

Pre-Service Teachers in Virtual Classrooms: A Phenomenological Inquiry in a Philippine Context

Mark John M. Martinez

Merian Lyn Amero

Erma Mae Garsain

Agusan del Sur State College of Agriculture and Technology

ABSTRACT The transition to virtual learning during the COVID-19 pandemic created significant challenges for pre-service teachers, particularly in resource-constrained educational settings. This phenomenological study explored the lived experiences of pre-service teachers in implementing virtual classes at Agusan del Sur State College of Agriculture and Technology. Guided by Moore's Transactional Distance Theory, the study involved 10 purposively selected pre-service teachers who participated in in-depth interviews and a focus group discussion. Data were analyzed using Colaizzi's phenomenological method. Four themes emerged: unstable connectivity as an obstacle to pedagogical engagement, power interruptions and the fragility of digital instruction, domestic disruptions and the blurring of learning boundaries, and technological limitations and the strain of digital minimalism. Participants responded to these constraints through adjustments in instructional arrangements and available technological resources. Viewed through transactional distance, the findings demonstrate how infrastructural and contextual limitations can disrupt dialogue, instructional structure, and learner autonomy in virtual environments. The study underscores the need for teacher education institutions to strengthen digital pedagogy and provide appropriate technological and institutional support for pre-service teachers.

Keywords: *digital pedagogy, pre-service teachers, transactional distance, virtual classrooms, phenomenology*

INTRODUCTION

The COVID-19 pandemic brought an unprecedented disruption to education and accelerated the transition from conventional face-to-face instruction to technology-mediated and virtual learning environments. Teacher education was particularly affected because the preparation of future teachers traditionally depends not only on academic coursework but also on interaction, observation, demonstration, field experiences, and opportunities to develop professional teaching practices. The abrupt transition to online instruction therefore required teacher education institutions to reconsider how to sustain these experiences in virtual environments. Rapanta et al. (2020) emphasized that effective online instruction requires more than transferring classroom content to digital platforms; it requires deliberate attention to teacher presence, learning activities, interaction, and instructional design. Similarly, Flores and Swennen (2020) argued that the pandemic created significant implications for teacher education by requiring institutions, teacher educators, and future teachers to reconsider established approaches to teaching and professional preparation.

For pre-service teachers, this transition presented a distinctive challenge because they occupied the dual position of being learners and developing educators. They were expected to participate in online learning while simultaneously developing the technological, pedagogical, and professional competencies required for teaching in digitally mediated environments. The experience therefore extended beyond learning how to operate digital platforms. It required pre-service teachers to reconsider how lessons could be delivered, how interaction with learners could be maintained, and how instructional difficulties could be addressed when conventional classroom routines were unavailable. Virtual teaching also raised broader questions concerning the preparation and professional identities of future educators because teacher education involves developing understandings of what it means to teach and respond to learners under changing educational conditions. The transition to virtual instruction consequently highlighted the need for teacher preparation to address responsiveness, equity, inclusion, and the professional development of pre-service teachers as virtual learners and emerging educators (Cutri et al., 2020).

However, the effectiveness of this transition depended considerably on access to technological resources and the conditions under which online learning occurred. Studies conducted during the pandemic consistently identified internet connectivity, availability of appropriate devices, digital competence, home learning environments, and psychological pressures as significant concerns in online education (Coman et al., 2020; Sahu, 2020). These conditions can influence learners' ability to participate consistently, communicate with instructors and peers, access learning resources, and complete academic requirements. Consequently, digital technologies can create opportunities for continued education while simultaneously exposing inequalities in access and participation. These concerns matter in teacher education because technological

limitations may affect not only pre-service teachers' learning experiences but also their opportunities to practice the pedagogical skills expected of future educators.

