Teaching Interrupted: How COVID-19 Turned Thoughts into Practice

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The Community College Anatomy and Physiology Education Research (CAPER) project is a 2-year grant that provides a variety of professional development opportunities to community college instructors of Anatomy and Physiology in the United States. Instructors who participate in the CAPER project also take part in a larger research study that uses both qualitative and quantitative methods to track the instructors’ progress with adapting new teaching methods into their classrooms. When the COVID-19 pandemic caused global disruption to daily life, there were two cohorts of community college instructors participating in the CAPER project. While the immediate impact of the pandemic on community college instructors was not the subject of the original research project, the data from 12 in-depth interviews conducted in the midst of the pandemic revealed rich insights into teacher beliefs and attitudes, adaptation methods, and online learning as an opportunity for change during a global pandemic. This subset of the data also speaks to the importance of the CAPER project for professional development, as community college instructors in the CAPER program used their new skills to integrate active learning techniques in the online learning environment. In this article, we analyze community college instructors’ adaptations to online learning through the lens of conceptual change theory.

INTRODUCTION

An interrupted research project is typically seen as undesirable; however, research that was interrupted by the COVID-19 pandemic is now a source of new knowledge, a place to examine how this pandemic is impacting all facets of daily human life. One example of research interrupted is the Community College Anatomy and Physiology Education Research (CAPER) project which ran from fall 2018 through spring 2020 and was funded by a 2-year National Science Foundation (NSF) grant. The purpose of CAPER was to provide community college (CC) instructors across the United States with the opportunity to learn about, carry out, and evaluate evidence-based instructional practices (EBIPs) through an educational research project in order to increase instructor use of student-centered methods in their classrooms. While CC instructors were participating in professional development programming, members of the CAPER team collected quantitative and qualitative data on the CC instructors’ beliefs about teaching, their integration of EBIPs into the classroom, and their students’ experiences with anxiety in relation to different teaching methods.

As observed by education scholars and corroborated by the CC instructors participating in the CAPER project, community college faculty are often hired for their research experience rather than their teaching experience, despite the fact that community colleges are teaching-focused institutions (1, 2). This creates a necessity for professional development around pedagogy (1, 2). In addition, scholars and CC instructors involved with CAPER have observed that CC instructors are rarely given the time or support to participate in professional development or educational research (1, 3). As such, the CAPER project tied together EBIPs that were less familiar for CC Anatomy and Physiology (A&P) instructors with the more familiar area of research. The CAPER project consisted of two cohorts of six instructors each, or a total of 12 participants over 2 years. Instructors who participated in CAPER first attended a semester-long set of courses on EBIPs and educational research, then applied their learning in the following semester by designing and executing a research project involving the integration of a specific EBIP into their classes. Participation in CAPER concluded with the instructors publishing their findings in a peer-reviewed journal and presenting their research at the Human Anatomy and Physiology Society (HAPS) conference. Each cohort participated for either 1 year or until their paper was published. Throughout the entire process, participating instructors received mentorship and support from members of a research team with backgrounds in Educational Psychology and Anatomy and Physiology Educational Research. In addition to providing professional development opportunities for CC instructors, CAPER also provided the research team with an opportunity...
to study how CC instructors learn about and implement EBIPs and how students respond to them. This article focuses on qualitative findings from the final rounds of semi-structured interviews.

During analysis of these final interviews, researchers on the CAPER team noticed that the topic of COVID-19 was inevitably woven throughout the conversations between the interviewer and the CC instructors. While studying teachers in a pandemic was clearly not the original intention of the CAPER project, it was apparent that the qualitative data held rich insights into the CC instructors’ thought processes around online instruction, their shifts in attitude toward their students, and their concerns, worries, and hopes for teaching during a global pandemic. Therefore, we decided to analyze the final semi-structured interviews, which took place at the onset of the pandemic, as a subset of the larger CAPER project. Through our analysis, we seek to address the following questions: How did the CC instructors apply the skills that they learned through CAPER to the online platform? In what ways did the CC instructors describe the pandemic as a catalyst for pedagogical change? Utilizing conceptual change models, which will be elaborated upon in the theoretical framework section of this manuscript, we argue that the pandemic was a catalyst for pedagogical change in CC instructors, as it disrupted teaching and created a context in which educators felt discontent with their teaching, and thus changed their practice. In addition, the skills provided by the CAPER program aided the CC instructors in adapting to the virtual teaching environment.

