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Resilience in crisis: A mixed-methods analysis of pre-service teachers' sentiments on remote learning and practice teaching experience

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Abstract

This study explored the sentiments of practice teaching students at a Philippine state university during the pandemic. Employing a mixed-methods approach, the study investigated the sentiments of 81 practice teachers as they adapted to emergency remote teaching and fulfilled their practice teaching responsibilities. Participants provided three-word descriptions of their experiences in different scenarios and were analyzed through sentiment analysis. The findings revealed predominantly positive sentiments: 74.1% expressed favorable views toward emergency remote learning, while 79% reported positive sentiments regarding their practice teaching experiences. A chi-square test indicated no significant association between their sentiments toward remote learning and practice teaching, suggesting these experiences were evaluated independently. Quantitative findings were corroborated through follow-up open-ended online communication. The study underscores practice teachers' resilience during uncertain times, highlighting the critical role of family support, institutional support, and well-structured training programs in sustaining teacher education amid disruptions. While challenges such as socio-economic concerns, technological limitations, and home learning complexities were noted, students demonstrated adaptability through resource management and technical skill development. These insights offer valuable implications for program administrators and policymakers in designing responsive and supportive practice teacher training programs tailored to the evolving higher education landscape.

Keywords: COVID-19, Manual annotation, Mixed methods research, Pre-service teacher training, Practice teaching, Sentiment analysis, Philippines.

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Contents

Contribution of this paper to the literature

This study contributes insights into analyzing the predominantly positive sentiments of pre-service teachers in the Philippines toward remote learning and practice teaching, highlighting their resilience and adaptive strategies despite technological and environmental challenges, while also identifying the need for institutional support and structured training to enhance teacher education programs during crises.

1. Introduction

Teacher education plays a pivotal role in shaping the quality of education systems worldwide. Pre-service training, in particular, is essential in preparing future educators to navigate the complexities of teaching, especially in diverse and resource-constrained environments (Darling-Hammond, Flook, Cook-Harvey, Barron, & Osher, 2020). The education sector faced several unique challenges, including limited resources, curriculum alignment, and adapting to the changing demands of education. The COVID-19 pandemic further exacerbated these challenges, forcing institutions to hastily transition to emergency remote teaching (Bozkurt & Sharma, 2020).

In the Philippines, the pandemic profoundly impacted both the quality of learning experiences and students' mental health. To address these challenges, students employed adaptive strategies such as resource management, help-seeking, technical skill development, time management, and optimizing their learning environments (Barrot, Llenares, & Del Rosario, 2021).

This study focuses on the sentiment of undergraduate students enrolled in Bachelor of Physical Education (BPEd) (Commission on Higher Education, 2017a) and Bachelor of Technology and Livelihood Education (BTLED) (Commission on Higher Education, 2017b) programs at a state university in the central Philippines. Beigi et al. (2016), as cited in Zhang, Fan, Yao, Hu, and Mostafavi (2019), define sentiment analysis as the study of people's sentiments, attitudes, emotions, and opinions about events and facts. Grounded in the premise that quality basic education depends on well-prepared pre-service teachers (Gutierrez & Panas-Espique, 2020), this research examines their remote learning experiences to generate insights for refining teacher education programs. The findings aim to contribute to systemic improvements in educational quality across the Philippines (Schleicher, 2020).

Specifically, this study aims to evaluate the sentiments of practice teachers regarding their learning experiences during the pandemic in an effort to contribute to the development of a stronger, more responsive teacher education system in the Philippines. This is critical for addressing the country's educational challenges and achieving quality education for all. The study intends to answer the following questions: *(1) What are the sentiments of pre-service teachers toward their (a) remote learning experiences and (b) practice teaching experiences? (2) Is there a significant difference in the frequency of positive and negative sentiments expressed by teacher education students about their remote learning versus practice teaching experiences?*

2. Literature Review

More than 1.5 billion students worldwide were affected by COVID-19 pandemic (UNESCO, 2023) as governments were forced to shut down schools and shift to emergency remote learning (ERT) (Murphy, 2020) using all available resources, including synchronous and/or asynchronous tools to ensure continuity of education (Bozkurt & Sharma, 2020). The challenge was to quickly adapt to the teaching-learning situation.

