

Teaching Strategies Early Childhood Teachers Employed During The COVID-19 Pandemic: Evidence from Gomoa West District

Tracy Owusu¹, Anthony Woode-Eshun^{2*}, Mariama Mohammed³ & Seth Badu⁴

¹ Department of Early Childhood Education – University of Education, Winneba, Ghana

² Department of Curriculum and Instruction – University of South Florida, Florida, USA

³ Department of Psychology – Emporia State University, Kansas, USA

⁴ Department of Teaching and Learning – New York University, New York, USA

* Corresponding Author E-mail Address: anthonywoodeeshun@usf.edu

Citation: Owusu, T., Woode-Eshun, A., Mohammed, M., & Badu, S. (2024). Teaching Strategies Early Childhood Teachers Employed During The COVID-19 Pandemic: Evidence from Gomoa West District. *International Journal of Childhood Education*, 5(1), 63-76. <https://doi.org/10.33422/ijce.v5i1.651>

ABSTRACT

This research investigates the teaching strategies employed by early childhood teachers in the Gomoa West District during the COVID-19 pandemic. Using a nested concurrent research design, a sample size of 148 teachers was selected from a population of 234 using the Slovin (1960) formula and a random technique in Microsoft Excel. Additionally, ten teachers from the sample were interviewed. The study identified various teaching strategies used during the pandemic, including the demonstration method, online teaching, question and answers, individual play, and discussion method, all adapted to address the unique challenges posed by the outbreak. The study recommends that the Ministry of Education and Ghana Education Service provide early childhood teachers with training on pedagogical approaches for disease outbreaks and make ICT resources available in early childhood centers to better prepare teachers and students for digital learning in such circumstances. These measures aim to ensure that educators are better equipped to handle unforeseen challenges in the future.

keywords: teaching strategies, early childhood teachers, COVID-19 pandemic, online teaching

1. Introduction

1.1. Background of the Study

The COVID-19 pandemic posed a significant challenge for educators, who lacked a predefined guide for appropriate responses (Remeirs et al., 2020). The pandemic's impact on early childhood education has been extensive, influencing learning environments, teaching methods, policies, and national standards (Mphahlele & Jikpamu, 2021). Early childhood education promotes children's social, emotional, and intellectual development through play-based activities (Mphahlele & Jikpamu, 2021). During the pandemic, educational technology became a vital tool in the educational landscape (Iivari et al., 2020), leading to comprehensive changes in delivery methods and activities across all education domains, including early childhood education.

The transition from traditional in-person education to emergency distance teaching has pressured educators to leverage technology (Ferdig et al., 2020; Knig et al., 2020; Quezada et al., 2020). Early childhood teachers have had to adapt to novel methods of interaction with young children and their families through computer-based educational technology—an unfamiliar domain for many (Hong, Zhang & Liu, 2021). Numerous countries have resorted to

online education to curb coronavirus transmission, leading teachers to implement innovative strategies to educate children while minimizing COVID-19 risks.

Grindal and Smith (2021) conducted a study in Arkansas that exemplifies the adapted innovative strategies employed by teachers in response to the pandemic. Their findings revealed that teachers have limited the number of children in play areas compared to pre-pandemic conditions. Additionally, teachers reported imposing limitations on children's activities during indoor and outdoor sessions, such as restricting children's engagement with peers to their designated pods.

The Massachusetts Department of Elementary and Secondary Education [DESE] (2021) highlights the importance of educators and administrators actively developing strategies to create purposefully playful and interactive learning environments during the pandemic. They recommend adapting educational materials to each learner's specific interests while simultaneously offering a well-rounded and engaging learning environment.

The pandemic's impact on teaching practices in early childhood education is evident. Teachers have demonstrated adaptability by restricting the number of children in play areas, limiting peer engagement within designated pods during indoor activities, and imposing constraints on outdoor activities. The guidance provided by DESE (2021) emphasizes the importance of intentional playfulness and interactivity in educational settings, ensuring that the learning environment remains conducive to students' needs and preferences despite the challenges posed by the pandemic.

This study explored the teaching strategies employed by early childhood teachers in the Gomoa West District during the COVID-19 pandemic. By shedding light on the efficacy of these strategies, this study aims to contribute to a comprehensive understanding of the adapted educational landscape for young children in this region.

