experience, respectively, noted that repeated teaching and reflection on their performance promoted mastery and increased confidence. Allison stated,

"I'm always looking to improve. Just this term alone…I have timely structured communications. I started trying to connect with them with like an orientation session the first week…I'm always looking for something new to connect with them." Claudia explained, "Especially after a term is over, I sit and think, 'What else could I have done?' or 'How could I have done this better? 'How could I have reached out to *that* student?'" In both cases, reflecting upon interaction through repetition from term to term improved ratings of self-efficacy.

A third theme for self-efficacy was stronger self-efficacy due to working with others also vested in CBE student success (e.g., external partners or others). One notable external partner are the college's academic coaches for CBE students which differ from traditional academic advisors. Coaches only work with students taking CBE courses and programs. Tom preferred using coaches and explained that, "I have reached out to the student advisors that are involved in CBE a couple times to have them nudge students into getting going… It's been easy to utilize the tools that Five Rivers has for the CBE program."

Emotional influences, the fourth theme, suggest that both the positive and negative emotional experiences of teaching CBE courses affected faculty self-efficacy. These are both physiological states (Bandura, 1977) as a source of self-efficacy. Mark provided insight into the role of emotional influences as they connect to support and intervention. He explained:

> I'm going to say not very confident…I feel that when a student needs extra help, I think my normal go to is to (suggest), "Hey, you know I think switching to a traditional online class might be your best option"…I think when it comes to actually providing support and trying to help move a student along…a bit more time and focus - I feel like that's what I should be personally doing instead of offering another way out…. Because that's a way out not a tired or structured support model.

While Mark's statement indicates lower efficacy, it does give insight into the role of emotional influences and the confidence of faculty when helping students who may be struggling.

The final theme to emerge was the influence of multiple factors on faculty self-efficacy. This manifested as an internal drive to perform, translation of experience from other contexts, and consumption of existing learning experiences. An example of this theme came from Paul who called on his translated experience. Emphatically, he posited, "I've taught many different modalities. I've also done a lot of adult education…so I think I've got sort of like theoretically but also practically a lot of the things that we put together." Tom argued his continued ability to improve how he taught CBE came through reflection and stated, "Through the first semester, I recognized what was necessary to provide the students with what they needed to be successful…after the first one, I said, 'okay, now I know how this works."

4.1.3 | Interview results focused on institutional support

The final set of questions focused on how institutions can support CBE faculty. Faculty noted the use of trial and error in learning to teach CBE courses. Allison explained the use of trial and error through a reflective approach:

> Just trial and error. I mean I was in it from the groundbreaking. So it was…the course doesn't look like what it looked like that first year or two, because there were things that just didn't work well. I didn't stick with it. We had an idea that we thought would work and then it just didn't play out like we anticipated, and you change it (if it doesn't work).

The second theme in this context was an awareness of the challenges faculty would face in preparing to teach CBE. Allison expressed she was duly aware of the challenges she would encounter early on but was not apprehensive about it. She noted, "I felt somewhat prepared… It's just like with anything new - you're not sure how it's going to play out on the student side until it actually does, but I wasn't fearful of it."

Reliance on peer support, the third theme, indicated that mentorship and specific and diverse learning experiences promoting awareness of resources that exist to support faculty were necessary for those teaching CBE. Paul stated the benefits of peer-to-peer mentoring, indicating, "I do think that in everything I've seen about all types of educational improvement, faculty get better by talking with other faculty about teaching and working with (other faculty)."

The final theme in this section was support through refinements, so faculty can support CBE through refreshing the student-centeredness of CBE, evaluation of workload and compensation, and benchmarking Five Rivers to others who use CBE to learn. One of the more urgent calls came for examining how faculty are paid. Mark detailed that, "I think I have been through five or six different pay models. Sometimes (my faculty) get full load, sometimes they don't want to take it (a CBE course) because they didn't get the full load." Five Rivers uses a compensation model based on the number of students in a section, and if enrollment is low, they may not get the same payload as a non-CBE course with the same low enrollment.

