



Research Article/ Team-Teaching

Exploring Team-Teaching Experiences of Preservice Teachers in Emergency Remote Teaching

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ABSTRACT

The abrupt shift to a digitally-only learning space in response to the global scourge of the COVID-19 pandemic triggered a myriad of challenges yet offered opportunities for Teacher Education Institutions (TEIs) to rethink assumptions about preservice teacher education (PTE). In particular, the education crisis has incited a growing interest in initiating a nonconventional approach to hands-on teaching practices for preservice teachers as a panacea for teacher preparation reform. This study,

therefore, aims to unravel the experiences of preservice teachers ($n=12$) in team-teaching during their remote teaching internship using qualitative data collected through a qualitative research instrument. Employing a content analysis approach infused with inductive thematic analysis, the result captured the preservice teachers' pedagogical praxis experiences, characterized by a nexus of the intertwining team accountability for teaching and learning space, collegial interactions, and promotive interdependence despite the *remote teaching abyss* presumed to be potential contextual barriers and impediments to the teaming. An implication for teaching internship mentors to craft teaching interns' Learning Support Module (TILSM) to enhance preservice teachers' teaming and digital literacy and fluency is put forward. The findings contribute to a novel aspect of team-teaching by providing insights into the potential benefits of team-teaching for preservice teachers in a remote teaching context.

KEYWORDS: Content analysis, preservice teacher, remote teaching internship, team-teaching, remote teaching abyss

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INTRODUCTION

Remote teaching is challenging universities in reconfiguring their preservice teacher education (PTE), which still offers preservice teachers' development and enhancement of

pedagogical content knowledge and skills (PCKS) despite the barriers brought by the instantaneous spread and repercussions of the COVID-19 pandemic. Preservice teacher education has been interchangeably used as *initial teacher training*. It is also referred to as “preservice teacher training,” “initial teacher training,” “educator training,” and “teacher preparation.” When Teacher Education Institutions (TEIs) transitioned from in-person education to pure online teacher training due to the pandemic, teaching internship mentors were confronted with unparalleled drawbacks and roadblocks while collectively navigating remote mentoring to complement the new normal of teacher preparation programs. Consequently, practice mentors have gained interest in introducing a new paradigm of mentoring and hands-on teaching practice approaches for preservice teachers in the context of a remote teaching internship (RTI).

The fundamental assumption underlying the emergency remote teaching internship is that digital ecosystems and modern technology can still provide quality teacher training for preservice teachers similar to in-person or conventional education. This postulates that preservice teachers can enhance teaching skills, develop their teaching efficacy and teaching beliefs, and cement their teaching philosophy through a subversive pedagogy. It requires a conscious effort of teacher education institutions in providing teacher training that infuses the development of emerging teacher skills, like digital literacy and fluency, digital competence, authentic online assessment skills, techno-pedagogical knowledge (TPACK), and effective virtual classroom management. In this regard, teaching internship mentors must employ nontraditional hands-on teaching experiences for preservice teachers, such as collaborative teaching, co-teaching, and team-teaching to provide

them with exposure to teaching practices that enhance their pedagogical skills and prepare them to be effective teachers. While it is true that teacher education institutions’ preservice teacher education ‘grips only a fragment’ of what their program can offer to equip prospective teachers’ pedagogical skills [PS] and increase subject content knowledge [SKC], the necessity to recalibrate preservice teachers’ internship programs such that a ‘seismic’ teacher preparation reform with the goal to complement the current norms of teaching and learning is vital for preparing prospective teachers that are responsive, adaptive, and competent. Teaching internship mentors are in consensus that their mentoring and coaching have a crucial role and responsibility in providing preservice teachers with learning experiences that can solidify non-cognitive skills such as adaptability, resiliency, commitment, and collaboration and other distinctive interests aside from the theories preservice teachers learned during their preparatory years prior to the teaching internship. As Dilworth and Imig (1995, cited in Koki, n.d.) remarked, in the ‘absence of goals’ [author’s italic] for professional enhancement for teachers, the introduction of educational reform is doomed to fail.

Based on the foregoing, responsive and innovative preservice teacher education is an essential component for raising teaching standards and improving student performance. A preponderance of studies has mounted its impact on the development of teacher identity (Cai et al., 2022; Cobb, n.d), teaching confidence and competence (Riley, 2025), and professional practice (Fitzsmons et al., 2025). In the Philippines, the emergency remote teaching internship faced contextual challenges. These include slow internet (Pattung & Caban, 2023; Tegero, 2023), learning modality and learning assessment (Millan, 2021), and students’ struggles, lack of content knowledge,

reduced face-to-face engagement, and the technological issues (Reyes, 2023). And to better prepare prospective teachers for various educational contexts, in particular remote teaching and learning environments, teacher education institutions have to constantly assess how well their mentoring framework, mentoring practices, and institutional practice teaching policies are inclined to address preservice teachers' pressing needs (e.g., inclusive access to contextualized mentoring and support for cognitive well-being and psychological health, including emotional well-being). Therefore, teaching internship mentors are encouraged to develop their innovative and responsive hands-on teaching practices for preservice teachers that will hone them to become highly effective teachers in the post-pandemic era.