CONCEPTUAL FRAMEWORK

The argument that the pandemic acted as a catalyst for educators to change is grounded in conceptual change theory. Pioneering scholars Posner, Strike, Hewson, and Gertzog (4) applied conceptual change theory to the process of learning scientific concepts in order to understand how scientific knowledge is acquired. Put simply, conceptual change can be thought of as “...both the process and the outcome of change” (5). Conceptual change theory makes sense of how and why a learner will change their understanding of a specific concept. Posner et al. (4) outline the conditions that must be met for change to occur. First, the learner must experience dissatisfaction with current concepts. Next, the learner must find a new concept that is plausible and applicable. Finally, the new concept must have a useful application to the learning. Once these conditions are met, change can take place (4). While this is a useful model, it has been criticized for focusing only on individual change and not taking into account other social factors that might influence changes (6). Thus, it is important to note that conceptual change theory does focus on individual factors.

More recent scholarship has built upon, and advanced, conceptual change theory as a means to study how and why instructors enact pedagogical changes, specifically in the field of science education (6–9). In addition to individual change, this more recent work has expanded conceptual change theory to look at the systems and context in which instructors change their pedagogical practices (7). Our research draws on this more recent area of scholarship to understand how the pandemic created the conditions for pedagogical change in CC science instructors. This literature also provides a foundation for understanding why CC educators in the CAPER program moved through the stages of conceptual change in their shift to the virtual classroom.

There are two main concepts from conceptual change theory that frame this research: pedagogical discontentment and contextual discontentment (see Fig. 1 for a visual of how these concepts are applied in conceptual change theory). Conceptual change theory posits that educators must experience pedagogical discontentment as a condition for change, and this concept has been a major focus in recent scholarship. Pedagogical discontentment, according to Southerland et al. (9) is:

...the internal, personal assessment of the degree to which a teachers’ practices meets the teacher’s teaching goals, and it is this assessment and a teacher’s reaction to it that influences their decision to participate in the reform of some aspect of her teaching. (pg. 303–304)

In other words, pedagogical discontentment occurs when educators realize that their teaching practice is no longer achieving its intended goal. This can lead to discontentment or dissatisfaction with current practice, which is a necessary condition for teachers to begin the process of change (6).

Many scholars examine pedagogical discontentment in combination with self-efficacy, which is defined as “the forecast about one’s potential capacity to be successful in a future situation” (9). There are different views on the function of self-efficacy, the amount of self-efficacy needed for change, and the overall role of self-efficacy in pedagogical change. Southerland et al. (10) argue that teachers who experience pedagogical discontentment, and have a high level of self-efficacy, are more likely to make changes to their pedagogical practices. In contrast to this, Saka and Keklikci (11) argue that teachers with high self-efficacy are actually less likely to change, as they are already comfortable and confident in their teaching practices. Research from Gess-Newsome et al. (7) found that instructors with high self-efficacy and low discontentment were unlikely to change, but teachers who experience both high self-efficacy and discontentment were most likely to change. While there is an ongoing debate about how much self-efficacy is necessary to create change, it is agreed that self-efficacy is a vital part of the conceptual change process.