4.2 | Phase 2: Survey results

Items in the survey were developed from the themes that emerged s from the interviews and aligned to each research question (see Table 2). Forty-eight faculty completed the survey with more than half ($N = 28$) having between one and five years of experience. All but seven had at least six years in higher education. Thirty seven had industry experience, and gender was nearly split with 27 male and 21 female faculty responding.

Table 3 displays the overall results for views of CBE and the results separated by construct. Overall, faculty (N = 48) views of CBE were generally positive (M = 3.68) falling between neutral and agree. By construct, means for origins of teaching CBE (M = 3.10) and CBE teaching and delivery (M = 3.10) were the lowest. Conversely, theory and background (M = 4.27) and student focus (M = 4.35) were the highest and approached strongly agree. Of note, the mean for student focus was the highest construct mean of any part of the survey.

The next section of the survey aligned to the second research question which asked, "How do faculty involved with CBE rate their own self-efficacy?" The overall results and results by construct are displayed in Table 4, were largely positive with a mean again between neutral and agree (M = 3.76). By construct, interaction (M = 3.40) and support and intervention (M = 3.59) had the lowest means. Teaching ability (M = 4.03) and content instruction (M = 4.03) alternatively had the highest means.

Table 5 displays the results pertaining to the final section of the survey regarding views of institutional support for CBE faculty. The overall result was generally positive with an average rating between neutral and agree (M = 3.69). This section contained the lowest overall mean of any section of the survey in the construct of learning to teach CBE (M = 3.04). The next lowest mean in the section came from the construct of communication and promotion (M = 3.51). The two highest construct means came through existing resources (M = 4.01) and expectations (M = 4.10).

TABLE 3 Overall results for views of CBE and results by construct

Construct	M	*SD*
Overall results for views	3.68	1.12
Theory/background	4.27	0.83
Origins of teaching CBE	3.10	1.13
Student focus	4.35	0.62
General tenets	3.54	1.08
CBE teaching/delivery	3.10	1.15

5 | DISCUSSION

Competency-based education (CBE) has roots in the late 1800s (Duemer, 2007) but continues to grow in higher education (AIR, 2019). This study examined faculty perceptions of CBE, their self-efficacy, and views of needed institutional support. Six key findings provide useful insights for practitioners, and limitations underpin future opportunities for research to continue driving CBE implementation and management.

When integrated, interview responses that influenced survey results found CBE faculty have mixed views of the approach. On the positive side, faculty noted the significant benefits of CBE for students and their success on the path toward completion of a credential. The student focus of CBE produced the highest mean of all survey constructs (M = 4.35). Additionally, faculty such as Mark, for example, who noted the ability for learners with experience to obtain credit for it also support CBE's student benefits. Moreover, faculty beliefs about the student benefits of CBE emerged in four key ways. First, CBE is an enabling mechanism for successful completion, notably for students who are nontraditional with busy lives. This finding echoes that of Wang (2015) who found 85% of students favored CBE because of its flexibility. Second, CBE promotes improvement in employment opportunities and thus empowerment in the workplace to re-enter the workforce or improve standing at an employer. Like Clerkin and Simon (2014) who argued for the importance of partnerships between institutions and employers, this finding is vital for successful CBE programs. Third, the strong vocational connection between what students learn and the workplaces they will enter further support student-centeredness, a finding that echoes an older notion from Bornitz and Carnaghan (2003) regarding the relationship between competencies and reality. Finally, this study found CBE to be an innovative approach that will concern the future of learning. Like Soulunni (2019), this study detailed the need to critically review traditional models.