However, there is an absence of research exploring the applicability of team-teaching in a remote teaching context. In particular, the current remote internship program for preservice teachers in the Philippines remains unexplored, particularly regarding what practice mentor-based initiatives are adopted to harness their pedagogical skills in response to the limited opportunity to practice teaching experiences. Given the absence of studies investigating team-teaching adoption in emergency remote teaching for preservice teachers, unveiling preservice teachers' experiences is pivotal for mentoring action and mentoring decisions. Specifically, propose a learning support material for preservice teachers. Therefore, this investigation aims to uncover the experiences of preservice teachers with team-teaching in the context of emergency remote teaching. Specifically, these two research inquiries dealt with the aims of the research: 1) What were the experiences of preservice teachers with team-teaching during remote teaching internships? 2) What relevant preservice teacher self-learning support

material can be suggested based on the salient results of the investigation? The study, in addition, hopes to contribute to the paucity of literature and studies regarding the adoption of team teaching by preservice teachers in remote teaching. Implications for remote teaching internships and mentoring are discussed, along with suggestions for future research.

LITERATURE REVIEW

Literature and studies suggest that the current context of initial preservice teachers' preparation requires collaboration skills to navigate a networked learning environment that continues to unfold challenges. As such, developing the collaboration skills of preservice teachers can be tantamount to success in remote teaching. Advocates and proponents of teacher collaborations believe that collaborating with other teachers can propel personal and career development and advancement. Several decades of empirical investigation have highlighted the significance of collaborative teaching. For instance, a study conducted by Woolner (2010) revealed it to be productive and rewarding. A lot of studies also show that there is compelling evidence that when teachers are provided with opportunities to collaborate on instructional practices, they enhance their instructional competence, impacting students' learning outcomes in such a way that it substantially increases students' achievement (Barr, Ghore, & Sommerness, 2007; Hooda & Sharma, 2016; Muli & Wamitu, 2019), outperform students taught in traditional classrooms by scoring high in examinations (Jang, 2006), as well as enhanced learning situation (Burton, 2015). It has also been proven to provide satisfaction towards student outcomes (Junor & Kinuthia, 2009). Aside from the students' aspect that team-teaching can impact, there is a large body of empirical studies on collaborative teaching about what teachers'

benefit from co-teaching or collaborative teaching. For instance, teachers learn pedagogical content knowledge (PCK) and science process skills (McCain, 2005), and most importantly, motivate teachers to become reflective teacher practitioners (Lester & Evans 2009; cited in Brayant et al., 2014). Some studies (such as Baeten & Simons, 2014; Gladman, 2015; Jang, 2011 in Muli & Wamitu, 2019; Lester & Evans, 2009 in Bryant et al., 2014; Walther-Thomas, 1997) have considered collaborative teaching as a venue for professional growth and development.

Team-teaching refers to “co-teaching,” “collaborative teaching,” and “collaborative team teaching.” According to Villa, Thousand, and Navin (2008) “collaborative teaching” is defined as collaborative teaching of several individuals sharing the task of instructing all or a portion of the learners in a learning space. They further expounded the term in terms of role and responsibility, wherein it consists of delegating duties related to preparing and instructing as well as assessing the educational environment of learners. In a similar vein, Bacharach, Heck, and Dahlberg (2010) explained the approach as teachers usually involving more than two teachers performing the instructional planning, lesson design execution, and assessing learners as a group. It is an approach to teacher partnership to address students’ needs (Knight & Sulzberger, 2013; Pappamihel 2012; Rice & Zigmond, 2000) sum it up and liken it to a *‘marriage’* [author’s italic]. This approach is believed to harness preservice teachers’ collaboration skills, one of the 21st-century skills universities should hinge on in their initial teacher preparatory program. In this initial investigation, team-teaching refers to preservice teachers equally collaborating to craft lesson design, create digital instructional materials, execute lesson design, and assess students’ learning of a class comprising a large group of students

in emergency remote learning with the guidance of a practice mentor. From the background and significance of discovering collaborative teaching in the internship of preservice teachers amidst educational crisis, where teachers grapple with adopting the new norm of teaching and new ways of learning with students, practice mentors must initiate innovative hands-on teaching practices.