A second concept that is important in conceptual change theory is contextual discontentment. Contextual discontentment can be understood as the “teachers’ assessment of contextual aspects including working conditions and other external
factors such as standardized testing, limited lesson hours to cover content, facilities, or paperwork” (8). Other factors that contribute to contextual discontentment are salary, relationships between colleagues, and relationships between the teacher and their supervisors. Thus, contextual discontentment is closely linked to how satisfied a teacher is with their job (9). We draw a parallel between the pandemic and contextual discontentment, as the move to virtual learning created a situation where the current practice or “context” of teaching was no longer feasible.

This study relies on the concepts of pedagogical discontentment and contextual discontentment as the framework for analyzing the changes that the CC instructors enacted during the transition to online teaching. This research fills a gap in existing conceptual change literature, as there is very little qualitative research on how these concepts are enacted in the science classroom (8), much less during a global pandemic. This research also contributes to understanding how professional development impacts CC instructors, which, as previously stated, is essential to not only the CAPER project but the CC system in general.

METHODS

Data collection

Since the CAPER project was a large, ongoing study, there were various methods of data collection that occurred over the duration of the project. The CAPER project consisted of six CC instructors in the Year 1 cohort (2018–2019) and six instructors in the Year 2 cohort (2019–2020). Details about the 12 CC instructors are included in Table 1. The CAPER team members collected qualitative and quantitative data from these CC instructors and their students through several quantitative surveys (the results of which are not discussed in this publication but will be addressed in a forthcoming publication) and three to four rounds of qualitative interviews with each CC instructor. Based on the Teacher Belief Interview originally created by Luft and Roehrig (12), and later adapted for human anatomy and physiology instructors by Mattheis and Jensen (13), the qualitative interviews were designed to capture instructors’ teaching beliefs and practices at three time points. These interviews were conducted by one researcher throughout the school year; the first was conducted prior to the beginning of the CAPER project, the second at the end of the fall term, and the third at the end of the spring term. As CC instructors were located in the Southeast, Southwest, and Midwest of the United States, all interviews were conducted online through WebEx or Zoom. All data collection and storage methods for this study were approved by the University of Minnesota IRB under the name STUDY00007411. In compliance with the IRB protocol, all names used in this manuscript are pseudonyms.

The data that informs this study come from the final round of qualitative interviews that the CAPER team conducted with the CC instructors in the early months of the COVID-19 pandemic. When the pandemic caused schools...
across the United States to move instruction online in March of 2020, both cohorts of the Year 1 group had completed their classes, research projects, and had presented their findings at the HAPS conference. Around this time, the CAPER research team decided to add a fourth qualitative interview for the Year 1 cohort of instructors. During the third round of interviews with the Year 1 group, participants indicated that heavy teaching loads and a lack of time had prevented them from fully incorporating the EBIPs introduced in the online CAPER course. Thus, the CAPER researchers designed a fourth-round interview to better understand the long-term influence of the CAPER intervention on instructors’ teaching and professional development. All six Year 1 CC instructors agreed to participate in a fourth interview conducted by the same researcher as the previous three. As part of the fourth interview, participants were shown visual representations of quantitative data from their self-reported teaching practices collected through the aforementioned surveys. Fourth-round interview questions included: How do you think the survey data compares with your own understanding about your beliefs and how they have shifted? How would you describe your teaching philosophy today? How, if at all, has the CAPER project influenced your teaching philosophy?

At the onset of pandemic, the Year 2 group found themselves in a slightly different position, as they had finished the CAPER course but had yet to complete their research projects due to pandemic-related delays. The six CC instructors in the Year 2 group had scheduled their third round of qualitative interviews with the research team, and it was determined that this would be their final round of interviews. In addition to the original questions from the Teacher Belief Interview, the third interview included questions about the overall influence of the CAPER project on instructors’ development and teaching, with questions including: How have you evolved as a researcher through the CAPER project? and What have you learned from being involved in the CAPER project? (see Appendix 1 for a full list of interview questions). Though neither the third nor fourth round interview protocols included direct questions about COVID-19 and its impact, the pandemic was frequently referenced both in the answers of participants and the follow-up prompts of the interviewer.