These challenges were especially evident in the Philippine context. The rapid adoption of flexible and online learning exposed persistent inequalities in internet connectivity, device access, learning environments, and institutional readiness. Toquero (2020) identified technological infrastructure and access as key concerns confronting Philippine higher education during the pandemic-driven transition. In a study of Filipino college students, Barrot et al. (2021) found that online learning challenges involved technological, individual, domestic, institutional, and community-related factors, with the home learning environment emerging as a particularly significant concern. Students responded with strategies such as resource management, help-seeking, time management, improving technical skills, and controlling their learning environments. These findings demonstrate that online learning experiences cannot be understood solely in terms of access to digital platforms because participation is also shaped by the social, material, and environmental conditions in which learning takes place.

Such conditions may become more pronounced in rural and resource-constrained communities where reliable internet connectivity, uninterrupted electricity, and appropriate digital devices cannot always be assumed. For pre-service teachers, unstable connectivity or inadequate technological resources can disrupt communication, lesson delivery, classroom interaction, and opportunities to respond to learners. These difficulties may therefore affect not only participation in virtual instruction but also how future teachers learn to make pedagogical decisions under uncertain conditions. At the same time, responding to such constraints may require resourcefulness, flexibility, self-regulation, and the capacity to modify instructional strategies. Understanding these experiences matters because the competencies developed during teacher preparation can shape how pre-service teachers respond to diverse and technologically mediated teaching environments.

Moore's Transactional Distance Theory helps explain the relationship between interaction, instructional organization, and learner independence in virtual education. Moore (1993) conceptualized transactional distance as the psychological and communicative space that may exist between teachers and learners in distance education and identified dialogue, structure, and learner autonomy as central elements influencing that distance. Dialogue concerns meaningful communication between teachers and learners; structure refers to the flexibility or rigidity of instructional design; and learner autonomy concerns the extent to which learners assume responsibility for their own learning. Transactional distance therefore extends beyond physical separation because learners who are geographically distant may still experience meaningful educational interaction when adequate dialogue, appropriate instructional structures, and suitable levels of autonomy are present.

The theory is particularly relevant to virtual teacher education because technological and environmental constraints can alter each of these dimensions. Unstable internet connectivity may interrupt dialogue and feedback, power interruptions may interfere with instructional structure and continuity, and limited opportunities for synchronous interaction may require learners to exercise greater autonomy. Falloon (2011), applying Transactional Distance Theory to an online teacher education environment, showed that virtual classrooms can promote dialogue while also affecting instructional structure and learners' perceptions of autonomy. The study also showed that dialogue, structure, and autonomy operate in a complex, interconnected way rather than as isolated elements.

Figure 1 presents the conceptual framework of the study, which illustrates how the lived experiences of pre-service teachers in implementing virtual classes were examined through three interrelated dimensions: experiences, coping mechanisms, and insights. Experiences refer to the conditions, challenges, and situations pre-service teachers encountered while participating in and implementing virtual instruction. Coping mechanisms represent the strategies and adaptive practices they employed in response to technological, instructional, and environmental challenges, while insights refer to the meanings and professional understandings they developed from these experiences.

These dimensions were interpreted through Moore's Transactional Distance Theory (1993), particularly the concepts of dialogue, structure, and learner autonomy. The theory serves as an interpretive lens for understanding how disruptions in communication, instructional arrangements, and demands for independent action shaped the participants' experiences and responses in virtual classrooms. Through this framework, the study seeks to understand not only the challenges pre-service teachers encountered but also how they adapted to these conditions and constructed professional meanings from their experiences within a resource-constrained teacher education context.