This investigation was framed by social constructivist theory proponents such as Bandura, Ross, and Ross (1961a; 1963b) and Vygotsky (1978), who posited that learning could exist during social interactions. Jean Piaget, also a constructivist, emphasizes that knowledge is internalized by an individual through the process of accommodation and assimilation and that the individual forms new ideas from the experience. Anchored in these theories, the current investigation aims to unveil preservice teachers’ authentic experiences of team-teaching adoption during their remote teaching internship program, which may offer potential benefits to preservice teachers and practice mentors. A few studies have investigated preservice teachers’ experiences with instructional teaming in remote teaching environments. Thus, by unearthing preservice teachers’ experiences on team-teaching, can provide insights into mentoring practices and contribute to the generation of knowledge about the applicability of team-teaching in the emergency remote teaching context. Most importantly, the findings may offer useful findings and potential implications for authentic hands-on teaching practice of preservice teachers.

RESEARCH METHODS

Using the content analysis defined by Holsti (n.d) as “any technique for making inferences by systematically and objectively identifying special characteristics of messages” infused with the inductive thematic analysis of Braun

and Clarke (2006) in Mihas (2023) and Boyatzis (1998), this study primarily aimed to unveil participants' authentic experiences about team-teaching during their remote teaching internship. The study utilized a qualitative data-gathering tool with open-answer questions. The data-gathering tool was sent via email to the twelve participants ($n=12$), who were preservice teachers from academic years 2020-2021 and 2021-2022, after the culmination of their remote internship program at the ILS-CTE of Cebu Normal University.

Participants and Sampling

Twelve preservice teachers were purposively selected ($n=12$) as participants of the study. They completed their teaching practice program via remote internship with a team-teaching approach at the CTE-ILS. In presenting the findings of the inquiry, pseudonyms were utilized to conceal the identities of the research participants.

Demographics

According to Table 1, the majority of the research participants were females, ten or 10 with only two or 2 males.

Table 1
The Participants' Demographic

Participants	Gender	Concentration
Debbie	Female	General Education
Charlotte	Female	General Education
Aries	Male	Special Education
Jeff	Male	Special Education
Mandy	Female	Special Education
Kristin	Female	Special Education
Julie	Female	Special Education
Alia	Female	Special Education
Shandy	Female	Special Education
Jullian	Female	Special Education
Lucca	Female	Special Education
Patty	Female	Special Education

In terms of concentration or specialization, ten or 10 preservice teachers with Special Education (Sped), and two or 2 with General Education (Gen. Ed.) concentration.

Instrument and Data Collection Process

The study used a qualitative research instrument consisting of two sections that elicit the participants' 1) demographic profile, including name, gender, and degree program concentration or specialization, and the second section contains and 2) qualitative part with an open-answer question: "What were your experiences with team-teaching during remote teaching internship?" The participants responded to the data-gathering tool after their remote teaching internship program at the Integrated Laboratory School of the College of Teacher Education. Permission was secured from the participants before sending the qualitative research tool through an electronic consent form sent to their email in compliance with research ethics.

Data Analysis

The collected data from the survey instrument were coded and organized into categories to determine emerging themes using *inductive thematic analysis* and following the sequence of Boyatzis (1998) involving six steps of analyzing data, such as 1) familiarizing, 2) coding process, 3) determining theme, 4) reviewing theme, 5) evolving theme definition, and 6) results reporting. Patton (1990) elucidates that patterns and emerging themes are explicitly associated with the data themselves, which makes the method appropriate for the present study. The data analysis technique was then used as the foundation for the current study's findings and conclusion. Excerpts with pseudonyms of the participants were included in the presentation of the research results to support the categorization of emerging sub-themes.

RESULTS

The subsequent sections discuss the emerging themes presented in two parts or sections: 1) preservice teachers'

pedagogical praxis experiences and 2) potential contextual barriers and impediments to the teaming. The findings provide theoretical and practical contributions to the team-teaching literature and studies in a remote teaching context. Most importantly, the results offer insights into mentoring actions and development of learning support materials for preservice teachers.

Pedagogical Praxis Experiences

Preservice teachers gave a new meaning to teaming in emergency remote teaching context, characterized by team accountability for teaching and learning space, collegial interaction and promotive interdependence, as presented in this section with excerpts from the participants' responses.

