




Using Case-Based Instruction to Support Teaching Self-Efficacy for Cultural Responsiveness in Pre-Service Teachers: A Mixed Methods Study


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Abstract

Using a mixed methods design we quantitatively examined how case-based instruction (CBI) influenced preservice teachers' (PSTs) cultural responsiveness teacher efficacy development across three classroom case studies. Qualitatively, we examined how PSTs were able to engage in self-insertion when writing about their reactions to the classroom cases. Specifically, PSTs were randomly assigned to one of two conditions; one group received a content-based text excerpt prior to reading and responding to two classroom cases (Text–Case). Another group was given a series of three classroom cases (Case–Case) that contained similar information to the Text–Case group. The Text–Case group maintained their cultural responsiveness teacher efficacy compared to the Case–Case group, which showed a significant decline ($p < 0.05$). The Text–Case group also showed greater self-insertion in their responses to the cases. These findings provide evidence that CBI paired with foundational knowledge was more effective than CBI alone.

Keywords: *case-based instruction, teacher education, cultural responsiveness, teacher efficacy*

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Introduction

Teachers' perceptions of culture and diversity have a significant influence on their students' academic achievement and motivation (2017; Siwatu, 2007). Unfortunately, culturally and linguistically diverse (CLD) students often face biases and receive less support in K–12 classrooms compared to students from dominant cultures (Utt & Tochluk, 2020). To address this issue, many teacher preparation programs incorporate curricula on cultural responsiveness, and educators with high self-efficacy for teaching CLD students tend to provide better support to CLD students' academic success and motivation (Fitchett et al., 2012; Tezera & Bekele, 2021).

Bandura's (1997) research indicates that mastery experiences, vicarious experiences, physiological/affective states, and verbal persuasion all affect a learner's self-efficacy. Vicarious experiences impact individuals' learning in varying ways depending on their foundational understanding of a task and the role they take while observing models. For example, learners with low prior knowledge who observe a model with more experience will accept the knowledge being presented as proficient or true (Bandura, 1977). This means that instead of viewing a model as someone to compare oneself to, the model is viewed as an expert. When the observer has more experience with a task in comparison to the model, they are likely to think more critically about the content being presented. Most interestingly, Bandura notes that the strongest form of vicarious experience is that which includes opportunities for visualization. The act of visualizing oneself in a situation (self-insertion), has a greater impact than modeling alone (1997).

More recent research suggests that adult learners also develop self-efficacy when they gain content and procedural knowledge, and when they engage in simulation and role-playing activities as a form of vicarious experience (Dubovi, 2023).

In this mixed methods intervention study, we explored the effects of case-based instruction (CBI) as a vicarious learning experience on the cultural responsiveness teacher efficacy (CRTE) of preservice teachers (PSTs). We gave one group of PSTs a learning opportunity in which they read a classroom case study (Case–Case group), and we gave a second group a textbook excerpt that provided foundational knowledge on similar content (Text–Case group). Both groups then read a series of classroom cases that were related to the content presented in the first case or the textbook excerpt, and then both groups provided written descriptions of what they would do differently if they were the classroom teacher in the case.

Vicarious learning through CBI is a widely studied topic, but it remains unclear whether CBI can specifically impact PSTs' CRTE. Therefore, in this study, we first examined whether PSTs' CRTE differed between the Case–Case group and the Text–Case group. Second, we coded PSTs' written responses to the cases based on the role they took in their analysis, or their levels of "self-insertion." For example, PSTs who took on the perspective of the teacher by using first-person language and offering suggestions to problems posed in the case studies were considered to have the highest levels of self-insertion into the case, like role-playing.

Literature Review

Teacher efficacy

Self-efficacy refers to an individual's perceived competence in performing a specific task (Bandura, 1977). Teacher efficacy refers to a teacher's judgment of their ability to bring about desired outcomes for student engagement and learning (Tschannen-Moran & Woolfolk Hoy, 2001). Teacher efficacy can be further domain-specific within the roles and responsibilities of teaching. For example, high teacher efficacy for giving student feedback does not necessarily translate to high teacher efficacy in managing student behavior, given the different skills needed for each task. High self-efficacy is related to increased commitment and persistence in

a task (Bandura, 1977). Similarly, high teacher efficacy is related to increased commitment and persistence in helping students reach learning outcomes (Scarparolo & Subban, 2021). Teachers with low teacher efficacy tend to believe there is little they can do to support students, reducing the effort and persistence they invest in teaching some students (Scarparolo & Subban, 2021). High teacher efficacy is also linked to greater and more fluid use of instructional supports in the classroom (Zee & Koomen, 2016), the use of effective instructional strategies (Carbonneau et al., 2022), and increased expectations for student learning (Hidayah et al., 2023). Promoting the development of teacher efficacy among preservice teachers, then, is an important component of teacher education programs that strive to develop effective, persistent teachers.