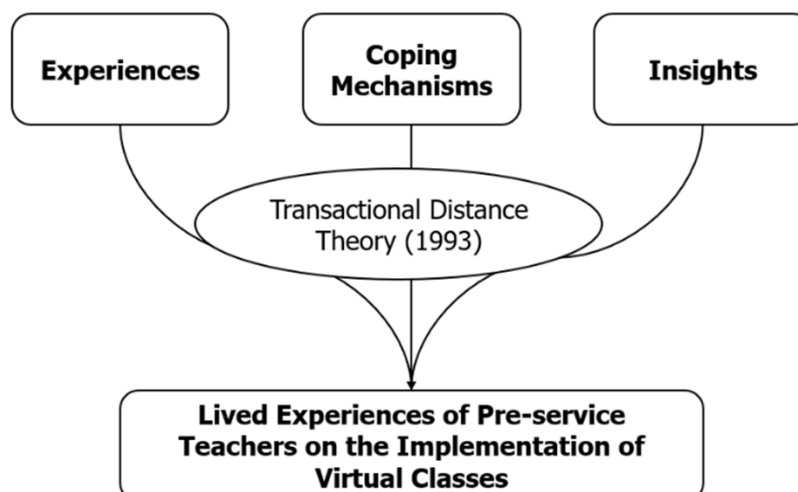


Figure 1 Conceptual Framework of the Study

Existing research has provided considerable evidence regarding the challenges associated with emergency remote and online learning, including internet connectivity, access to technological resources, home learning environments, psychological pressures, and pedagogical readiness (Barrot et al., 2021; Coman et al., 2020; Rapanta et al., 2020; Toquero, 2020). Nevertheless, much of this literature has concentrated on the general experiences of university students, institutional readiness, or the transition of practicing teachers and university instructors to online teaching. These perspectives are important but do not fully explain the experiences of pre-service teachers who were simultaneously completing their professional preparation and learning to perform teaching responsibilities within virtual environments. Moreover, experiences documented across broad national or international settings may not adequately represent teacher preparation in rural state colleges where technological and infrastructural limitations may influence virtual teaching differently. This leaves a need for context-specific inquiry into how pre-service teachers in resource-constrained Philippine teacher education settings experienced virtual teaching, responded to its challenges, and constructed meaning from these experiences.

Addressing this gap is important because the experiences of pre-service teachers during virtual instruction may provide insights for teacher education beyond the immediate circumstances of the pandemic. Digital and blended forms of instruction continue to have relevance to contemporary education, making technological competence alone insufficient preparation for future teachers. Teacher education programs must also consider how future educators maintain interaction, adjust instructional structures, exercise professional judgment, and respond to technological and contextual constraints. Examining these experiences phenomenologically can therefore illuminate not merely the difficulties participants encountered but how they understood, negotiated, and learned from those experiences as developing teachers.

Accordingly, this study explored the lived experiences of pre-service teachers in implementing virtual classes at Agusan del Sur State College of Agriculture and Technology (ASSCAT). Specifically, it sought to understand the experiences and challenges pre-service teachers encountered, how they responded to and adapted to the demands of virtual instruction, and the insights they developed from these experiences. Guided by Moore's Transactional Distance Theory, the study examined these lived experiences in relation to dialogue, instructional structure, and learner autonomy to better understand how pre-service teachers navigated virtual teaching within a resource-constrained Philippine higher education context. The study ultimately seeks to contribute context-sensitive evidence that may inform teacher education programs, digital pedagogy preparation, institutional support, and the preparation of future teachers for flexible and technology-mediated learning environments.

METHODOLOGY

Research Design

This study employed a qualitative descriptive phenomenological research design to explore and describe the lived experiences of pre-service teachers in the implementation of virtual classes during the new normal. A phenomenological approach was appropriate because the study sought to understand the meanings participants attributed to their experiences of teaching and learning in virtual environments rather than to measure predetermined variables or establish causal relationships. Phenomenology allows researchers to examine participants' subjective experiences and develop a detailed understanding of a phenomenon as it is experienced by those directly involved (Blankenship, 2016).

The inquiry focused on three interrelated dimensions of the phenomenon: the experiences of pre-service teachers in virtual classes, the coping mechanisms they employed in responding to encountered challenges, and the insights they developed from these experiences. Moore's Transactional Distance Theory (1993) served as an interpretive lens for understanding these experiences in relation to dialogue, instructional structure, and learner autonomy within a digitally mediated learning environment.