### Data analysis

After the interviews were complete, they were transcribed using Otter.ai and then edited manually by a member of the CAPER team. During the transcription progress, it quickly became clear that the interviews that took place in the spring of 2020 held rich insights into how COVID-19 was impacting teaching and what the CC instructors were doing to adapt. Two researchers analyzed the interview data from the six, fourth-round interviews from the Year 1 CC instructors, as well as the six, third-round interviews from the Year 2 CC instructors. The analysis of this subset of the data was based on an inductive method that uses grounded theory (14, 15). The authors first independently coded each interview to identify themes using open coding (14). Within qualitative research, coding is defined as “a data condensation task that enables you to retrieve the most meaningful material, to assemble chunks of data that go together, and to further condense the bulk into readily analyzable units” (15). Following the first round of coding, the authors met to compare the codes that they identified and to create a unified coding system. Next, the two researchers engaged in axial and selective coding, which means they coded the data a second time using the agreed upon themes (14). The
authors met one final time to review the coded data. The use of selective coding works to unify all of the themes around a central phenomenon—in this case, instructor responses to the COVID-19 pandemic. Through this process of two rounds of coding and two meetings, the authors identified relevant themes from differing perspectives to both reduce bias and to challenge the strength of each theme (14). The identified codes—application of CAPER skills, shifting attitudes toward students, and an opportunity for change—and explanations are included in the supplemental materials and presented in the results section of this manuscript.

RESULTS

While each instructor faced their own set of personal and professional challenges at the onset of the pandemic in March 2020, there were a number of commonalities across the interviews. All of the CC instructors discussed concerns: the effectiveness of the online modality, student access to Internet and personal devices, personal health, the future of education, juggling family and career when contained in the same space, and the basic technical aspects of teaching online, like learning how to use the online platform. Heightened concern was an obvious trend in the interviews and has been widely echoed through K–12 schooling and higher education, as well as in popular sources, print media, and social media (16, 17). While the stories of these very valid and real concerns are compelling and informative, we have identified three major findings that speak to the power of the pandemic as a catalyst for conceptual change in education: the application of CAPER skills for adaptation to online learning, shifting attitudes toward students impacted by a pandemic, and the pandemic as an opportunity for change.

Application of CAPER skills

The CC instructors expressed pedagogical discontentment to the research team, particularly after learning about EBIPs in the CAPER courses and noticing gaps between their teaching practice and active learning techniques (A. R. Hyson, B. Bonham, S. Hood, M.C. Deutschman, L.C. Seithers, K. Hull, and M. Jensen, unpublished observations). When the pandemic forced the CC instructors to move their instruction online, many of the CC instructors saw the change in context as an opportunity to use the skill set they learned in CAPER as a new pedagogical practice. This shift can be explained by conceptual change theory, as the CC instructors experienced pedagogical discontentment, i.e., they were dissatisfied with their current pedagogical practice, and so they found a plausible new skillset in the active learning techniques taught in CAPER. This application of the skills they learned in CAPER made sense as an alternative teaching method, therefore these skills were applied to the online learning classroom (4). This can be seen in the following quote from Professor Tracy:

So, with this kind of teaching, it’s kind of forced me to, don’t just sit there and talk about how I’m going to change my teaching, I’ve had to change it. I mean, we have no choice. And so I think being able to use a lot of that active learning, a lot of our understanding of how to teach, and not have to be with the students at all times, but to put more of the learning onto them, has helped me with this whole thing. So very timely, very crazy.

As Professor Tracy describes, the pandemic became a catalyst for her to engage with the active learning techniques that she had been talking about using during and after completing the CAPER project, but had not yet incorporated into her pedagogy.