Sources of Teacher Efficacy

Sources of teacher efficacy are hypothesized to be similar to the four sources of general self-efficacy that Bandura (1997) posited (i.e., mastery experience, vicarious experience, social persuasion, and physiological/affective states). In terms of teacher efficacy, mastery experiences include those when a teacher feels successful in their own experiences teaching. Vicarious experiences, such as case-based instruction (CBI), are situations where teachers evaluate their own ability to teach well through comparison to others. Social persuasion is when teachers are given encouragement to succeed in their teaching. Physiological states refer to teachers' responses to their own stress, fear, and anxiety. Newer evidence suggests that feeling confident in their pedagogical and content knowledge can also be a source of teacher efficacy (Morris et al., 2017).

Culturally Responsive Teacher Efficacy

Cultural responsiveness teacher efficacy (CRTE) refers to a teacher's feelings of competence when working with students who come from a different linguistic or cultural background from themselves. The continuous increase in the K–12 enrollment of culturally and linguistically diverse (CLD) students has led to a dynamic instructional environment where teachers often work with students from various cultural and linguistic backgrounds. To prepare for these environments, teacher education programs should strive to develop teachers who are prepared to meet the needs of an increasingly diverse student body. However, teachers continuously report that they feel unprepared to work with CLD students (Gándara & Contreras, 2009; Nieto, 2013) and lack the teacher efficacy to meet students' needs (Beasley et al., 2013). Just as teachers with low teacher efficacy are less likely to engage in instructional strategies that promote their students' academic success, teachers with low CRTE are less likely to use strategies that directly support their CLD students' learning and engagement (Carbonneau et al., 2022).

Case-Based Instruction

Koehler et al. (2019) observed that case-based instruction (CBI) has been employed in various formats across teacher preparation programs, incorporating different peer and instructor interactions while addressing multiple educational goals. Across diverse academic disciplines (e.g., medicine, education, engineering), CBI has garnered acclaim for its capacity to enhance student learning, foster engagement, and cultivate critical-thinking skills (Rosen, 2008). In their comprehensive review of CBI in teacher education, Koehler et al. (2019) underscored several advantageous aspects, including (a) the engagement with experiences akin to those that preservice teachers will encounter in their future classrooms and schools, (b) the exploration of intricate problems within supportive, nonthreatening environments conducive to reflective learning, (c) opportunities for collaborative learning through exposure to diverse perspectives, and (d) the cultivation of essential problem-solving skills and self-directed learning behaviors, qualities highly sought after in educators. In essence, CBI has the potential to equip future educators with the ability to interpret student behaviors, "in rich, accurate, and complex ways," through the analysis of practice-based scenarios (Cochran-Smith et al., 2015, p. 117).

CBI, as noted, is recognized as an effective strategy for facilitating experiential learning, equipping educators with the tools needed to navigate the intricate, ill-structured problems frequently encountered in their profession (Choi & Lee, 2009). Ill-structured problems, unlike well-defined ones with clear-cut solutions, often lack a single, straightforward answer (Hernandez-Serrano & Jonassen, 2003). Examples of such problems include managing classroom conflicts and attending to the unique needs of students (Hernandez-Serrano & Jonassen, 2003). Beyond domain knowledge, resolving ill-structured problems demands skills, such as considering multiple perspectives, developing and monitoring solutions and procedures, and providing well-founded justifications for a chosen solution (Choi & Lee, 2009).

In addition to facilitating learning, CBI can influence teacher efficacy through vicarious means. Vicarious experiences for teacher efficacy are those in which a teacher observes others engaged in the targeted teaching activity. The cases used in CBI can provide opportunities for preservice teachers (PSTs) to observe specific teaching-related activities. According to Bandura (1997), there are several modes of modeling that impact teacher efficacy, including (a) actual modeling (watching other teachers teach); (b) symbolic modeling (watching videos of other teachers teaching); (c) self-modeling (watching a video of themselves teaching); and (d) cognitive self-modeling (imagining yourself successfully teaching). Palmer (2006) also provided evidence for simulated modeling (role-playing in a simulated classroom) as an effective form of modeling. These modeling modes suggest that the format of the case (text-based, video, etc.) used in CBI could influence its impact on teacher efficacy. How a PST inserts oneself into the modeled situation could also impact their teacher efficacy. For example, if a teacher reflects on the model as being separate from themselves (e.g., “The teacher engaged in these practices.”) versus reflecting more personally (“If I was the teacher in this classroom, I would ...”) could also impact teacher efficacy.