Negative faculty views of CBE largely focused on the roles faculty play and infrastructural concerns in three ways. First, faculty reported unanimously their involvement emerged through pressure to teach CBE—both by assignment or personal feelings to be involved. Responses from interview participants such as Tom noted the compulsory opportunity and survey responses noted moderate agreement (M = 3.10) with related statements. Second, this study's findings supported a concern noted by others over a disaggregated role of faculty (Burnette, 2016; Monahan, 2015; Neem, 2013; Ohio Department of Education, 2016). Faculty felt more of a mentor role rather than a traditional instructional role and adaptation to this new role was difficult. Karen and Cheryl expressed concerns over class sizes and a lack of consideration for whom Five Rivers markets CBE, and survey responses were again moderate in agreement (M = 3.10). Finally, views of CBE noted a need to refresh the ways in which Five Rivers conducts its CBE programs as it is a community college using traditional systems. This concern echoes that shared by others, such as Robbins (2017) and Viola (2016) who cautioned that traditional systems are not compatible with CBE needs.

The third finding of this study relates to the views faculty have of their self-efficacy and confidence. Results from interviews suggested prior experience and repeated practice at teaching CBE had a significant impact on CBE faculty self-efficacy. Mean responses overall (M = 3.76) were the highest of all three areas of the study with means increasing with further experience teaching CBE. Faculty in their first year had the lowest scores (M = 3.56) compared to their peers with one to five years (M = 3.82)—which was also the most populous group (N = 28)—and more than five years (M = 3.73). The other interesting aspect of this finding related to one of the main tenets of CBE as a concept. Students in CBE desire the chance to demonstrate what they know from prior experience. Similarly, faculty teaching CBE, such as Allison and Claudia, tended to feel more confident when they could call on their prior experience whether from teaching in other modalities or from industry. This finding is supported by the existing

TABLE 4 Overall results for areas of self-efficacy and results by construct

Construct	M	*SD*
Overall results for self-efficacy	3.76	1.01
Interaction	3.40	1.14
Teaching ability	4.03	0.76
Content instruction	4.15	0.83
Support/intervention	3.59	1.09
Influencing factors	3.63	0.95

TABLE 5 Overall results for institutional support ideas and by construct

Construct	M	*SD*
Overall results for support	3.69	0.94
Learning to teach CBE	3.04	1.12
Relationships or roles	3.55	1.03
Existing resources	4.01	0.69
Communication and promotion	3.51	0.85
Expectations	4.10	0.66
Actionable research	3.86	0.79

notion in the literature that strong self-efficacy impacts an educator's ability in the learning process (e.g., Morris & Usher, 2011; Tschannen-Moran & Woolfolk Hoy, 2007; Wertheim & Leyser, 2002; Woolfolk Hoy, 2004). This finding also supports Lopez and Lent's (1992) finding that in specific contexts of learning, mastery experiences were the most influential factor on self-efficacy.

Fourth, faculty views of institutional support emphasize the importance of specific learning opportunities to not only initially learn how to teach CBE but also to refine their approach as they gain more experience. Interview results included suggestions for how faculty can gain more experience, such as formal training programs, mentorship, and allowance for trial and error. Faculty, such as Allison, who noted trial and error and Paul, who noted working with peers, heavily emphasized the criticality of these approaches. Survey results, on the other hand, suggested that perhaps there is not one right way to prepare and support faculty to teach CBE courses. Some faculty noted formal programs were not always effective ($M = 3.02$) and trial and error was not always the most effective way to learn ($M = 2.69$). The need for specific learning experiences, especially over time teaching CBE, reinforces Koellner and Jacobs' (2015) stance that faculty development practices must exist on a continuum. This is further true according to Steinert (2014) who noted faculty development is about improving ability and action, not singularly defining these aspects of teaching at the onset of one's career. The different suggestions for faculty development espoused by responses also reflect the findings of Stes et al. (2009) that faculty development should align to teaching practice and institutional priorities.

The final finding is that faculty must work together to improve their practice in teaching CBE. This collaborative environment must include mentorship and peer support geared toward improving overall teaching of CBE courses as emphasized by faculty such as Paul who bluntly noted talking, teaching, and working with other faculty were benefits that pay dividends with any new approach. Survey results for relationships or roles ($M = 3.55$) indicate agreement among the larger body of faculty the importance of working with others. This finding aligns with the role vicarious experiences play with self-efficacy. Research has shown that the use of a mentor or guiding party can positively affect the self-efficacy of the mentee (Bandura, 1977). This finding also connects the present research to the literature reviews of Steinert et al. (2016) and Stes et al. (2009). Their themes included the importance of a community of practice for long-term success in development opportunities. Dath and Iobst (2010) noted new faculty need many experiences for success in teaching CBE.