1.2. Problem Statement

Early childhood education equips young children with the fundamental knowledge and skills necessary for successful school adjustment and future competence. During this developmental stage, children experience significant growth in their cognitive, socio-emotional, and physical domains with the guidance and support of early childhood teachers (Badu, Agbevivi & Subbey, 2022). However, the COVID-19 pandemic has brought about unprecedented challenges and changes for educators worldwide, necessitating adaptations in teaching methods and learning environments.

The rapid and extensive transmission of the COVID-19 virus has directly and profoundly impacted the functional roles of educators, policymakers, and curriculum developers, presenting a significant challenge to early childhood education. According to Kruse, Hachmann, and Lindle (2020), the COVID-19 pandemic has necessitated that teachers exhibit heightened creativity and innovation in their instructional practices. As educational institutions resumed operations for young learners, educators faced limited time to determine the most effective methods and strategies for teaching at the early childhood level. Consequently, teachers were compelled to make numerous adaptations to their pedagogical approaches and learning environments throughout the COVID-19 pandemic (Milman, 2020).

The existing body of research has predominantly focused on investigating online teaching practices during the COVID-19 pandemic, overlooking an in-depth exploration of the teaching strategies employed by early childhood teachers upon the reopening of schools. Moreover, most studies in this area have primarily been conducted in Western countries, with some focusing solely on higher education. For instance, Nikolopoulou (2022) conducted a study in

North and Southern Greece, examining teachers' practices and experiences during the pandemic. Noteworthy findings from Nikolopoulou's study indicated the use of video demonstrations, a combination of teaching approaches, and limited training in online methodologies. However, this study centered on teachers' experiences with online teaching, while the current research aims to investigate the teaching strategies employed by early childhood teachers upon school resumption. In similar evidence, Vijayan's (2021) study examined teaching and learning during the COVID-19 pandemic, explicitly focusing on the impact of the pandemic on higher education, the utilization of various teaching tools, and electronic learning. While Vijayan's study was conducted at the higher education level, the present research will concentrate on the early childhood level. Likewise, Khanal (2020) employed a phenomenological research design to explore the lived experiences of online teaching during the COVID-19 outbreak and its consequences for curriculum and instruction.

Addressing this knowledge gap is crucial for understanding how early childhood teachers adapted their teaching strategies to meet the unique challenges posed by the COVID-19 pandemic in non-Western contexts. By exploring this area, the present study aims to contribute valuable insights into effective pedagogical approaches that can be employed during times of crisis, particularly in early childhood education settings. The findings of this research could inform future policy decisions, teacher training programs, and curriculum development initiatives, ultimately enhancing the quality of early childhood education and better preparing educators to navigate unforeseen challenges.

1.3. Significance of the Study

The significance of this study lies in its potential to contribute to the field of early childhood education by addressing the identified knowledge gap and providing valuable insights into the teaching strategies employed by early childhood teachers during the COVID-19 pandemic in the Gomoa West District, Ghana. The findings of this research have several important implications for various stakeholders, including educators, policymakers, and curriculum developers.

We believe the study's findings will inform the development of effective pedagogical approaches that can be utilized in similar crises. By identifying the strategies that were successfully adapted to meet the unique challenges posed by COVID-19, this research can guide educators in their efforts to ensure continuity and quality of education during times of disruption.

Again, the study will provide valuable insights for teacher training programs. By understanding the specific adaptations made by teachers in response to the crisis, these programs can better prepare pre-service teachers to navigate unforeseen challenges and develop the necessary skills and competencies to effectively support children in various contexts.

Moreover, the findings of this study can inform policy decisions related to early childhood education in Ghana and other low- and middle-income countries. By highlighting the challenges faced by early childhood teachers during the pandemic and the strategies they employed to overcome these challenges, policymakers can develop more targeted policies to support the education sector during times of crisis. This may include providing resources, training, and support to ensure that early childhood education remains accessible and of high quality.

Furthermore, the study's focus on the Ghanaian context contributes to the diversification of research in the field of early childhood education, which has predominantly been conducted in Western countries. By providing insights from a non-Western perspective, this research can

enrich the global understanding of the impact of the COVID-19 pandemic on early childhood education and the strategies employed by teachers to adapt to the challenges posed by the crisis.

1.4. Research Questions

1. What were early childhood teachers' most commonly employed teaching strategies in the Gomoa West District during the COVID-19 pandemic?
2. How did early childhood teachers adapt their teaching strategies to meet the unique challenges presented by the COVID-19 pandemic?