Case-Based Instruction to Promote Cultural Responsiveness Teacher Efficacy

CRTE significantly influences how teachers perceive diverse students, and it shapes their efforts to make content instruction accessible to all students. Gay and Kirkland (2003) suggested that learning to effectively implement culturally responsive teaching requires a preservice education that includes self-reflection coupled with opportunities to develop a critical awareness of race and culture.

CRTE involves a careful examination of personal and professional behaviors, beliefs, and values regarding diversity, as well as gaining insights into how CLD students learn to build on their strengths and talents (Gay & Kirkland, 2003). CBI may be an avenue to support PST development of CRTE by providing vicarious experiences to explore ill-structured problems related to teaching CLD students and then carefully examining their personal behaviors, beliefs, and values around diversity. Further research is needed, however, to determine if CBI is more effective at cultivating self-beliefs, such as CRTE, than engaging in more traditional textbook learning. Research on how CBI influences self-efficacy for engaging in culturally responsive teaching, and how the individual inserts themselves in the scenario in relation to the model specifically, is needed.

Research Questions

To determine whether CBI enhances PSTs' CRTE, we asked the following research questions:

1. Does the use of CBI to teach about culturally responsive teaching increase PSTs' self-reported levels of CRTE beyond PSTs who received similar instruction from a textbook?
2. How does CBI influence the ways PSTs relate to the modeled scenario by inserting themselves into the case?

Methods

Participants

A total of 102 PSTs were recruited through emails and education courses to participate in our 5-week study at a U.S. northwestern university. Participants were paid \$15 for each week they attended their session. Most participants were female (90%) and White (85%), with English as their first language (97%). Of the 102 participants, 9% self-identified as Asian and the remaining 6% indicated other races, such as Black, Native American, Latinx, and Hawaiian/Pacific Islander. Participants came from both elementary (80%) and secondary (20%) general education teacher programs. Our sample was representative of the larger pre-service education programs at the institution's main campus, typically consisting of approximately 80% White, 15% Latinx, and 5% Native American, Asian, Black, and Hawaiian/Pacific Islander, collectively. The majority of education students at this institution are also female (approximately 80% of the elementary education majors and 65% of those majoring in secondary education).

Design

This mixed methods study employed a convergent parallel design with an intervention approach (Creswell, 2015). The qualitative and quantitative data were analyzed separately and given equal weight to broaden understanding of the impact of case-based instruction (CBI) on cultural responsiveness teacher efficacy (CRTE) and self-insertion on preservice teachers (PSTs). Specifically, we assessed whether there was a differential change in PST CRTE among the condition groups (quantitative) and coded PST case responses based on their level of self-insertion (qualitative). Self-insertion was operationalized as having taken the perspective of the teacher in their written responses to the cases. To obtain a more holistic understanding of the impact of CBI on PST CRTE, the results of the quantitative and qualitative data were then integrated to develop a meta-inference of our overall findings (Creswell, 2015; Tashakkori et al., 2021).

Instruments

Quantitative

The Culturally and Linguistically Responsive Pedagogy Self-Efficacy (CLRP-SE) survey from Carbonneau et al. (2022) contains eight cultural responsiveness questions on a 5-point Likert-type scale (1 = *does not relate to me* and 5 = *relates strongly to me*). These questions varied in terms of task difficulty (*I can obtain information about my students' cultural backgrounds* and *I can integrate my students' cultural background into learning*); generality among similar tasks (*I can be an advocate for CLD students by collaborating with parents, families, and community members* and *I can include CLD students in a classroom to create a positive educational atmosphere*); and strength of perceived capability (*I can make modifications for my CLD students* and *I can help CLD students feel like important members of the classroom*). Scores produced from the CLRP-SE survey demonstrated high levels of internal consistency as measured by Cronbach's Alpha ($\alpha = .91$) and preliminary validity evidence related to content and convergent validity have been collected (see Carbonneau et al., 2022).

Analysis

Quantitative

A Repeated Measure Analysis of Variance (RM-ANOVA) was conducted to determine if differences emerged between the Text–Case and the Case–Case conditions across time. Time was used as a within-subjects factor assessed by the pre- and post-assessment of the PST CRTE, and condition (Text–Case or Case–Case) was used as a between-subjects factor. Prior to running this analysis, missing data existed (eight post-efficacy scores). Little's MCAR (Missing Completely at Random) Test revealed that missingness was likely random or completely random, therefore we imputed data using the expectation–maximization (EM) algorithm to guard

against biases introduced by removing cases. Additionally, assumptions associated with RM-ANOVA were tested and met.