Participants and Sampling

Ten pre-service teachers from Agusan del Sur State College of Agriculture and Technology (ASSCAT) were purposively selected based on their experience with virtual classes during the pandemic. Participants were 18–35 years old, actively engaged in virtual classes, and officially affiliated with the institution. Five participated in individual in-depth interviews and five in the focus group discussion (FGD). Data collection continued until no substantially new themes emerged, consistent with phenomenological inquiry that emphasizes depth and information-rich cases (Crouch & McKenzie, 2006)

Data Gathering Procedures

Data were gathered through semi-structured in-depth interviews and an FGD. The semi-structured protocol allowed participants to describe their virtual-class experiences, challenges, coping mechanisms, and insights while permitting follow-up questions for clarification and elaboration. Individual interviews generated detailed personal accounts, while the FGD provided opportunities to compare and expand shared experiences. Participation was voluntary and based on informed consent, and appropriate measures were taken to protect participants' privacy.

Data Analysis

Data were analyzed using Colaizzi's (1978) phenomenological method. Transcripts were read repeatedly, significant statements were identified, meanings were formulated, and related meanings were clustered into themes. These themes were integrated into an exhaustive description and fundamental structure of the participants' lived experiences. Member checking was conducted to validate the interpretations. Coding was performed manually, with the researchers collaboratively reviewing and refining themes through discussion and consensus.

Trustworthiness of the Study

Trustworthiness was established using Lincoln and Guba's (1985) criteria of credibility, transferability, dependability, and confirmability. Credibility was supported through member checking and the use of interviews and FGDs; transferability through contextual descriptions; dependability through an audit trail; and confirmability through reflexive documentation. Because the researchers were affiliated with ASSCAT, reflexivity was maintained to recognize and minimize the influence of researcher assumptions and potential biases.

Ethical Considerations

Informed consent, voluntary participation, confidentiality, and the right to withdraw were observed throughout the study. The research was guided by the principles of respect for persons, beneficence, and justice in the Belmont Report (National Commission for the Protection of Human Subjects of Biomedical and Behavioral

Research, 1979). Participants' information was handled in accordance with the Data Privacy Act of 2012 (Republic Act No. 10173) to protect confidentiality and personal data.

RESULTS AND DISCUSSION

Experiences of Pre-service Teachers on the Implementation of Virtual Classes in the New Normal

Analysis of the participants' accounts revealed four major themes describing their experiences in implementing virtual classes: (1) unstable connectivity as an obstacle to pedagogical engagement, (2) power interruptions and the fragility of digital instruction, (3) domestic disruptions and the blurring of learning boundaries, and (4) technological limitations and the strain of digital minimalism. These themes illustrate how technological infrastructure, home environments, and access to functional devices shaped the participants' experiences of virtual instruction.

Table 1. Major Themes and Core Ideas on Experiences of Pre-service Teachers on the Implementation of Virtual Classes in the New Normal.

Major Themes	Core Ideas
Unstable Connectivity as an Obstacle to Pedagogical Engagement	- Experiencing an increasing number of pupil absences due to poor internet connection - Struggling to understand lessons due to unstable connections - Experiencing delays in joining virtual classes - Feeling pressured by cooperating teachers during connectivity disruptions - Relocating to different areas to secure a stable internet signal
Power Interruptions and the Fragility of Digital Instruction	- Facing abrupt power interruptions that prevent pupils from joining virtually - Experiencing unexpected delays in class schedules - Encountering sudden electricity blackouts during live instruction
Domestic Disruptions and the Blurring of Learning Boundaries	- Managing pupils who get easily distracted by home environments - Experiencing instructional disruptions from parents and family members - Encountering background noise from animals and household activities
Technological Limitations and the Strain of Digital Minimalism	- Experiencing laptop lag and freeze during virtual class sessions - Feeling frustrated with poor device performance - Handling hardware failures during teaching demonstrations

Unstable Connectivity as an Obstacle to Pedagogical Engagement.

Unstable internet connectivity emerged as a persistent challenge affecting the participants' ability to sustain virtual instruction. Poor connections resulted in delayed entry into virtual classes, difficulty following lessons, interruptions in communication, and reduced pupil participation. For participants residing in areas with limited connectivity, maintaining access sometimes required considerable effort. One participant described this experience: "Had to climb a hill just to receive signal, it was like seeking education." This account illustrates that connectivity was not simply a technical concern but a condition that shaped participants' access to and engagement in virtual teaching.