2. Methodology

2.1. Research Design

The nested concurrent research design was adopted for this study. This research design combines qualitative and quantitative data collection and analysis within a single study. In this design, one method is nested within the other, meaning that one method is prioritized while the other provides additional insights or support (Creswell, 2003). A survey was distributed to a sample of kindergarten teachers within the Gomoa West District, Ghana. The survey asked teachers to report on the types and frequencies of teaching strategies used before and during the COVID-19 pandemic. Based on the quantitative survey results, key findings were identified for deeper investigation using interviews. This included specific teaching strategies that saw major increases or decreases in use during remote pandemic teaching. The teachers were asked to expand on their survey responses and provide detailed examples of how and why their teaching strategies changed. A reason for using this design was to capitalize on the complementary nature of qualitative and quantitative data. The qualitative data provided rich, in-depth insights and an understanding of how early childhood teachers adapted their teaching strategies to meet the unique challenges presented by COVID-19. In contrast, the quantitative data provided statistical patterns, trends, and generalizability-specific teaching strategies used during the COVID-19 pandemic. Combining the two gave the researchers a more comprehensive understanding of the phenomenon under discussion.

2.2. Population, Sample, and Sampling Technique

The study focused on kindergarten teachers in the Gomoa West District, encompassing a total population of 234 teachers. Of these, 84 were from private kindergarten centers, and the remaining 150 were from public kindergarten centers. To ensure a representative sample, the researchers used a sample size of 148 kindergarten teachers, consisting of 13 male teachers and 135 female teachers. The sample size was determined using the Slovin (1960) formula, which considered a 95% confidence interval and a 5% margin of error. According to Slovin's (1960) formula, a representative sample of 148 teachers from an accessible population of 234 was required to generalize the findings successfully.

A simple random sampling technique was employed to select the sample. Using the rand function in Microsoft Excel, each teacher's name was arranged systematically in a single column. The rand function assigned unique random numbers between 0 and 1 to each teacher in the sampling frame. The researchers copied and pasted the values to prevent the random numbers from changing. The researchers then sorted the random numbers and selected the first 148 kindergarten teachers for the quantitative aspect of the study.

A homogeneous sampling technique was also used to select ten teachers for interviews. Homogeneous sampling involves including individuals or sites in a study based on shared traits or qualities (Creswell, 2014). In this case, the researchers identified the attributes of interest and sought out teachers who had experience with COVID-19 between 2020 and 2021, when schools first reopened. These teachers were selected for interviews to provide insights into their experiences.

2.3. Data Collection Instruments

The study employed a combination of structured questionnaires and semi-structured interviews as data collection instruments. The structured questionnaire was chosen for its ability to gather statistically quantifiable data, enabling straightforward statistical analysis of the responses. Furthermore, it has been widely recognized as a reliable method for obtaining quantitative data on individuals' attitudes, values, experiences, and past behaviors (Bell, 2008). Administering similar questions simultaneously to a large number of participants ensures that the acquired data are more consistent, accurate, and standardized (Zohrabi, 2013). Again, semi-structured interviews were conducted to gather insights into 'how early childhood teachers adapted their teaching strategies to meet the unique challenges presented by the COVID-19 pandemic.' The utilization of semi-structured interviews allowed the researchers to delve into the viewpoints of individual teachers, gaining a deeper understanding of their perspectives on the subject being investigated (Patton, 2002). By incorporating this method, the study aimed to capture a broader range of perspectives and enrich the overall findings.

2.4. Ethical Considerations

An ethical clearance (FES/DECE/1.1) was obtained from the Department of Early Childhood Education of the University of Education, Winneba, to enable approval from gatekeepers, respondents, and participants. Thus, a copy of the introductory letter was sent to the headteachers to seek approval for data collection. After permission was granted by the headteachers, dates, times, and venues were fixed for data collection.

To seek participants' informed consent, they were furnished with accurate and complete information on the goal(s) and procedures of the investigation so that they fully understood and, in turn, decided whether to participate in the study or not (Bryman, 2012). Thus, informed consent is a prerequisite to any research involving human beings as participants. In this study, the researcher spelled out the purpose, the intended use of the data, and its significance to the participants. Each of the participants willingly decided to take part in the study.

Additionally, before the start of the data collection, the respondents were assured that the data would be kept confidential. In doing so, codes were assigned to the various questionnaires, and data was kept within the reach of other individuals.