Lockdowns disrupted preservice training programs, significantly impacting teacher education. Pre-service teachers faced an identity crisis due to the lack of support and preparation for remote learning. While such challenges could be mitigated in face-to-face settings, they were exacerbated during the pandemic. Furthermore, pre-service teachers in South Africa encountered a "variety of barriers" in remote teaching, including inadequate infrastructure, insufficient pedagogical knowledge, and social factors such as complex home environments that are not conducive to learning (Mphuthi & Tshelane, 2022).

Similarly, pre-service teachers in Turkey encountered comparable challenges during the implementation of remote learning. This study delves into the most significant issues faced by pre-service teachers and how these shaped their perspectives on remote learning. The initial findings of this study reveal expected gaps in adaptability, particularly in planning, mentoring roles, and balancing theory and practice. However, these challenges were also met with constructive observations aimed at developing a holistic approach to improving the opportunities provided by this new normal in teaching. Pre-service teachers with a background in digital skills were said to be more adaptable to this new teaching practice than those lacking digital knowledge and experience (Özmantar, 2021).

For example, teaching physical education during the pandemic was full of recurring challenges in online learning. It included unreliable internet connectivity, limited resources, reduced student engagement (Aguinaldo, 2021; Millan, 2021; Tegero, 2021) disparities in student satisfaction based on location, gender, and age, emphasizing the need for better knowledge acquisition and interaction to sustain learning outcomes (Aguinaldo, Cobar, & Dimarucot, 2022). Teachers face difficulties in providing feedback, assessing student performance, and ensuring academic honesty, requiring adaptive strategies and parental involvement (Balay-as & Bandoc, 2024). Furthermore, health concerns physical, mental, and social, along with distractions and time-consuming tasks exacerbate the challenges of online teaching and learning (Millan, 2021; Tegero, 2021).

Conversely, teaching Technology and Livelihood Education during this period presented several challenges, including difficulties in adapting to online pedagogy, limited technological infrastructure, and ineffective assessment of student learning. Additional obstacles included managing student disengagement, providing timely feedback (Cornelio & Villaroman, 2023; Pamor, Legarda, & Bauyot, 2024; Ronquillo, 2023), and the lack of face-to-face interaction, which hindered skill acquisition (Mamayabay & Quilestino, 2024). Furthermore, remote instruction posed practical challenges for hands-on subjects (Pura & Galicia, 2022) along with technological and motivational barriers (Cabual & Cabual, 2022).

However, the period also offered benefits, such as improved technical and communication skills, better access to resources, increased job fulfillment, and greater learning convenience (Jaurigue-Sublay, 2023). Thus, while persistent disadvantages of remote learning were evident, it also presented potential advantages.

Despite the lifting of restrictions, the limited physical interaction did not automatically foster rapport between practice teachers and learners. This lack of interaction contributed to feelings of unpreparedness for demonstration teaching, resulting in content and pedagogical gaps and negatively impacting morale. Nevertheless, the practice teachers adapted to new technologies and maximized their potential, overcoming challenges such as time management, financial constraints, internet connectivity issues, and anxiety (Berces, 2022).

The lack of access to digital resources and tools was also a major concern in classroom management. Internet connectivity and availability were unreliable and inadequate, thus making it difficult for both pre-service teachers and students to execute online teaching and learning. Without access to these materials, pre-service teachers struggle with the delivery of content and the continuous monitoring and assessment of student learning (Jaurigue-Sublay, 2023).

Although they initially struggled, practice teachers eventually developed critical skills through hands-on experience. Some struggled with classroom management and communication early on, suggesting a need for more practical training before internships. The internship fostered not just pedagogical skills but also emotional intelligence, professionalism, and adaptability (Ramirez, 2020).

Practice teachers faced unprecedented challenges during the pandemic. The crisis fostered resilience, leading pre-service teachers to develop technical proficiency, resourcefulness, and emotional adaptability. However, systemic gaps such as unequal access, inconsistent policies, and the absence of face-to-face mentoring highlight the need for structured support in teacher training programs. The pandemic also underscored both the vulnerabilities and potential of remote learning, emphasizing the need for policymakers to prioritize equitable digital infrastructure and pedagogical upskilling to future-proof teacher education.