Team Accountability for Teaching and Learning Space

Literature and studies have pointed out that the fundamental goal of co-teaching and team-teaching is to guarantee learning by considering the specific needs of learners and the learning space. Team-teaching of preservice teachers gave rise to a sense of team accountability and responsibility. Aries demonstrated these by commenting that recognizing learners' characteristics as the basis for instructional design can be a key to effective teaching in an emergency remote teaching context. He stated how it facilitated effective teaching and learning:

Well, in my experience at first, it was very difficult for us because we were just adjusting to the new normal vicinity, but as soon as we got to recognize the strengths and weaknesses of our students, that's the time that we were able to impart knowledge to the children smoothly and effectively.

This statement from a participant indicates that shared accountability and mutual answerability by preservice teachers for

learners' learning outcomes can create a culture of high-quality learning experiences for students while also fostering a collective ownership of instructional outcomes.

In a similar vein, one preservice teacher shared how team accountability significantly contributed to a sense of fulfillment. This was elaborated on by Lucca, who recalled,

It offers a new approach to teaching that is very fulfilling and the best experience. Fulfilling in a way that we could easily divide the task as a group. For example, in making lesson plans, making digital instructional materials, and dividing every part of the lesson design during the discussion, the other two teachers will be in charge of making the lesson design, while the other one will be in charge of making the PowerPoint presentation. To make a long story short, team teaching is a convenient approach. I had the best experience.

Interestingly, the above experience of a participant supports the fact that when mutual accountability is cultivated in a collaborative teaching approach, it engenders a sense of fulfillment among teachers. It is, therefore, crucial to nurture collective accountability in the adoption of team teaching in an emergency remote teaching context.

While Jeff shared his observation how team accountability can make the instructional tasks easy. He expressed, "For me the experience I had in team-teaching during real-time distance learning was amazing. Team-teaching made our tasks easier because we worked together as a team." Driven by shared accountability, as teachers navigated remote teaching, the adoption of team-teaching fostered resilience. It taught them to quickly adapt to the changing context of the teaching and learning environment. Moreover, the shared workload enhanced their adaptability through pedagogical

support they received from their practice mentors and co-teachers, thereby providing higher motivation and sustained engagement.

Collegial Interaction

Preservice teachers demonstrated collegiality by putting aside their differences in teaching philosophy, pedagogy preference, and content knowledge understanding to foster a nurturing learning space. Kristin shared about collegiality. I quote at length to evoke the idea:

We collaborate on ideas for our students' activities; we plan as a team for our teaching strategies, and we lift each other whenever someone is having a hard time meeting their obligations as an intern. I also enjoyed team-teaching since we got a lot of ideas regarding interactive activities to integrate during our classes, which resulted in breaking the traditional set-up and encouraging students' interaction in the class. As an intern involved in the team-teaching, I can say that our team exhibited better team management.

This experience voiced by a participant, echoes socio-constructivist learning theory (SLT) *and* constructivism theory that emphasize the importance of peer interaction in the process of learning. When preservice teachers are permitted to participate in dialogue and conversation as well as collaboration with co-teachers, they become adept at understanding the perspectives and personalities of others, thereby creating a nurturing work environment and positive learning atmosphere for learners. Accordingly, these healthy collaborations and dialogues can offer meaningful peer learning and gain insights from collegial interactions.

With the transition of education from in-person to a pure online modality, the unfamiliar teaching and learning has been a 'labyrinth of agony' for teachers and

their learners. They experienced poor well-being, needing support. But with the adoption of a team-teaching approach, preservice teachers tend to foster cordiality as they collaborate with their peers.

This was evident when Jullian elucidated collegiality and how the approach shunned teaching and social-related isolation brought by the COVID-19 pandemic as she recalled,

My experiences with team-teaching during real-time distance learning were great because they made me less anxious about dealing with my students, especially on my first day of demonstration teaching as a student intern. It made me adjust throughout my demonstration to be comfortable as I discuss a particular part of the lesson. Also, team-teaching taught me to have a great collaboration with my co-student interns where we can work together as one. From making our lesson plans, where we suggest a lot of ideas and concepts to meet our objectives for a lesson, and to creating instructional materials where we place some GIFs and pictures together, to make them presentable and understandable. Furthermore, doing team-teaching during real-time distance learning made us effective teachers because it made easy for us to teach and do our job effectively.

Therefore, it is apparent that team teaching in remote internships for preservice teachers has nurtured professional relationships stemming from a high level of trust. Participants seemed to endeavor to share a virtual workspace that supports shared goals relative to improving online learning management and enhancing students' outcomes and engendered teacher satisfaction and diminished isolation.

Preservice teachers also seemed to improve their self-efficacy, both personal efficacy beliefs and teaching efficacy beliefs. Alia shared that

Team-teaching helped me boost my confidence, and I got to learn some teaching techniques from my other co-interns too. I know that someday, team-teaching will be out of the picture, but I'm blessed to have this team-teaching experience to help me prepare what I've learnt from the practice field.