Qualitative

We used thematic analysis following Clarke and Braun's (2017) framework to gain insight into the phenomena of CRTE investigated through PST case responses. Our approach to coding and theme development was inductive and was marked by a reflexive nature, with the first author immersing themselves in the data, posing questions, reflecting, pondering, and writing, all as a prelude to thematic conceptualization.

Inductively establishing the principal themes was accomplished through multiple readings and re-readings of the case responses. Themes were first identified from the data and then categorized by condition (Text–Case vs. Case–Case) to observe differences between the two groups and then within conditions to illuminate themes within each condition. The third author then acted as a coder to reach a consensus. As inductive coding for themes is an emergent process dependent on our beliefs and experiences, it is essential to consider the positionalities of the researchers. As a research team, we are teacher educators and former K–12 teachers. These details warrant attention, as they could have influenced the formulation of specific cases and coding of PST responses. This intersectionality is also likely to have played a role in the thematic analysis and our meta-inferences. An overview of this coding is presented in Table 1.

Table 1. *Coding Procedure Used to Categorize Qualitative Classroom Case Responses' Depth of Vicarious Experience Based on the Phrasing of Text Within the Responses*

Level of Vicarious Experience	Definition	Key Words and Phrases	Examples from Case Responses
Narrator	Provides support for teacher strategy use Concludes no fault, error, or improvement areas Points out teacher error <u>OR</u> makes suggestions for alternative solutions—NOT both	"I would use these strategies." "The teacher did a great job!" "I think a solution could be ..."	"I think Mrs. E. found a good solution if it works well." "I would implement this information into my class." "I think the teacher is doing an exceptional job. If I were put in this situation I ..."
Supporting character	Provides shallow response with first-person language	NOT "I feel as though the teacher should ..."	"In my class I will be aware that all students are individuals and will feel differently about the things I teach. "
Secondary character	Points out areas of error AND makes suggestions for alternative strategy use based on prior knowledge—but NO self-insertion	"The teacher should have ..." "A suggestion could be that the teacher would ..." "This situation could benefit from ..."	"One assignment he could assign is ..." "The teacher should reach out to the parents first, then change the classroom rules."

Main character	<p>Critiques AND provides alternative strategy</p> <p>Places self in situation to identify what course of action to take</p> <p>Clears differentiation between "I suggest" and "I will"</p>	<p>"In my classroom, I would have ..."</p> <p>"In my classroom, I will ..."</p> <p>"As the teacher, I would ..."</p>	<p>"If I were that teacher, I would continue to communicate with the parents."</p> <p>"I will also make it known to my students that ..."</p>
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Mixed Methods

After analyzing the results of both the quantitative and qualitative data, the datasets were integrated for a side-by-side comparison. Individual PST change scores in CRTE were assessed alongside the themes presented in their case responses. Patterns of similarities and differences were documented and used to form our meta-inference.

Procedure and Materials

Participants came into the lab once a week for 5 weeks. In Week 1, PSTs from both groups were given an efficacy survey to record feelings of CRTE. Each PST was then randomly assigned to one of two groups: textbook learning and then case analysis (Text–Case group) or vicarious learning through a case study, then case analysis (Case–Case). In the Text–Case group, PSTs were given reading materials from a textbook pertaining to a specific education topic that was presented through a culturally responsive lens. In the Case–Case group, PSTs read a case study that was similar to the content presented in the textbook passage presented to the Text–Case group. Both groups were then given a different classroom case, which participants were prompted to assess in writing. This assessment involved identifying the problem the classroom teacher in the case faced and proposing a solution to the problem. Specifically, PSTs were prompted to (1) summarize the issue observed within the case, (2) identify what the teacher in the case did, and (3) provide strategies or solutions that might help resolve the issue. Each of the weekly case studies (Weeks 2–4) and the textbook excerpts described a different issue related to culturally diverse classrooms. See Table 2 for a breakdown of the case and textbook excerpts. In Week 5, students were given the efficacy post-assessment.