3. Methodology

3.1. Approach and Design

The paper follows an embedded mixed methods design (Creswell & Plano Clark, 2006), where qualitative word/phrase responses were manually annotated and assigned to quantitative categories to enable Chi-square comparison of sentiments between remote and practice teaching experiences. Boukes, Van de Velde, Araujo, and Vliegenthart (2020) and Van Atteveldt, Van der Velden, and Boukes (2021) reported that manual annotation is a traditional but effective method for measuring sentiment. Sixteen respondents participated in asynchronous written online communications (Schiek & Ullrich, 2017) via Facebook Messenger to further contextualize the responses.

3.2. Research Respondents

The respondents in this study were pre-service teachers enrolled during the academic year 2022-2023 at a public university in the central Philippines. Of the 84 submitted responses, 81 were valid after excluding three incomplete submissions.

Table 1 displays the data on personal attributes. Starting with age, the distribution indicates that most respondents were 22 years old, accounting for 52% of the total sample (42 out of 81 individuals), followed by 23-year-olds, who made up 21% (17 individuals), and 21-year-olds, representing 17% (14 individuals). The older age groups (24, 25, and 27) were less represented, with frequencies of 4, 2, and 2 individuals, respectively, and percentages ranging from 2% to 5%.

In terms of sex, the data shows that more females comprise 72% (58 individuals) of the sample, while males account for only 28% (23 individuals).

Finally, for programs, the majority of individuals are enrolled in the Bachelor of Technology and Livelihood Education, representing 63% (51 individuals), while the Bachelor of Physical Education accounts for 37% (30 individuals).

Table 1. Personal attributes data.

Respondents' basic information		***f***	**%**
Age	21	14	17
	22	42	53
	23	17	21
	24	4	5
	25	2	2
	27	2	2
Sex	Male	23	28
	Female	58	72
Programs	Physical education	30	37
	Technology and livelihood education	51	63

3.3. Ethical Considerations

Informed consent forms were provided to all respondents to affirm their voluntary participation in the study. Participants were reminded of their right to withdraw at any time and to return the data collection form to the

researchers if they chose not to proceed. Additionally, all identifying information was removed from the final report to ensure anonymity and confidentiality.

3.4. Data Gathering Tool

The researchers developed a data collection form to record responses. The form consisted of six columns three focused on remote learning experiences and three on practice teaching experiences. Before distribution, the form was reviewed by all authors for comments and suggestions. The authors also reviewed the questions for asynchronous written online communication.

3.5. Data Gathering Procedures

Step 1: A meeting was convened with the pre-service teachers to present the study and obtain their informed consent.

Step 2: Data collection forms were distributed to respondents and subsequently retrieved. The form contained two open-ended questions asking respondents to provide a three-word description for two situations: (1) *"When thinking about your learning experiences over the past four years, what are the first three words that come to mind?"* and (2) *"When thinking about your practice teaching, what are the first three words that come to mind?"*

Step 3: Conduct asynchronous written online communication. For the qualitative components of the study, respondents were asked three broad questions: *(1) Most of you described your studies during the pandemic as "positive." Is this true for you? (2) Most of you described your practice teaching during the pandemic as "positive." Is this true for you? (3) Most of you described your experience during the pandemic as "challenging." In your view, in this context, is the word "challenging" positive to describe your studies and practice teaching?*

3.6. Data Analysis

On one hand, the three-word responses were analyzed using a multi-layered, deductive, co-rated coding approach. In this process, words were extracted and classified as either positive, negative, or undefined. Words classified as "undefined" were excluded from further analysis, leaving only positive and negative responses.

Qualitative data preprocessing was conducted using Microsoft Excel (Bree & Gallagher, 2016). To consolidate the data, codes from three separate columns were merged into a single column for each code set. This step was repeated across all datasets. Frequencies and Cohen's kappa were calculated using JASP version 0.19.3, an open-source statistical software (Love et al., 2019). Chi-square tests of independence were performed using Social Science Statistics, a web-based analytical tool (Social Science Statistics, 2025).