Teaching confidence is essentially seen as a construct of teachers' efficacy beliefs about their abilities to influence students' learning outcomes. The aforementioned claim, suggests that the implementation of team teaching in remote instruction will result in increased teaching satisfaction and decreased burnout.

Promotive Interdependence

Interestingly, preservice teachers recognize the value of the resilience of the preservice teacher training program through team-teaching adoption. They cultivated promotive interdependence to surmount the challenges of the new norm of teaching and learning. For instance, Mandy stated,

Being on a team-teaching is not my first time experiencing such. There were a lot of great things I experienced during team teaching. I had a great team that communicated well and did their part well. The members expressed their opinions and the knowledge about the activities and outputs the students must do.

While the above experience is perceived as positive and is corollary to the traditional teaching and learning environment where the presence of physical social interactions is viewed as helpful for initial teacher education. In this study, despite the absence of such, and teachers only relying on digital learning platforms, their teaming on instructional planning and lesson execution was successful. This only indicates that employing team-teaching in an online class promotes interdependence, which is

pivotal for nurturing distinctive qualities of teachers aside from pedagogical skills.

A participant narrated how the team took advantage of various social media platforms to revitalize the teaming in their instructional responsibilities. Julie shared,

It is not difficult to communicate with the team because we are communicating through Google Meet or any other means of communication. We schedule a meeting before the demonstration and craft the lesson plan and PowerPoint presentation together. As to our demo teaching, it is easy to present our part because we have already planned it.

This claim from preservice teachers negated what researchers have found out, that the pandemic has increased social isolation that hampered them from performing their instructional responsibility effectively, impacting student achievement. In this study it is worth noting that an extended collaboration of preservice teachers using social media platforms and online learning platforms is a factor in successful teaming in emergency remote teaching.

Potential Contextual Barriers and Impediments to the Teaming

Along with the positive aspect of their teaming experiences, preservice teachers also had contextual barriers and impediments to the teaming, like issues with the use of technology and adaptation by the preservice teachers due to a lack of digital fluency and literacy.

Preservice Teachers' Problem with Adaptation and Use of Technology

Despite being considered digital natives, their preparations and level of knowledge of technology seemed inadequate. Debbie's experience painted a bleak picture of her technological inadequacy, yet she demonstrated a motivation to adapt to the new norm when she said,

Due to this global pandemic, our student internship has become more challenging, and it is quite interesting how we are to embrace the new normal way of teaching. With the sudden switch to distance learning through online platforms from face-to-face classes, we are not tech-savvy, so we have to learn and explore the features of online learning platforms.

Debbie's statement implies the evolving role of digital technology in online learning, underscoring the necessity for teacher education institutions to capacitate prospective teachers as the education landscape continues to reshape educational approaches, including the teacher effectiveness construct. Debbie continued and stressed that there is strength in numbers: Team-teaching made our lives much easier. It is often said that two heads are better than one indeed; how much more that we are three in the team in a demo per day?

In addition, Debbie's statement indicates an admission of positive perceptions about team teaching adoption. Her positive view served as a catalyst for the effective introduction of team teaching. Indeed, when preservice teachers exemplify positive attitudes and recognize the benefits of team-teaching they become more invested in improving their pedagogical repertoire, resulting in higher commitment and dedication to the teaching profession.

Poor Internet Connection

Another challenge of the preservice teachers was the poor internet connection. As one participant, Shandy illustrated that to ensure a smooth transition in delivering their lesson, the team members come to the rescue when a discussant gets disconnected. She said, "One of the most common experiences was the intermittent internet connection. There are lots of times that I am disconnected during synchronous sessions." Apart from challenges in

technology adoption, preservice teachers were also challenged with internet connectivity issues. The above experience of a participant's statement confirms that the drawbacks of the online learning modality are indeed primarily rooted in poor internet connection, which may have impacted students' motivation and learning outcomes and increased feeling of isolation for both students and teachers.

Charlotte explains that, as a tacit norm in team-teaching, the team members automatically come in when the lecturer gets lost due to an intermittent internet connection as she said,

During my internship, I experienced a lot of struggles, especially with internet connectivity. I don't have any control over it, and it can affect my demonstration and sometimes, if I get disconnected, the other teacher will substitute right away and continue the discussion so that the class discussion will be smooth, continuous, and not be boring.

It is clear that preservice teachers employed a coping mechanism, 'pedagogical care,' highlighting authentic social connections and flexibility during synchronous sessions. The challenge about internet connectivity requires an immediate long-term solution, as the future of education would most likely become a hybrid learning modality rather than pure online.