Table 2. *Case and Textbook Excerpt Topics*

Weekly Topics	Description of Case	Description of Text
Classroom behavioral differences	A student is labeled by the teacher as "disruptive," "out of control," and a possible special education referral; highlights the dangers of deficit thinking.	The effectiveness of specific rewards and deterrents can be influenced by students' individual differences, such as their interests, needs, values, and goals.
Language proficiency	A student is provided supports for a learning disability when, in fact, they need support with the English language.	Respecting a student's first language is essential for building a quality learning environment in a classroom.
Between and within-group motivational differences	A teacher uses non-specific praise in class, reducing opportunities for students to clarify responses, adversely affecting students' levels of engagement and motivation.	Students will vary on many important motivational factors, such as need for autonomy. Individual differences may help to explain why students respond differently to a stimulus.

Results

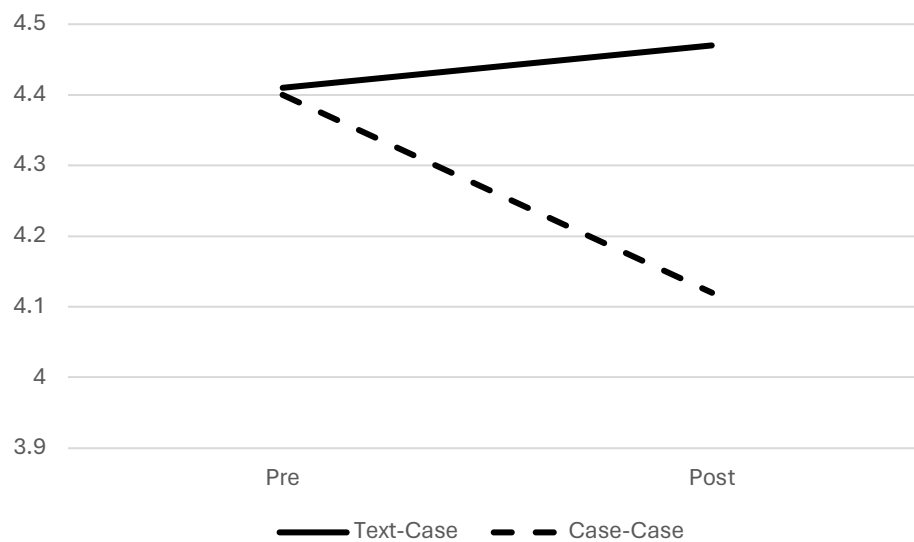
Quantitative: Increases in Culturally Responsive Self-Efficacy Scores

Using an RM-ANOVA with time as a within-subject factor and condition as a between-subject factor, we observed a statistically significant difference between condition ($F(1, 100) = 4.83, p = .03$) with those who received information through a textbook excerpt, the Text–Case condition ($M = 4.47, SD = 0.49$) reporting higher levels of CRTE, regardless of time, than their counterparts in the Case–Case condition ($M = 4.26, SD = 0.76$), $d = 0.31$. Additionally, the data revealed a statistically significant interaction between time and condition ($F(1, 100) = 4.07, p = .04$), with PSTs who received instruction only through cases (Case–Case group) having a statistically significant decline in their CRTE when compared to those PSTs who received instruction through text first. Specifically, in the Case–Case group, PSTs reported a decline in their scores whereas the Text–Case group did not report any change in their self-efficacy scores. Table 3 provides the cell means for this interaction and Figure 1 provides a visual.

Table 3. Means and Standard Deviations by Condition

Condition	Pre-CRTE	Post-CRTE
Text–Case	4.41 (0.50)	4.47 (0.48)
Case–Case	4.40 (0.37)	4.12 (0.53)

Figure 1. Interaction of Condition by Assessment Point



Qualitative: Coding of Self-Insertion

We iteratively developed and applied inductive coding to extract the theme and levels of PSTs self-insertion, and we employed a descriptive qualitative approach to present our findings. One prominent theme that emerged was the varying degrees of self-insertion language used by participants in their writing. Students who

expressed a deeper personal connection to the classroom case were also identified as having a stronger sense of competence with the material.

The first author, blinded to condition, coded PST case responses based on their provisions of culturally relevant solutions and their levels of self-insertion into four categories: narrator, supporting character, secondary character, or main character. Specifically, responses offering little or no critique of—or solutions to—the problem presented in the case were coded as narrator—describing the case from the perspective of an outsider. Self-insertion responses (i.e., took on the perspective of the teacher in the case, such as using “I” statements) lacking a case critique were coded as supporting character. Supporting characters combined the lack of culturally responsive solutions of a narrator with self-insertion. Secondary characters offered responses that provided a critique of the case and offered a culturally responsive solution to the problem but did not insert themselves by taking on the role of the teacher in the case. Lastly, main character was the code for responses that critiqued the case, provided culturally responsive solutions, and inserted themselves. Table 2 provides an overview and examples of these categories.