On the other hand, the responses from the asynchronous written online communication were analyzed thematically, informed by the procedure of Braun and Clarke (2006), and quotations cited in the study were translated from Filipino to English.

3.7. Reliability and Validity

Table 2 shows the inter-rated reliability. The second and third authors performed the initial coding, and Cohen's kappa analysis demonstrated moderate to almost perfect inter-rater agreement ($\kappa = 0.784–0.827$) (McHugh, 2012).

Table 2. Result of the initial coding.

Evaluator pairs	Group	Cohen's (κ)	95% CI	Agreement level
Evaluator 1 vs Evaluator 2	1	0.827	[0.751, 0.902]	Almost perfect
Evaluator 1 vs Evaluator 2	2	0.784	[0.696, 0.873]	Moderate

To reconcile differing views and finalize the coding scheme, a subsequent meeting was held among the first, second, and third authors to review the coding performed by the previous coders. Additionally, during this meeting, all undefined terms were removed.

4. Research Findings

4.1. Total Number of Words/Phrases

1st to 3rd Positions. Table 3 presents word counts categorized into Positive, Negative, and Undefined sentiment for three positions (1st Word, 2nd Word, and 3rd Word).

Table 3. Sentiment for remote learning experiences.

Position 1-3	Remote learning	*f*	%
1st word	Positive	56	69
	Negative	24	30
	Undefined	1	1
	Total	81	100
2nd word	Positive	62	77
	Negative	18	22
	Undefined	1	1
	Total	81	100
3rd word	Positive	61	75
	Negative	17	21
	Undefined	3	4
	Total	81	100

Across all positions, there is a clear dominance of positive words, with significantly fewer negative words. For the first word, there are 56 positive words (69%), 24 negative words (30%), and one undefined word (1%). This trend continues for the second word, with 62 positive words (77%), 18 negative words (22%), and one undefined word (1%).

For the third word, there are 61 positive words (75%), 17 negative words (21%), and three undefined words (4%). The word "challenging" is prominent, suggesting an overall positive sentiment among respondents regarding the remote learning experience.

Generally, the respondents framed the word "challenging" in a positive light. As one respondent put it, *"I do not look at the 'challenging' experience as negative. Instead, I consider it a bridge for my personal and professional growth. From the difficulties of online learning to face-to-face practice teaching, I became more resilient, adaptable, and responsible as both a student and a teacher. It's true that every adversity presents a learning opportunity."*

Remote learning posed significant challenges for the respondents, including answering learning modules without sufficient understanding and a lack of internet connectivity. Despite these issues, the respondents demonstrated perseverance and maintained their commitment to completing their tertiary education.

4th to 6th Positions. Table 4 underscores the consistent prevalence of positive sentiment within the dataset. Across all examined word positions, positive words consistently constitute approximately 67-73% of the total. In stark contrast, negative sentiment is considerably less frequent, representing only 25-30%. Undefined words are observed at a low rate of 2-5%.

Breaking down the specific word positions: at the 4th position, positive words accounted for 67% (54), negative words 28% (23), and undefined words 5% (4). For the 5th position, the distribution was 68% (55) positive, 30% (24) negative, and 2% (2) undefined. Finally, at the 6th position, positive words made up 73% (59), negative words 25% (20), and undefined words 2% (2). The prominent terms were "challenging," "experience," "enjoyable," and "exciting," indicating a predominant positive sentiment regarding the practice of teaching and learning experience.

Table 4. Sentiment for practice teaching learning experience.