Limited Learners' Interaction

If there is a drawback of the new norm in teaching and learning using available digital platforms, it is the limited student interaction during their online learning. A participant did not hesitate to express what might be a daunting task for preservice teachers adopting team-teaching in remote teaching. Patty voiced that "My experience during real-time distance learning in team teaching is that the quality of instruction is not so good because there is not enough interaction between and

among the students.” Based on the overall experiences of preservice teachers on team-teaching adoption, while there are several positive aspects such as benefits and advantages, the challenge, particularly on the limited authentic engagement of their learners, viewed by teachers as inevitable due to the absence of physical social interactions, calls for embedding in the internship program and mentoring that would harness their creativity and pedagogical skills to capacitate them in addressing the barriers and drawbacks of the pure online learning setting.

DISCUSSION

This study tried to unveil preservice teachers’ experiences with a team-teaching approach during their remote teaching internship. The qualitative nature of this research was primarily anchored on the primary data collected from respondents for two consecutive academic years, 2020-2021 and 2021-2022, using a researcher-made qualitative research instrument to answer the research queries. As there is a dearth of research on the team-teaching of preservice teachers in a remote teaching context, the study findings may offer important insights into the implementation of team-teaching. There are notable findings, particularly on the nature and experiences of preservice teachers with the team-teaching adoption in remote teaching. To begin, preservice teachers demonstrated a thorough understanding of the primary purpose of team teaching: to enhance student learning. A few participants, for example, alluded to the fact that they consider learners’ characteristics as the basis for crafting lesson designs and implementing their instructional plans, indicating that preservice teachers emphasize team accountability for teaching and learning space. This finding can be ascribed to the dynamics of team-teaching, in which preservice teachers participate from lesson design to digital instructional aid creation

to actual class presentations driven by a shared pursuit to achieve better student learning outcomes. In remote teaching, teaming may be considered an arduous approach due to the absence of physical interactions between mentees and their learners. Yet, participants in the study explicitly valued team accountability and responsibility, putting aside their personal teaching philosophy, teaching beliefs, or pedagogy as a hindrance to their teaming. The New Jersey Educational Association, or NJEA (2012), hinted that good collaborative teaching, or co-teaching, happens when several practitioners in tandem conduct substantive teaching to a multicultural or diverse group of students in the same learning condition. When team accountability is cultivated in any co-teaching model, it does not only lay the fundamental ground rule for teaming but also cements the soft skills of preservice teachers, allows them to critically reflect on their own, develops their repertoire of pedagogical skills, and improve pedagogical content knowledge, including subject matter knowledge.

Team-teaching can effectuate promotive interdependence that is considered vital to successful teaming. In particular, mentees were adamant about promoting interdependence because of their collective belief that a healthy interrelationship can be a key to more cohesive teaming. Burton (2015) hinted that good teacher collaboration should include a shared or common goal, teacher beliefs, and mutuality among teachers that could offer personal and professional development for preservice teachers. Notably, the deeper collaboration they had fostered in many aspects, the teaming in remote teaching offers a more equitable teaching internship approach for vulnerable preservice teachers because of the lack of access to technology and limited resources. Most often, preservice teachers consider their co-teachers a

lifeline for them to survive the drawbacks and difficulties brought by the unfamiliar teaching and learning space. This finding can be explained by the preservice teachers' attitude towards the introduction of the team-teaching approach explicitly expressed in their responses, wherein a good number of them demonstrated a favorable disposition and attitude towards team-teaching. Such nurturing interaction does not just place preservice teachers into relational realms but also adheres to the teaming norm to gauge the team's strength. Avramidis and Norwich (2002) opined that teachers' attitude plays a critical influence on collaborative procedures and practices. They further stressed that collaboration is dependent on teachers' attitude. In addition, according to (Keefe & Moore, 2004), a teacher's relationship is considered a significant factor for successful co-teaching.

The current study result also posits a collegial interaction among preservice teachers. By way of expounding the term, "collegial interaction" refers to the cohesiveness preservice teachers exemplified during their teaming that resulted in a safe and supportive atmosphere by minimizing roadblocks and taking advantage of the opportunities such as risk-taking, recognizing shared instructional goals, building a positive team, and creating an equal voice during instructional decisions and actions. These opportunities could mold the positive dispositions of preservice teachers towards teaching. Remarkably, teaming brings together preservice teachers remotely with a mindset of lifelong learning and cultivating collegiality as the teaming commences. For instance, they took advantage of the opportunities to reflect and reinvigorate discussions on critical issues relating to the new standards of teaching and the new norms of students' learning through team dialogues on instructional decisions