After coding all case study responses as narrator, supporting character, secondary character, or main character—and after gaining trustworthiness through a secondary coder—an overview of the data showed a greater concentration of main character responses for the Text–Case group in comparison to the Case–Case group, aligning with our quantitative findings. Specifically, those in the Text–Case group had 34 main character responses, whereas the Case–Case group had eight. There were also considerably more supporting characters in the Text–Case group responses than in the Case–Case group responses (25:3 respectively).

Condition Specific Responses

To evaluate if condition related to differences in how PSTs engaged in self-insertion when responding to each week’s case, we sorted responses into Text–Case or Case–Case. We then examined similarities and differences across study conditions. In this examination, it was noted that most Text–Case participants assessed their first classroom case at a “Secondary Character or above” level while most Case–Case participants assessed their first classroom case at “Narrator or Secondary Character” levels. Those who gained declarative knowledge about the relevant topics through a textbook excerpt rather than through a case study alone inserted themselves into the follow-up case at a higher rate than those who were in the Case–Case group. Further examining this finding, we provide an in-depth comparison of two students, who have been given the pseudonyms Taylor and Jamie, to examine how PST responses varied across conditions.

Taylor. In the Text–Case condition, Taylor was coded as inserting themselves as a Main Character for their response to the first classroom case about cell phone policies in classrooms. Taylor wrote in their response:

I think that it was useful to read an example of how teachers might solve this problem; however, I don’t think that I would implement either of these teacher’s strategies. I was inspired by something [the teacher in the case] mentioned, “I would hope students could learn to use technology appropriately.” So teach them. While I didn’t go into teaching to teach about technological literacy, it is a rampant problem in middle and high schools. I would take a day and introduce students to the concept of technological literacy. Ask them what they think are the appropriate uses of technology in our classroom. Let them know that I, too, rely on my cellphone, but that class time is for learning biology, not about your girlfriend’s text message. I think coming up with a group plan for how we can best learn, despite the distraction of cell phones or iPods would be how I would handle this.

Taylor was not only able to evaluate what the teacher in the classroom case was doing well but also how they would have done it differently. Taylor attended to what the teacher was saying and actively applied it to a classroom setting when they said, “I was inspired by something [the teacher in the case] mentioned.” Taylor also illustrated how the situations might look differently using the skills they had at hand. The issue Taylor

saw was that students were not being taught how to use technology appropriately, an artifact from the text excerpt, and Taylor thought critically about how to teach students to use technology appropriately in the classroom.

Taylor, in their case response, was able to identify techniques that may be more useful, and they inserted themselves into the situation by using first-person language. Taylor also considered how these techniques might benefit students in multiple ways. In addition to maintaining attention during class, Taylor noted that they would provide students with a sense of relatedness and autonomy by stating, “I too rely on my cellphone, but ... class time is for learning biology,” and “I think coming up with a group plan for how we can best learn, despite the distraction of cell phones or iPods, would be how I would handle this.” Rather than creating a top-down, blanket rule about cellphone usage in the classroom, Taylor opted to share this responsibility with students by collaboratively developing rules to construct a classroom environment conducive to learning.

Jamie. In the Case–Case condition, Jamie responded to the same case about cellphone use in the classroom and was coded as a narrator. Jamie wrote:

The teacher is only using negative reinforcement until the end of the scenario. Negative reinforcement can help sometimes, but positive reinforcement has a great impact on behaviors as well. Since teachers have always tried taking recess away in order to get the student to focus in class, the student no longer cares about recess, because she isn't used to having a lot of recess.

Unlike Taylor, who took on the perspective of the teacher in their response, Jamie wrote only from the perspective of an observer by using language such as, “the teacher” and “teachers have always.” Jamie did not break down and evaluate specific situations within the case but, instead, gave a generic overview of the teacher’s actions without providing tangible solutions to the problem presented in the case.

Comparing the Taylor and Jamie responses demonstrates the general trend we observed when comparing themes across the two conditions: PSTs in the Text–Case condition were more likely to engage at higher levels of self-insertion than those in the Case–Case condition. Taylor, who was provided foundational knowledge through a textbook excerpt, was more proactive and engaged in their case response, whereas, Jamie, who read an informational case study rather than a textbook excerpt, responded from a more detached perspective and did not provide specific criticisms or culturally relevant solutions. This was a common pattern in our qualitative analysis of case responses.