The finding reflects the broader technological difficulties experienced by Filipino students during online learning. Barrot et al. (2021) identified internet connectivity and other technological limitations among the challenges encountered by college students during the pandemic, alongside problems associated with the learning environment and interaction. Similarly, Baticulon et al. (2021) reported that reliable internet access represented an important technological barrier to online education in the Philippines. These findings suggest that participation in virtual instruction is strongly conditioned by the availability and stability of digital infrastructure.

From the perspective of Moore's Transactional Distance Theory (1993), unstable connectivity can increase transactional distance by disrupting dialogue between teachers and learners. When communication becomes intermittent, opportunities for immediate clarification, feedback, questioning, and interaction are reduced. Falloon (2011) demonstrated that meaningful dialogue in virtual classrooms is an important element in shaping transactional distance and that the relationship among dialogue, structure, and learner autonomy

is complex. Thus, connectivity problems experienced by the participants did more than interrupt access; they potentially weakened the interaction necessary to sustain engagement in virtual instruction.

Despite these difficulties, participants responded by adjusting schedules, preparing materials in advance, using alternative means of access, and moving to locations where stronger signals were available. These responses are consistent with Barrot et al. (2021), who found that Filipino students used strategies such as resource management, help-seeking, technical skills enhancement, time management, and control of the learning environment to manage online learning challenges. The participants' responses therefore demonstrate adaptive practices developed in response to limitations in their learning and teaching environments.

Power Interruptions and the Fragility of Digital Instruction.

Power interruptions further complicated the implementation of virtual classes. Participants reported unexpected disruptions that prevented pupils from joining sessions, delayed the conduct of classes, and interrupted ongoing instruction. One participant explained, *"I was ready to teach, but the blackout ruined everything."* The experience demonstrates the dependence of virtual instruction on infrastructure beyond the immediate control of both teachers and learners.

The consequences of power interruptions extended beyond temporary inconvenience. Virtual instruction depends on functioning devices, network equipment, and sufficient electrical power to sustain synchronous communication. When electricity was interrupted, planned instructional sequences and interaction could also be disrupted. This finding reinforces the broader concern that infrastructure limitations can constrain the continuity of technology-mediated education, particularly in resource-constrained settings.

Within Transactional Distance Theory, these interruptions can be understood in relation to both dialogue and instructional structure. A scheduled synchronous class assumes that participants can connect and remain present throughout the instructional period. Unexpected power interruptions weaken dialogue by terminating communication and challenge instructional structure by preventing lessons from proceeding according to plan. Moore (1993) emphasized that distance education requires an appropriate relationship among dialogue, structure, and learner autonomy. In contexts where infrastructure is unpredictable, highly rigid synchronous structures may therefore be difficult to sustain.

Participants responded to these disruptions by adjusting schedules, using backup power when available, and shifting to asynchronous approaches. Such responses indicate an effort to make instructional arrangements more flexible when planned synchronous instruction became impossible. Rather than treating the original lesson structure as fixed, the participants modified how learning activities could be delivered. This suggests that their experiences with power interruptions required them to exercise flexibility and contingency planning in maintaining instructional continuity.

Domestic Disruptions and the Blurring of Learning Boundaries.

The home environment emerged as another significant source of disruption. Participants reported that pupils were easily distracted by activities within their homes, while family members, household noise, and animals sometimes interfered with virtual instruction. The participants themselves were also required to conduct educational activities within spaces ordinarily associated with family life. As one participant explained, *"I was educating while my brothers were watching TV next to me."*

This finding demonstrates how virtual learning blurred the boundaries between home and classroom. Unlike conventional classroom settings, where instructional spaces are organized primarily for teaching and learning, participants had limited control over household activities, noise, space, and interruptions. Consequently, virtual teaching required them to negotiate their instructional responsibilities within environments that simultaneously served domestic and educational functions.