Position 4-6	Practice teaching	*f*	%
4th word	Positive	54	67
	Negative	23	28
	Undefined	4	5
	Total	81	100
5th word	Positive	55	68
	Negative	24	30
	Undefined	2	2
	Total	81	100
6th word	Positive	59	73
	Negative	20	25
	Undefined	2	2
	Total	81	100

One respondent captured the overall sentiment of the experience: She said: *My practice teaching during the pandemic was positive because of three factors. Firstly, I learned to use various online applications and platforms, including Google Classroom, Zoom, and video editing tools. Secondly, our cooperating teacher was consistently present and supportive, offering learning materials, guidance in developing lesson plans, feedback on issues we needed to improve on, and motivation from classroom observation to the final teaching demonstration. Lastly, my classmates were very helpful and supportive.*

4.2. Association between Learning Experiences and Sentiment

Table 5 presents the contingency table of observed frequencies of sentiment (negative or positive) across two learning experiences: the remote learning experience and the practice teaching experience. The table shows that among 473 responses, 126 were negative sentiment, while 346 were positive sentiment. Specifically, 59 responses expressed negative sentiment toward the remote learning experience, whereas 67 were negative sentiments toward their practice teaching experience. Conversely, 179 responses expressed positive sentiment about the remote learning experience, which was higher than the 168 positive sentiment responses regarding the practice teaching experience. The observed variation might be attributed to inadequate preparation for practice teaching. As one respondent noted, *"During the pandemic, there were lessons and school-based activities that we had not conducted face-to-face, which we could have shared during our practice teaching."*

A chi-square test of independence found no significant association between learning experience and sentiment, $\chi^2(1, N = 473) = 0.84$, $p = .36$ (Social Science Statistics, 2025). The data do not provide evidence that pandemic and practice teaching experiences differ in terms of positive or negative feedback.

Table 5. Association between learning experiences and sentiments.

Learning experiences	Sentiments		Total
	Positive	Negative	
Remote learning experience	179	59	238
Practice teaching experience	168	67	235
Total	347	126	473
$X^2(1, N = 473) = 0.84, p\ 0.36$			

5. Discussion and Conclusion

The findings of this study highlight the resilience and adaptability of teacher education students in the Philippines during the disruptions caused by the COVID-19 pandemic. Despite the challenges posed by the sudden shift to remote learning, a significant majority of students expressed positive sentiments toward both their remote learning experiences (75%) and practice teaching experiences (71%). The numerical trend toward more negative practice teaching experiences potentially tied to remote hands-on training difficulties underscores the need for targeted support in placements during disruptions, such as a pandemic. The qualitative excerpts support the quantitative results by illustrating how the respondents framed the challenges positively. The results align with

existing literature that emphasizes the importance of structured support and mentorship in sustaining educational quality during crises (Bozkurt & Sharma, 2020; Darling-Hammond et al., 2020).

The nonsignificant chi-square test ($\chi^2 = 0.84$, $p = 0.36$) indicates no evidence of a systematic association between sentiments across the two experiences. However, the higher negativity in practice teaching (29% vs. 25%) suggests context-specific hurdles. This reflects the respondents' sense of unpreparedness for practice teaching. It aligns with what Özmantar (2021) described as "adaptational gaps" discrepancies between classroom and practicum environments. In this study, these gaps manifested as perceived lack of readiness due to content not covered during remote teaching but later deemed relevant during practice teaching.

Interestingly, the chi-square test revealed no significant association between students' sentiments toward remote learning and practice teaching experiences. Positive sentiments toward practice teaching suggest that many students found value in the experience despite challenges, likely due to the practical, hands-on aspects of the experience and the guidance of mentors (Zeichner, 2010). This finding reinforces the notion that practical training remains a cornerstone of teacher preparation, even in crises.

However, the study also identified persistent challenges, such as technological limitations and home learning environments, which hindered some students' experiences. Although these issues did not dominate the overall sentiment, they highlight areas where systemic improvements are needed.

6. Recommendations

To build on the strengths identified in this study and address its limitations, the following recommendations are proposed: (1) Universities should continue to strengthen mentorship programs and enhance the provision of accessible resources, including digital tools and reliable internet access, to ensure equitable learning opportunities for all students; (2) Given the positive reception of practice teaching experiences, programs should incorporate more hands-on, practical training opportunities, even in remote or hybrid formats, to enhance future educators' readiness for diverse instructional contexts; (3) Policymakers and institutions should prioritize investments in technological infrastructure and training to mitigate disparities in access and ensure that all students can fully participate in online and blended learning modalities; (4) Future studies should explore the long-term impacts of remote training on teaching efficacy and career readiness. Qualitative research could yield deeper insights into the factors influencing students' varied experiences.

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