One specific EBIP that the CC instructors learned about in the CAPER course was the concept of a “flipped” classroom. A flipped classroom is a popular instructional model that encourages active learning by asking students to watch an online lecture before coming to class in preparation for an active, hands-on classroom lesson. It is called a flipped classroom because lectures, commonly associated with classroom learning, are given for homework (18). Thus, when students arrive in class, they are familiar with the material and are prepared to engage with the material through a variety of activities, such as case studies, simulations, experiments, or labs (18). During the pandemic, CC instructors turned to the flipped classroom as a viable alternative to traditional lecture:

I can record all the lectures and post them. But then in class when I actually am with them, then we just do active engagement, for the most part, maybe a little bit of lecturing because sometimes they’re tired. And they want to take notes for a few minutes. That’s the kind of classroom I wanted to try anyway, eventually, was [to] flip it more. And I just didn’t have time to record lectures. Now I’m like, well, now I have no choice. And, you know, you want to try that. So I’d have like, short 10 minute lectures, and I’d say watch these three 10 minute lectures before you come to class. And then we’ll do activities.

As Professor N. Klein described above, a year after participating in the CAPER program and contemplating the flipped classroom, the COVID-19 pandemic gave her the time and space necessary to record lectures and actually flip her classroom.

The CC instructors not only used new EBIPs, they also drew on the research skills that they learned in their CAPER classes:

So even things like going online, the first thing that I did that didn’t seem to have occurred to some of my colleagues was to go and look at the literature about effective online teaching practices and to assess whether synchronous or asynchronous would work better. And you know, how it impacts students in different ways. So I think that engaging my science [and] research brain with my teacher brain, putting them together, which I didn’t really ever think about doing before. —Professor Vogelsang
Professor Vogelsang discussed turning to educational research articles for information on online teaching in a way that she would not have prior to participating in the CAPER project.

**Shifting attitudes toward students**

The shifting context of the pandemic provided an opportunity for instructors to reflect on their teaching philosophies. While in earlier interviews the CC instructors often discussed having to leave students behind in order to cover the content, it was clear in the final interviews that many of the CC instructors were thinking about their philosophies in terms of the impact on students (Hyson et al., unpublished). The necessity to focus on content over student experience prior to the pandemic was often discussed as a form of contextual discontentment which put limitations on how effectively CC instructors could teach to the needs of their students. When commenting on her personal teaching philosophy, Professor Vogelsang said:

Today it’s probably compassion over content. In the current environment, I had to give up some of the dedication to how much material or how deeply [I covered it] in the interest of getting students through. I don’t think that all of that will leave because I think compassion is still a great way to be an educator but it’ll be interesting to find the balance after this, right? The balance between what they need to learn and all of the situations that they’re actually dealing with. I still think...I have no idea what I said in the past so I may be completely contradicting myself...I still think that they’re capable of a lot. And if I give them both responsibility and trust, I think that they a lot of times do pull through and really impress me. So even in the current situation, I don’t think that I diluted the standards a ton. I just gave a lot more time. A lot more understanding.

During the pandemic, Professor Vogelsang shifted her focus from covering all of the content in-depth, to focusing on being compassionate for students’ home situations and balancing course requirements with students’ lives.

Along with adjusting their teaching philosophies, CC instructors also adjusted the workload of their courses as they began to recognize the personal challenges their students were facing during the pandemic:

Most of my students work in healthcare, like they’re certified, so they got busier. And the ones that had kids now had to homeschool, that was a whole other thing, but they got busier when this all happened. And so I...a lot of them just think they would keep, they would keep up. But it wasn’t that they were connecting with me. It’s kind of all they could do to check things off. I had a lot of people doing homework in the middle of night. I could see what time they did it. –Professor Tabard

I’m also kind of hopeful because really it could be a convenient way for students to study. Your kids are home sick, and we’re just going okay, you can’t take your kid to the daycare and you’re out of work, but you log in for an hour perhaps into the classroom when class is going on and not missing anything. So...or your car breaks down and you don’t have transportation to class, so you can log in. So I see some really nice applications of it and different ways that it can work. –Professor Griffin

Professor Tabard and Professor Griffin both acknowledged the ways in which students’ life situations impacted how and when they could complete their coursework.