such as fine-tuning their lesson designs, crafting instructional aids, and managing the digital classroom in a non-threatening learning environment. These results support the constructivism theory of Bandura, Ross, and Ross (1961a; 1963b) and Vygotsky (1978) posited that learning could happen during social engagements. Lev Vygotsky, a Russian psychologist, and proponent of social constructivism explains that *social learning theory* takes an active engagement with individuals to produce their own knowledge (Schreiber & Valle, 2013). DuFour (2004, 2007) and Hughes and Kristonis (2008), as cited by Gladman (2015), explain that educators collaborate in groups, pursuing a continuous process of inquiry and thought to encourage meaningful interpersonal learning. This initial study result suggests that teachers' characteristics grounded in their differences of beliefs about teaching, teaching philosophy, and experiences seemed to indicate that personal differences were not considered a stumbling block to the teaming that earlier researchers had established. Although teachers' differences in teaching philosophies, personalities, and beliefs may be viewed as crucial standpoints for authentic teaming experiences and the development of collaborative practices, it permits teachers to exercise negotiation skills on instructional decisions and digital classroom management. In team-teaching, rewarding teaming is less likely dependent on differences, which have been proven by previous studies to influence collaboration among teachers. In this investigation, a few participants commented that they view conflicting ideas, personalities, and teaching styles not as a barrier to collaborating with fellow teachers but rather viewed as a learning opportunity to broaden their perspective on teaching. This study result opposes preservice teachers'

compatibility as a requisite for effective team-teaching, collaborative teaching, and co-teaching, stating that preservice teachers' compatibility is a significant factor for successful co-teaching (Rice & Zigmond, 2000; Hartman, 2009; Walther-Thomas, 1997 in Conderman, Rodriguez & Hartman, 2009).

Undeniably, remote teaching in digital classrooms rendered a notable surge of challenges considered potential contextual barriers not only to the preservice teachers' teaming but also to students learning. Such drawbacks of the current norm of education using digital platforms can negatively impact teachers' collaboration and authentic learning of students. In this study, these barriers and drawbacks coined the *remote teaching abyss*. The preservice teachers voiced poor internet connectivity as one of the challenges of remote teaching. It is not surprising considering that a plethora of empirical studies point to internet connectivity and speed of internet connection as primary roadblocks to remote education (Mohammad, et al., 2023; Clarin & Baluyos, 2022; Chertovskikh, 2020 in Salifu & Acheampong, 2021; Ramij & Sultana, 2020 cited in Kamal & Illiyan, 2021). Nonetheless, preservice teachers in this study employed tacit norms to ensure the smooth delivery of lesson design. Equitable access to the internet has the potential to enhance emergency remote learning and teaching. Hence, the university should prioritize IT and technology infrastructure investment to support teaching and learning in remote education while building capacities for teachers as an adaptable solution to futureproofing the education in the post-pandemic era.

In a traditional learning setting, the classroom offers a safe place for students to form emotional connections with their peers and teachers. However, the current context and norms of learning shun

authentic engagement in the learning process. Researchers have long been interested in investigating students' interaction and students' engagement during the learning process because it has been linked to perceived learning outcomes (Baber 2020), positive experiences as a result of deeper peer interaction (Hseih & Smith, 2008a; Marks et al., 2005 cited in Smith 2017) better outcomes, and commitment to learning. In a different study, some researchers found that the absence of student engagement triggers failure and students' withdrawal from an online class (Willging & Johnson, 2009 cited in Kintu, Zhu, & Kagambe, 2017). The recent study corroborated the result of Amedu & Hollebrands (2022), wherein limited learner interaction concerns teachers in utilizing technology in teaching. A more recent study by Cao, et al., (2020), cited in Othman (2022), reported limited interaction between students and their teachers. Indeed, while technology in education has potential benefits, there are drawbacks as well. This study found that despite favorable experiences preservice teachers had in team-teaching, they nonetheless voiced problems regarding adaptation and use of technology stemming from their inadequate digital literacy and fluency during the teaming in emergency remote teaching. In other words, they have not fully grasped the technological knowledge and skills needed to become effective teachers. According to Martin (2008), technological literacy and competence are characterized as awareness, attitude, and the capacity for employing digital resources to understand, access, operate, incorporate, and generate novel knowledge using cognitive processes. This surprising result indicates that there is a lot of ground to cover in the unending effort to prepare preservice teachers for their instructional roles and responsibilities and calls for a plea to recalibrate teacher preparation

program that offers a robust digital technology competence enhancement for preservice teachers in order to capacitate them in the post-pandemic era of education. Additionally, this result can stimulate researchers to explore issues concerning technology-related challenges in students' learning and merit further investigation to provide empirical data on the drawbacks and pitfalls of online learning.