Research participants' well-being and interests were protected. Participants identified in the study were masked or blinded as far as possible (Speziale & Carpenter, 2011). Respondents' responses were presented to ensure anonymity so that one could not "identify a given response with a given respondent" (Bryman, 2012, p. 65). Participants were encouraged not to give any identifiable information (such as the name of the school, participants' name, email address, house number, and contacts) in the interview. Codes (ECT 1, 2, 3, and so on) were also assigned to the verbatim transcription of data.

2.5. Data Processing and Analysis

Data were collected from both quantitative and qualitative means. The quantitative data was processed using the Statistical Product for Service Solution (SPSS) software version 26.0. It was then analyzed using descriptive statistics (means and standard deviation). The mean summarizes the teachers' responses, and the standard deviation indicates whether teachers' responses were clustered to the mean score or dispersed. The standard deviation ranges from 0 to 1. Where the standard deviation is relatively small (within 0), the teachers' responses are considered homogeneous (similar responses). On the other hand, where the standard deviation is relatively large (within 1), the teachers' responses are considered heterogeneous (dissimilar responses). A mean of 3.0 and above indicates a particular teaching strategy was used, while a mean of 2.99 and below indicates that a particular teaching strategy was not used. The qualitative data, on the other hand, were processed using Dedoose analysis software version 8.1. The responses from the oral interview were transcribed manually. After the transcription, member checking was done to ensure that the transcribed responses reflected the views of the participants. The transcribed data were coded and built into relationships. Themes were then developed from the relationships for discussion.

3. Results and Discussion

3.1. Research Question 1: What Were Early Childhood Teachers' Most Commonly Employed Teaching Strategies in the Gomoa West District during the COVID-19 Pandemic?

Table 1 summarizes the teaching strategies used by early childhood teachers in the Gomoa West District during the COVID-19 pandemic. Based on the provided analysis, different teaching methods were used. The analysis includes each teaching method's mean (M) and standard deviation (SD). The data indicates that the demonstration method was used with a high mean rating of 4.55, indicating that early childhood teachers frequently employed it during the COVID-19 pandemic. The standard deviation of 0.72 suggests moderate variability in the ratings, indicating that some respondents may have rated it lower or higher.

Table 1.

Teaching strategies used by early childhood teachers during the COVID-19 pandemic

Statement	M	SD
I used the demonstration method	4.55	.72
I used an online teaching method	4.55	.60
I used the questions and answers technique	1.55	.84
I used role-play	1.48	.62
I used the discussion method	4.55	.75
I used the field trip	1.66	.75
I used the group method	1.54	.82
I used the individual play method	4.53	.62
I used dramatization	1.46	.60
Mean of Means and Standard Deviation	2.87	0.70

Again, the online teaching method was also used frequently, with a high mean rating of 4.55. The standard deviation of 0.60 suggests relatively lower variability than the demonstration method, indicating that the ratings for the online teaching method were more consistent among the respondents. The questions and answers technique had a low mean rating of 1.55, indicating that early childhood teachers did not commonly use it during the COVID-19 pandemic. The relatively high standard deviation of 0.84 suggests a significant variability in the ratings, indicating that opinions on this method varied considerably among the respondents.

The role-play method had a low mean rating of 1.48, indicating it was not frequently used. The standard deviation of 0.62 suggests moderate variability in the ratings, suggesting that some teachers rated it lower or higher. The discussion method was used frequently, with a high mean rating of 4.55. The standard deviation of 0.75 suggests moderate variability in the ratings, indicating that some teachers may have rated it lower or higher.

The discussion method was used frequently, with a high mean rating of 4.55. The standard deviation of 0.75 suggests moderate variability in the ratings, implying that some respondents may have rated it lower or higher. The field trip method had a relatively low mean rating of 1.66, indicating it was not commonly used. The standard deviation of 0.75 suggests moderate variability in the ratings, indicating that opinions on this method varied among the respondents.

The group method had a low mean rating of 1.54, indicating it was not frequently used. The standard deviation of 0.82 suggests moderate variability in the ratings, indicating that some respondents rated it lower or higher. The individual play method was used with a high mean rating of 4.53, implying that the respondents frequently employed it. The standard deviation of 0.62 suggests relatively lower variability, indicating that the ratings for this method were more consistent among the respondents. The dramatization method had a low mean rating of 1.46, indicating it was not commonly used. The standard deviation of 0.60 suggests relatively lower variability, indicating that the ratings for this method were more consistent among the respondents.