**An opportunity for change**

Contextual discontentment was a major factor in the switch from in-person teaching to online teaching. While the CC instructors expressed concerns over the switch to online learning, they also expressed optimism that many of the limiting contextual factors of education had been removed. One of these factors was time. The following quote from Professor N. Klein shows how instructors now felt they had a greater amount of time to try new things in their classroom:

I had an idea of like, this is probably stuff people should be doing, that more kind of active engagement and cooperative [quizzes] and things like that, and using technology, like CAPER. The evidence-based practices that CAPER encouraged and I didn’t get to do it while you were here. It just wasn’t feasible at the time and I wanted to do more of it. So when I see this PIP [data on teaching practice that was measured throughout the CAPER project] I’m like, “Okay, if I took this again in a year, it’s gonna be vastly different.” In part because of necessity because of the pandemic, but also, yes, you have the chance to do it.

As Professor N. Klein discussed, time constraints led to less enactment of changes from CAPER in the year after her participation, but she has now embraced the contextual change of the pandemic as a catalyst for flipping the classroom.

The changing context also eliminated a limiting personal factor for the CC instructors, the fear of failure. Since teaching during a pandemic was a situation in which there was no set precedent, the instructors were free to take risks and try new methods of teaching, as demonstrated by the following quotes:

It’s interesting we wouldn’t have been brave enough to kind of roll the dice and try some of these things before...We have the ability to explore these different things as a result of the pandemic, but it requires a lot of open, you know, open mindedness. If it doesn’t work well, okay, it didn’t work, and we’ll write that down. But you know, normally you wouldn’t have the courage, I think, to try a lot of these things, because you already have something that sort of works and let’s not upset the applecart. So there really is no resistance to anything that
you really want to try at this point, or any questions that people have, because it's all new territory. –Professor Griffin

I just did a video dissection. So I'm literally doing dissections on my kitchen counter. Yeah, I'm trying to keep the cat away. That's a challenge. But anyway, you know I could just do that, do the dissection. Just upload it and be done. No. I didn’t, I didn’t want to do that. So I incorporated music, I incorporated sound effects. So learning how to do video editing, and it's all fun. Like I was literally sitting here giggling like a fool yesterday doing this video editing because it was funny what I was doing. And so, learning how to do all that stuff by myself just on the fly. I'm really proud of myself now. –Professor Blewett

With the rapid shift to online learning, Professor Griffin began enacting self-efficacy to experiment with new teaching techniques in her classroom in ways that she would not have previously. Professor Blewett carried his interactive teaching to the next level by incorporating music and sound effects to a home dissection video in order to engage his students. This willingness to try new ways of teaching speaks to the concept of self-efficacy in cognitive change theory.

DISCUSSION

Throughout these interviews, it became clear that the CC instructors were applying the skills that they learned in the CAPER program to address the pedagogical discontentment that they felt while teaching online. The CC instructors were using EBIPs, particularly experimenting with the flipped classroom model and also using active learning strategies in their instruction. As conceptual change theory asserts, “for any change in teaching practices, teachers must be discontent with a current practical theory and find a new one sensible, beneficial, illuminating, or enlightening” (8). This can be seen in Professor N. Klein’s discussion of the flipped classroom, as she had been entertaining the idea of flipping her classroom after being introduced to the concept in her CAPER coursework, but had yet to actually make the change. This can also be seen in Professor Vogelsang’s discussion of applying newly honed research skills to understand if synchronous or asynchronous courses would be best for her students. Overall, the pandemic created a circumstance in which the CC instructors felt discontent with their current pedagogy, which therefore mobilized them into action.