The finding is strongly supported by Philippine research. Barrot et al. (2021) found that the home learning environment was the greatest challenge reported by students in their study, particularly because of household distractions, noise, and limitations in learning space and facilities. Baticulon et al. (2021) likewise identified responsibilities at home and lack of physical space conducive to studying among common barriers to online learning. These studies demonstrate that the effectiveness of online education depends not only on

technological access but also on whether learners and teachers have environments conducive to sustained educational participation.

These domestic disruptions also have implications for dialogue and learner autonomy under Moore's (1993) framework. Environmental distractions may reduce participants' capacity to remain engaged in interaction, while the absence of a controlled classroom environment places greater responsibility on individuals to regulate their time, attention, and learning conditions. The participants' attempts to negotiate schedules and create workable learning spaces therefore reflect the increased self-regulation required when education occurs within the home.

More importantly, these experiences reveal that virtual teaching required pre-service teachers to negotiate multiple roles within the same physical space. The home became simultaneously a personal, family, academic, and instructional environment. Their experiences therefore suggest that effective virtual teaching involves not only technological competence but also the capacity to manage contextual conditions that may affect teaching and learner engagement.

Technological Limitations and the Strain of Digital Minimalism.

The fourth theme concerned limitations in the technological devices available for virtual instruction. Participants reported laptop lag, poor device performance, and equipment failure during virtual teaching demonstrations. These difficulties affected their ability to conduct instructional activities efficiently and generated frustration when devices could not adequately support the demands of virtual classes. One participant described the difficulty of using limited technology by stating, *"My phone heats up after 30 minutes of class, I just tough it out."*

The finding illustrates an important distinction between internet access and device capability. Connectivity determines whether teachers and learners can enter a virtual environment, whereas device limitations affect what they can effectively accomplish once connected. Hardware performance can influence access to applications, multimedia materials, synchronous communication, and other technology-mediated instructional activities.

This finding is consistent with Barrot et al. (2021), who identified technological challenges as part of Filipino students' online learning experiences. Baticulon et al. (2021) similarly classified hardware, software, internet connectivity, gadget sharing, and related concerns as technological barriers to online learning. Thus, possession of a device alone does not necessarily guarantee equitable participation when the device lacks the capacity or reliability required for sustained virtual instruction.

From the perspective of Transactional Distance Theory, technological limitations can affect both dialogue and structure. Devices that cannot reliably support virtual platforms may restrict communication and prevent participants from fully engaging with planned instructional activities. Falloon (2011) noted that technologies used in virtual classrooms influence the interaction among dialogue, structure, and learner autonomy. Technology therefore functions not merely as a delivery mechanism but as part of the conditions through which interaction and participation in virtual learning are made possible.

Participants attempted to manage these constraints through technological improvisation and the use of available resources. Such responses indicate resourcefulness, but they also highlight an important equity concern: successful participation in virtual education should not depend primarily on an individual's ability to compensate for inadequate technological resources. Teacher education institutions therefore need to consider both digital competence and access to functional technologies when preparing pre-service teachers for technology-mediated instruction.

CONCLUSION

The lived experiences of pre-service teachers demonstrate that effective virtual instruction depends not only on digital competence but also on the technological, infrastructural, and environmental conditions that enable meaningful participation. Viewed through Moore's Transactional Distance Theory, these conditions influence the quality of dialogue, flexibility of instructional structure, and degree of autonomy required of teachers and learners. The participants' adaptive responses further illustrate the importance of flexibility and resourcefulness when conventional instructional arrangements are disrupted. However, adaptation should not substitute for adequate institutional support. Teacher education institutions should therefore integrate

context-responsive digital pedagogy into pre-service preparation while strengthening access to reliable technologies and flexible instructional support. Preparing future teachers for technology-mediated education requires both pedagogical competence and institutional conditions that enable equitable and sustained engagement across diverse learning environments.