Some theoretical contentions and empirical findings recommend that university teacher preparation programs adequately hone future teachers with the digital competence (e.g., Burnett, 2011; Sickel, 2019; White, 2013) needed to become effective teachers in a digitally connected learning space (Tyger, 2011). As hinted at by Rizal, Setiawan, and Rusdiana (2019), it requires a program for enhancing preservice teachers' digital literacy and fluency to become innovative in crafting their instructional tasks using technology. Milton and Vozzo (2013) concluded that teacher candidates must have or create an advanced degree of technology fluency while learning to use various technological devices within technological pedagogy. As there is general agreement among scholars about the significance of a mentoring program for preservice teachers, they offer support with methodological and professional expertise (McKinley, 2021). It implies that the university initiates a joint partnership to strengthen the condition of the digital learning environment through participatory consultations with stakeholders. The unfamiliar teaching and learning environment will continue to affect education and increase demand for revamping teacher preparation and induction programs with their partner industry as they transition to a hybrid learning modality. Sanden and Quesenberry (2022) asserted that it is going to be essential to scrutinize the abilities, expertise foundation, and

emotional viewpoints of each beginning teacher and formulate a customized personal enhancement and guidance program that capitalizes on the distinct possibilities along with the difficulties each of them will encounter as they transition into their initial teaching job.

CONCLUSION

Given the relatively adequate inclusion of target research participants for the investigation, this initial qualitative study examining preservice teachers' experiences in team teaching precludes generalization that indicates the consistency of the qualitative research findings. Conclusively, unraveling the preservice teachers' experiences in team-teaching captured the preservice teachers' pedagogical praxis experiences characterized by a nexus of intertwining team accountability for teaching and learning space, collegial interaction, and promotive interdependence among preservice teachers despite the *remote teaching abyss* presumed to be potential contextual barriers and impediments to the teaming. Implication for teaching internship mentors to craft a Teaching Interns Learning Support Module (TILSM) to enhance preservice teachers' teaming and digital literacy and fluency is put forward. The findings contributed to a novel aspect of team-teaching by providing insights into the potential benefits of team-teaching for preservice teachers in a remote teaching context.

IMPLICATIONS, LIMITATIONS AND RECOMMENDATIONS

A few implications for remote teaching and mentoring can be drawn from the findings of the present study. To begin with, preservice teachers expressed interesting experiences with teaming in a remote teaching environment, reaffirming the principle of learning in the physical and social aspects of the environment and that learning is a product of the learning

environment. It suggests that to gain from the teaming approach, which is opposite to the traditional method of teaching internship practice, wherein preservice teachers work alone in isolation on their teaching responsibilities, teaching interns may foster nurturing relationships, healthy interdependence, and collegiality. In addition, the seemingly negative impressions of preservice teachers about poor internet connectivity and the lack of students' authentic interactions during their online classes reflect the downside of remote teaching and learning using real-time learning applications, such that the intricacies and complexity of online learning immensely affect students' learning and the quality of teachers' collaboration. In short, this scenario shows the pattern of inequality in the Higher Education microsystem of society in the country during this time of education crisis. And by prioritizing IT structure improvement, it might enhance the learning milieu of Philippine education in the post-pandemic era. The government must therefore invest in improving the IT structure across all levels of the educational system.

Suggestions for future research based on the emerging themes from the data analysis, particularly the challenges arising from technology-related issues and preservice teachers' level of digital literacy and competence, include demands for the development of the Teaching Interns Learning Support Module (TILSM) on digital literacy and fluency. There is a dire need to sensitize preservice teachers' clamor about the significance of fostering authentic student interaction. With the reality that all learners are learning remotely, parents should establish a network of community that will assist and train them on how to support their children during remote learning. It also merits further investigation to provide empirical data on the drawbacks and pitfalls of online education vis-à-vis

students' learning outcomes, as it offers a wealth of insights about the impact on learning for policy actions and the development of online pedagogy. Finally, this initial study was conducted during the pandemic, wherein the teaching and learning situations were challenging and different in the post-pandemic era. Replicating the present investigation in the post-pandemic may offer significant ideas as education will adopt a contingent shift from emergency remote learning to the liminality of the hybrid learning modality.

The current investigation has limitations that need to be considered. First, the study used a researcher-made instrument; future studies may incorporate data from a narrative report, an observation checklist, interviews, and focus group discussions (FGD) to further unravel participants' experiences. Second, the study adopted the purposive sampling technique; hence, the study result is not conclusive for the entire population of teaching interns who had their remote teaching internship during the academic years 2020–2021 and 2021–2022, respectively.

CONFLICT OF INTEREST

The author declares no conflict of interest.

AUTHOR CONTRIBUTIONS

The author affirms that he conceptualized and wrote this research.

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