Contextual discontentment created space for the CC instructors to reconsider their teaching philosophy, and in particular, their attitudes toward students. Professor Vogelsang described a greater need for compassion in her instruction, while Professor Tabard and Professor Griffin took their students’ home and work situations into account and then modified their coursework. This shows that the CC instructors were not only thinking about their changing contexts, but also the changing contexts of their students. The pandemic also contributed to a new context in which CC instructors had time and space to try new methods of teaching. As Professor N. Klein described, many of the CC instructors felt they did not have time to fully engage with and incorporate active learning techniques from CAPER into their teaching while participating in the program. The pandemic disrupted the regular teaching schedule and created a space in which the CC instructors could finally make those changes.

While some CC instructors described initially returning to lecture-based teaching with the shift to online learning, many enacted their self-efficacy to experiment with active learning techniques and quickly make changes to their pedagogical practice. As described by Southerland et al. (10), Gess-Newsome et al. (7), and Saka and Keklicki (11), each CC instructor had their own balance of self-efficacy and discontentment which corresponded to the changes that they were willing to make in their new teaching environment. For instance, Professor Griffin, who may not have made pedagogical changes prior to the pandemic, described finding the courage and bravery to begin experimenting with active learning techniques and documenting her successes and failures. Professor N. Klein, who had toyed with the idea of flipping her classroom but had not yet had time to do so, acted on her interest in the flipped-classroom model and made a huge shift in her teaching. Professor Blewett, who may have had the high self-efficacy and low discontentment that would have previously limited pedagogical changes, carried his at-home video dissections to the next level by adding music and sound effects. The pandemic and resulting shift to online learning caused a change in context that forced each of these CC instructors to enact the pedagogical changes that they believed possible for themselves.

IMPLICATIONS

The results of the CAPER project show the promise of pedagogical training for CC instructors. Previous research in the area of Science, Technology, Engineering and Mathematics (STEM) education indicates a lack of uptake of EBIPs among CC instructors due to influences such as a lack of institutional support, large teaching loads, and little previous teacher training or professional development (1, 19). Researchers have previously identified the need for long-term professional development (PD) programs that provide opportunities for continuous learning and support (1). The authors have found that the CAPER model, which includes a learning segment followed by operationalization in the classroom, provides participating CC instructors with the structure necessary to begin making changes in their teaching.

The authors recognize that this program is not currently available to all CC instructors; however, there are
plans to expand the CAPER program to 40 participants across 40 schools in the United States. Along with expanding the program, the CAPER team intends to make changes to the program based on the findings from this research, and from our recently completed study that analyzed all of the quantitative and qualitative data from both Year 1 and Year 2 cohorts during the 2 years of the program (unpublished observations). Based on findings from these studies, future iterations of CAPER will include a 2-year process for each participating CC instructor, providing them with even more time and support as they experiment with, and research, active learning in their classrooms. CAPER will also offer a reduced course load to CC instructors, thus alleviating the heavy teaching loads that acted as an inhibitor to EBIP implementation.

This particular study has highlighted the need for more research on the types of catalysts that motivate CC instructors to make pedagogical changes. With increased knowledge about what factors drive CC instructors over the tipping point between change in beliefs to change in pedagogy, PD program developers can better understand how to design effective programming. It is the goal of the research team to make CAPER widely accessible to CC instructors across the United States, therefore offering meaningful and applicable PD to CC instructors.

CONCLUSION

The narratives that emerged from this subset of the CAPER project data speak to the importance of providing community college instructors with PD resources, mentorship, and longer-term training. Conceptual change theory shows that when CC instructors feel pedagogical discontentment and enact their self-efficacy, they will use new concepts in their instruction (7). The CAPER team identified this shift in pedagogical practice within the data collected from the CC instructors participating in the CAPER project. Furthermore, the change in context as CC instructors moved their courses online provided the time and space in which CC instructors could incorporate more active learning techniques that they had previously considered in their pedagogy. Therefore, the shift to online learning during the COVID-19 pandemic acted as a catalyst for pedagogical change among CC instructors participating in CAPER.

SUPPLEMENTAL MATERIALS

Appendix I: Full list of interview questions

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