Theoretically, this study adds to self-efficacy theory and its sources—notably mastery experiences—as they were clearly noted by faculty in their interview responses as largely important to supporting strong self-efficacy in teaching CBE courses. Survey responses on mastery also supported their importance. This finding not only aligns with Muretta (2004) and Bandura (1977) but also Tschannen-Moran and Woolfolk Hoy (2007) who found mastery experiences were the most significant predictor of self-efficacy over long-term careers. Additionally, since Bandura first posited self-efficacy theory, many scales emerged to measure it as a construct such as handling student situations and needs (Sherer at al., 1982) or the role of individual traits on self-efficacy (Woodruff & Cashman, 1993). In the present study, rather than use an existing scale, the interview questions were created based on Bandura's (2006) *Guide to Creating Self-efficacy Scales*. The present study supports this *Guide* because of its further use in a research study and the creation of context-specific instruments based on its suggestions. The instrument used for the survey was then based in part on the *Guide* because the items were derived from interview responses. This process is the hallmark of the exploratory sequential mixed methods design (Creswell, 2015). Though the survey was not field tested, it did return a high Cronbach's alpha reliability measure (42 items; $\alpha = 0.86$).

6 | LIMITATIONS AND OPPORTUNITIES

Creswell (2015) has argued that the cumbersomeness of mixed method studies can increase the chances for limitations of a study. This study had three limitations but each also presents an opportunity for further research. First, the researcher's affiliation with the research site could affect validity of results though measures were taken to ensure objectivity. As such, replication of the study at a different site may add to the strength of its findings and those of future inquiry. Additionally, a study into the validity and reliability of the instruments may address this challenge. Second, the study was limited to a single institution with a small sample. Making connections to other colleges and universities is thus challenging. However, a further project may look at comparisons in findings between two or more campuses and thus a larger body of faculty to further

understand results. Finally, the small sample size makes understanding demographic breakdowns difficult as no particular subgroup was large enough in size to compare to others. Future research is needed examining subgroups of CBE faculty to determine whether significant differences exist between demographic groups.

7 | CONCLUSIONS AND IMPLICATIONS

Findings in the present study provide several implications for Five Rivers and other institutions with CBE programs in varying degrees of existence. First, faculty views of CBE as balanced between student-centered positivity and faculty workload concerns mean that colleges and universities can use this information to dictate the future progress of CBE programs including promotion of existing ones and plans for the development of others. Second, for institutions not already using CBE, this study adds to the value of what faculty think of the approach and its benefits for students to market programs to potential students. Third, this study will inform practitioners how faculty view their self-efficacy and confidence in teaching CBE so that institutional planning can ensure support exists for faculty both teaching and planning to teach such courses. Fourth, the evidence provided for specific learning opportunities means institutions can strategically plan support mechanisms for CBE faculty. Finally, this study contributes to extending and expanding the use of self-efficacy scales. While further research is needed to critique the reliability and validity of the instruments used, they were created under formative conditions using the BRUSO framework (Fowler & Cosenza, 2008; Peterson, 2000). As such, future research using these tested scales would continue to contribute to Self-efficacy Theory.

Competency-based education will continue to grow on college and university campuses across the country. For institutions already using this approach, there are many considerations for supporting faculty who teach CBE courses and their self-efficacy. This study's results will help to inform the conversation around CBE to avoid discounting the important role support plays on self-efficacy. Further, the connection between providing faculty with learning opportunities and mastery experiences needed to display confidence in teaching CBE programs means planners must consider many different approaches. This will ensure a culture of support can exist and that CBE programs will be successful because the faculty who teach in them will ultimately be empowered to perform confidently. Institutions will also see how CBE benefits students in dire need of alternatives to traditional education to meet the high demands for a competent and capable workforce into the future.

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