3.2. Research Question 2: How Did Early Childhood Teachers Adapt Their Teaching Strategies to Meet the Unique Challenges Presented by the COVID-19 Pandemic?

The second research question explored how early childhood teachers adapted their teaching strategies to meet the unique challenges presented by the COVID-19 pandemic. The study identified that early childhood teachers adjusted their teaching strategies during COVID-19. The following themes were derived from research question one:

- Online teaching
- Discussion method
- Demonstration method
- Individual play

Online teaching. The first theme derived from the research question is online teaching. The study revealed that certain teaching and learning activities were delivered online during the COVID-19 pandemic because learners had limited hours in school. This was to ensure the completion of the term's activities and to allow learners to enjoy what they might have missed due to the limited hours in class. Teachers were asked to describe how they adapted to this teaching strategy. In response, a teacher stated that:

We used e-learning, that is, online learning. We set up a WhatsApp page for the class, so after you finish with the videos and everything, you post it there and give them the time to do the research. We still do this even after the lockdown. Covid has really taught me how to go online, even with WhatsApp (ECTr03).

ECTr 06 also mentioned that:

Hmm, we were watching videos, some of the lessons, you know I download videos for all of us to watch, so when we are watching the lesson, you know we are all in isolation, we are just sitting down quietly. You are watching the video, so after watching it, I make sure that learning has taken place using open-ended questions about the video they

watched. What do you think happened? What do you think, you know? Just open-ended questions asking learners questions about the video they watched: What do you think? What happened? What do you think you know? Just opened-ended questions to guide me know that the learners have understood the lesson (ECTr01).

Another early childhood teacher revealed that:

We were using WhatsApp where when you were in the house, you had to video yourself teaching, you set up a place in the classroom, you better come to the school and do it, or in your home, you let your background seem like a classroom, you video yourself teaching, pretend to ask yourself questions, sometimes pretend to be mentioning their names, we have WhatsApp group for all the pages so you send it there and parents will download it and show it to them and guide them to do the activities. I was also using YouTube to download things to put online for them (ECTr02).

ECTr 07 also identified that:

We used phone calls. Because most of the parents in my classroom, the children their parents most of them do not have access to WhatsApp phones. Most of them do not have phones, but I was calling them, saying that tomorrow when you are coming to school, please bring the that that that. Maybe we will be using the box or a line or reading about learning how to write three. Tomorrow the lesson is on three. If you are not able to come to school, I call you and tell you to practice three in the house. So, I was making more phone calls but not WhatsApp calls. The parents do not even have technology phones, so you cannot communicate with them (ECTr07).

ECTr 10 also said:

We used the WhatsApp group yea we created a group so I will do my lessons in video and then post it on the platform and then add my homework and everything on it and send it to put it on the page for parents to download and give it to their kids. So, after their assignments, parents will also take a picture of them and send it to me privately but not put it on the page for me to mark and send it back to them. Notwithstanding, other early child teachers did not use any online modules or technology in teaching. For example, a participant stated that (ECTr10).

From the first theme, participants cleared out that they used some online modules and technology in teaching during COVID-19. Some interviewees indicated that they used Zoom, WhatsApp, and YouTube in teaching their learners. Other interviewees also said that they had radio lessons and they downloaded videos on their laptops to teach the learner. Other participants did not use any online modules and technology because of network problems and parents not having access to smartphones.

Discussions and Demonstrations. The second theme obtained from research question two is discussion and demonstration methods. Teachers stated that in most of their teaching in the classroom, they used demonstration and discussion methods. They described how they adapted to this strategy in the following directly followed excerpts:

A participant expressed that:

I was using more of the discussion method and the whole class teaching. That is my method and I was using more pictures and I was demonstrating it to them. Then during sound or literacy, I was using more of the audio and TLM. So, they will listen, and I will demonstrate to them. If you mean to tell them that they should go outside and

experience or listen to, they will not allow you to go outside, or they will be crowded. So, I was not going outside for a sound walk (ECr04).

ECr 13 also identified that:

Personally, I was using the discussion method, the question-and-answer method. Sometimes, I will look for videos displayed for them to watch. Those ones do not involve physical contact. You are just there, and you will watch (ECr01).

A teacher articulated that:

I also used demonstrations during the pandemic. Because you cannot let children be in groups to have an activity. So, as a teacher, I also used the demonstration method (ECr09).