REFERENCES

- Almusharraf, N., & Khahro, S. H. (2020). Students' satisfaction with online learning experiences during the COVID-19 pandemic. *International Journal of Emerging Technologies in Learning (IJET)*, 15(21), 246–267. <https://doi.org/10.3991/ijet.v15i21.15647>
- Barrot, J. S., Llenares, I. I., & del Rosario, L. S. (2021). Students' online learning challenges during the pandemic and how they cope with them: The case of the Philippines. *Education and Information Technologies*, 26, 7321–7338. <https://doi.org/10.1007/s10639-021-10589-x>
- Baticulon, R. E., Sy, J. J., Alberto, N. R. I., et al. (2021). Barriers to online learning in the time of COVID-19: A national survey of medical students in the Philippines. *Medical Science Educator*, 31, 615–626. <https://doi.org/10.1007/s40670-021-01231-z>
- Blankenship, D. C. (2016). Applied research and evaluation methods in recreation. *Human Kinetics*.
- Cleofas, J. V., & Rocha, I. C. N. (2021). The impact of COVID-19 on Filipino college students' lives: A mixed-methods study. *International Journal of Mental Health and Addiction*. <https://doi.org/10.1007/s11469-020-00330-5>
- Colaizzi, P. F. (1978). Psychological research as the phenomenologist views it. In R. S. Valle & M. King (Eds.), *Existential phenomenological alternatives for psychology* (pp. 48–71). Oxford University Press.
- Coman, C., Tiru, L. G., Meseşan-Schmitz, L., Stanciu, C., & Bularca, M. C. (2020). Online teaching and learning in higher education during the coronavirus pandemic: Students' perspective. *Sustainability*, 12(24), 10367. <https://doi.org/10.3390/su122410367>
- Crouch, M., & McKenzie, H. (2006). The logic of small samples in interview-based qualitative research. *Social Science Information*, 45(4), 483–499. <https://doi.org/10.1177/0539018406069584>
- Cutri, R. M., Mena, J., & Whiting, E. F. (2020). Faculty readiness for online crisis teaching: Transitioning to online teaching during the COVID-19 pandemic. *European Journal of Teacher Education*, 43(4), 523–541. <https://doi.org/10.1080/02619768.2020.1815702>
- Falloon, G. (2011). Making the connection: Moore's theory of transactional distance and its relevance to the use of a virtual classroom in postgraduate online teacher education. *Journal of Research on Technology in Education*, 43(3), 187–209. <https://doi.org/10.1080/15391523.2011.10782569>
- Flores, M. A., & Swennen, A. (2020). The COVID-19 pandemic and its effects on teacher education. *European Journal of Teacher Education*, 43(4), 453–456. <https://doi.org/10.1080/02619768.2020.1824253>
- Lapada, A. A., Miguel, F. F., Robledo, D. A., & Alam, Z. F. (2020). Teachers' COVID-19 awareness, distance learning education experiences and perceptions towards institutional readiness and challenges. *International Journal of Learning, Teaching and Educational Research*, 19(6), 127–144. <https://doi.org/10.26803/ijlter.19.6.8>
- Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic inquiry*. Sage Publications.
- Moore, M. G. (1993). Theory of transactional distance. In D. Keegan (Ed.), *Theoretical principles of distance education* (pp. 22–38). Routledge.
- National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research. (1979). *The Belmont Report: Ethical principles and guidelines for the protection of human subjects of research*. U.S. Department of Health and Human Services. <https://www.hhs.gov/ohrp/regulations-and-policy/belmont-report/index.html>

- Rapanta, C., Botturi, L., Goodyear, P., Guàrdia, L., & Koole, M. (2020). Online university teaching during and after the Covid-19 crisis: Refocusing teacher presence and learning activity. *Postdigital Science and Education*, 2(3), 923–945. <https://doi.org/10.1007/s42438-020-00155-y>
- Republic of the Philippines. (2012). Data Privacy Act of 2012 (R.A. 10173). Official Gazette. <https://privacy.gov.ph/data-privacy-act/>
- Sahu, P. (2020). University closure due to coronavirus disease 2019 (COVID-19): Effect on student and academic staff mental health and education. *Cureus*, 12(4), e7541. <https://doi.org/10.7759/cureus.7541>
- Toquero, C. M. D. (2020). Challenges and opportunities for higher education amid the COVID-19 pandemic: The Philippine context. *Pedagogical Research*, 5(4), em0063. <https://doi.org/10.29333/pr/7947>