Consistency in Self-Insertion

Regardless of condition, we noted that PSTs did not tend to shift their levels of self-insertion, depth of critique, or offering of solutions when responding to cases. To exemplify this consistency, we provide excerpts of the responses from two PSTs across the 3 weeks they responded to cases. We have given them the pseudonyms Charlie and Riley.

Charlie. In the Case–Case condition, Charlie was coded at the narrator level of self-insertion and did not appear to change their level of self-insertion, depth of critique, or offer solutions across time, as their exposure to cases increased. Their responses were as follows for the three cases to which they responded over a 3-week period:

Case 1: “It seems as though many of the students have cell phones. I think that the sign idea is beneficial because it gives the students a visual of what is expected in the classroom.”

Case 2: “For now, Mr. Flores can provide this student’s parents with information on extra support, such as reading/math activities the student can do at home or with family. In class, Mr. Flores can do his best to provide differentiated instruction for this student until assessment can be done.”

Case 3: "The assignment could be changed so that it suits the needs of all the students. The topic will still remain 'Navajo,' but students will be given a choice on what aspect of the Navajo to research. They have the option of attaining sources from the internet, library, or another person."

Across Charlie's three responses, the majority of their evaluation is dedicated to summarizing the case and providing support for the teachers' strategies from an outsider's perspective. For example, in Case 1, Charlie wrote that they found the teacher's strategy to reduce cellphone use in the classroom "beneficial" and did not provide any solutions to the problem posed in the case. This lack of self-insertion is also present in Charlie's response to cases two and three. Although Charlie appears to pose solutions, these suggestions are the same strategies utilized by the teacher in each of the cases. Charlie did not insert their own knowledge and skills about culturally responsive teaching to offer promising solutions.

Riley. From the Text–Case group, Riley, coded as a main character, also demonstrated consistency in their level of self-insertion across their three case responses. For each of these cases, Riley wrote:

Case 1: "If I were a teacher in this scenario, I would set expectations of cellphone usage in my classroom, and if I noticed a student not following the expectation, I would take their phone away. In the very first days of school, I would explain to students my electronic policy expectations."

Case 2: "In my own classroom, I would provide extra one-on-one instruction with these students, and I would also send them home with work that is written in the student's first language."

Case 3: "If I were in [the teacher's] shoes, I would notice from the discussion that my lesson needed to focus more on Navajo history, and that just talking to relatives would not be enough. First, I would do my own research on Navajo history to get somewhat of an understanding of their history. I would then reach out to members of the tribe and ask them how I could incorporate their culture into my classroom and teach about the history in the most respectful way. I would invite them into my classroom to teach lessons of their own if they desired or to guest speak."

In each of Riley's responses, they effectively applied the cases to their own classroom ideals, inserted themselves by taking on the role of the teacher, and utilized their own knowledge and skills to offer promising solutions. Additionally, they expanded on the teacher actions in the cases. For example, in Case 1, the teacher confiscated a cell phone but did not confiscate an iPod, demonstrating inconsistency in their practice. Riley took the confiscation practice and specified that they would inform the students early in the school year that this was going to be their cell phone policy. Riley took the strategy used by the teacher in the case and improved upon it by applying consistency and transparency. In Case 2, Riley continued this pattern of self-insertion with language such as, "In my own classroom, I would provide ..." and offering culturally responsive solutions, such as sending practice work home in the family's first language. In Case 3, Riley again inserted themselves with first-person language and provided solutions to the inadequacy of the Navajo history lesson. They demonstrated their knowledge of culturally responsive teaching by suggesting reflection (i.e., "I would notice from the discussion that my lesson needed to focus more on Navajo history, and that just talking to relatives would not be enough"), personal responsibility (i.e., "First, I would do my own research on Navajo history"), and representation of under-served populations (i.e., "I would then reach out to members of the tribe and ask them how I could incorporate their culture into my classroom and teach about the history in the most respectful way. I would invite them into my classroom to teach lessons of their own if they desired or to guest speak.").

Overall, the Text–Case group showed higher levels of self-insertion than the Case–Case group. They were more likely to take on the perspective of the teacher in their case responses, and they incorporated knowledge about culturally responsive teaching more frequently. Finally, participants did not demonstrate added growth with subsequent case analyses, suggesting that critiquing case studies on similar content may not produce a dose response.

Discussion

The present mixed methods study investigated the impact of using CBI with PSTs to increase their CRTE and self-insertion. Participating PSTs were randomly assigned to two conditions, the Text–Case group or the Case–Case group. Those in the Text–Case group received foundational knowledge through a textbook excerpt before analyzing a series of case studies, while those in the Case–Case group were given informational case studies as a form of vicarious experience before analyzing the series of case studies. Quantitatively, we observed a statistically significant difference in PST CRTE between the two conditions, with those in the Text–Case group demonstrating more growth in their CRTE between pre- and post-test than those in the Case–Case group.

Our finding that foundational knowledge is helpful for solving ill-structured problems is supported by several bodies of literature, including problem-based learning, schema theory, Cognitive Load Theory, as well as literature pertaining to differing levels of expertise. Each of these theories and bodies of literature suggests that students are better able to critically analyze ill-structured problems when they are first provided with foundational content knowledge. Our quantitative findings extend this principle to PST CRTE. Specifically, our quantitative findings suggest that providing foundational declarative knowledge may be more effective at increasing PST CRTE than vicarious experiences alone.

Qualitatively, we found analogous results in favor of the Text–Case condition. Through our iterative coding of the PSTs' written case responses, we developed a coding scheme that reflected PSTs' levels of self-insertion. Across both conditions (Text–Case and Case–Case), we identified four levels of self-insertion that ranged from PSTs taking on the role of a narrator (i.e., an uninformed outsider) to the role of a main character (i.e., took on the role of the teacher and integrated their own knowledge and skills to pose solutions). Interestingly, our results again supported the idea that foundational knowledge was beneficial to PSTs in their efforts to insert themselves into the cases they analyzed. Those PSTs who were in the Text–Case group showed greater self-insertion than those in the Case–Case group. Across conditions, participants tended to maintain their general levels of self-insertion after their first case analysis, suggesting that increased exposure to vicarious experiences through case studies alone did not promote growth in PST CRTE.

Holistically examining both the quantitative and qualitative results, we developed a meta-inference (Tashakkori et al., 2021), which suggests that the use of CBI without the support of foundational knowledge may be attenuating the benefits of using CBI in the classroom, at least when trying to increase CRTE. Anecdotally, we have observed that many preservice education classrooms leverage the practice of CBI; however, this is often used without the support of foundational knowledge but rather coupled with videos, news headlines, or other types of artifacts. Our findings provide evidence that we must first engage PSTs with the knowledge associated with practices and principles of our field so that these robust cases and artifacts can be meaningful to PSTs. In our meta-inference and suggestions for practice, we offer that CBI may empower PSTs by increasing their CRTE to celebrate diverse learners as individuals who see the world through different perspectives, and to become teachers who know how to connect students' personal experiences and resources to their learning in school (Ladson-Billings, 1994). However, PSTs must have foundational knowledge in order for CBI to impact their CRTE.

Limitations

Across disciplinary fields, CBI has been highly praised for its positive learning benefits (Herreid & Schiller, 2013). Aligned with this research, our results show that PSTs who received Text–Case instruction had significant growth in their CRTE. These findings justify the exploration and potential inclusion of culturally responsive CBI in teacher preparation programs and suggest that engagement with issues of practice using cases may be more beneficial when underlying theories are first explained. Although this is the case, we have to caution the reader in regard to generalizing our results, as one limitation of the study is our assessment of

only one teacher education preparation program in the northwest. Potentially, unique to our sample may be the fact that issues of diversity still tend to be siloed in specific courses. A program with a more fluid attention to culturally responsive teaching may differ in its results. Future research should focus on determining if the effect of the Text–Case is robust across different samples.

Additionally, it should be noted that our experiment set up a false dichotomy between textbook readings and cases and does not consider other important factors, such as teaching practica, cases nested within instruction, or problem-based learning. Our goal was to examine the efficacy of reading a case compared to reading a traditional text passage prior to responding to a case; further evaluation of CBI should consider the effectiveness of this approach nested in an authentic course rather than a lab setting. Lastly, we did not collect a written reflection prior to beginning the experiment, so we were unable to observe how the participants would have reflected on the scenarios before being influenced by the experiment.

Conclusion

Enhancing the self-beliefs of PSTs who work with diverse students has a positive impact on the quality of education delivered to their students and is a goal of all teacher education programs. Our research findings suggest that, in conjunction with foundational domain knowledge, CBI may contribute to the development of cultural responsiveness teacher efficacy. However, this conclusion should be further examined to determine if our results are robust. In conclusion, in our study, PSTs who received text information first were better equipped to delve deeper into classroom cases and saw some gains in their CRTE. In all, it is valuable to provide students with many examples in addition to domain content when introducing a skill for addressing ill-structured problems, such as cultural responsiveness in the classroom.

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