In addition, another participant also expressed that:

I was using more of the discussion method and the whole class teaching. That is my method and I was using more pictures and I was demonstrating it to them. Then, during sound or literacy, I used more of the audio and TLM. So, they will listen, and I will demonstrate to them. If you mean to tell them that they should go outside and experience or listen to, they will not allow you to go outside, or they will be crowded. So, I was not going outside for a sound walk (ECr10).

The interviewees revealed that the discussion approach and the demonstration method were used in teaching at the early childhood centers during COVID-19. They choose discussion and demonstration since they prevent interactivity. Also, teachers used these strategies because these methods meet the COVID-19 safety measures.

Individual play. Individual play was another method used by early childhood teachers during the COVID-19 pandemic. Teachers noted that they encouraged individual play during COVID-19 so that children would not touch each other.

According to ECr02:

Very much because they could not play in groups all the time; they had to play on their own. I must say that it was not very easy; in fact, sometimes you will see a child going to touch the other person, and you will pick up the child to his or her sitting position, but still, that is the place that the child wants to go. We tried our best with different objects given to the children (ECr9).

ECr03 also stated that:

Yes, I did. Initially, they did not understand the individual play because they were used to group play. So, they did not understand why there should be individual play. There were times when they could have group play, and now that COVID was there, they should play individually. Also, the individual play was not easy for them because there were not many materials for the learners to play with individually.

ECr04 also identified that:

Yes, we did. Talking of the learning center, we did not use those ones because it will encourage contact, but the tabletop, we encouraged because the table we did not do much of touching or physical contact. So, I was using more of a discussion kind of in the class.

Notwithstanding, a teacher stated that she did not encourage individual play, and this was her reason:

No, I did not encourage individual play. Because of the KG setting, you do not get definitely, we teach a thematic something. At the end of the day, a lot of skills are achieved, so though you will be teaching numeracy, collaboration skills will be taught. I mean you will get collaboration theme will be achieved there and other things. So, individual plays no because all these activities at the KG do not encourage individual play. There is collaboration, there is discussion, there is either play together or group work somewhere. So, the individual play no. No, I did not encourage that.

From the responses, it suggests that teachers discouraged group play during the COVID-19 pandemic. They encouraged individual play because children would not be attached. Also, this serves as a social distancing tool when it comes to the safety measures of the COVID-19 pandemic.

4. Discussion of Results

This study provides valuable insights into the frequency of usage and effectiveness ratings of various instructional strategies employed by early childhood educators in the Gomoa West District during the COVID-19 pandemic. Early childhood instructors frequently utilized a range of strategies, including the demonstration method, online teaching, and individual play, which received positive assessments. Conversely, less commonly employed instructional methods like the question-and-answer technique, role play, field trips, group activities, and dramatization received comparatively lower ratings. The data also highlighted variations in ratings, suggesting differing perspectives and usage patterns among the respondents.

The study's findings indicate that teachers adapted their teaching methods during the COVID-19 pandemic due to the incompatibility of some previously used strategies with the safety measures mandated for COVID-19. In response, teachers adopted new teaching approaches aimed at safeguarding children from COVID-19 infection. Notably, the use of online instruction in early childhood centers gained recognition among teachers. They explained that this choice stemmed from the truncated school days experienced during the pandemic. They adopted online instruction as a contingency plan for completing their lessons to mitigate potential disruptions. This aligns with the findings of Besser, Lotem, and Zeigher-hill (2022), who observed a shift from group instruction to one-on-one instruction during the COVID-19 pandemic. Some teachers also cited online teaching as a means of preventing students from congregating and facilitating social distancing. The data revealed that early childhood teachers leveraged platforms like WhatsApp, YouTube, and Zoom for online instruction during the pandemic.

Furthermore, the study concluded that early childhood center teachers predominantly employed the demonstration and discussion approach as their primary teaching strategy during the COVID-19 outbreak. This choice aimed to prevent students from close contact within the early childhood classroom. Teachers clarified that when using the demonstration approach, they conducted it solely for the students without involving them in the demonstration. Similarly, during the discussion technique, teachers engaged with young students individually while seated, rather than in groups or pairs, to discuss the subject matter. These strategies were seen as effective in preventing close interactions among students. These findings are consistent with Akram, Slam, Saleem, and Parven's (2020) research, which highlighted the necessity for early childhood educators to adapt their pedagogical approaches to maintain the quality of instruction and adjust curricula in response to the pandemic.

In addition, the study uncovered that early childhood center teachers actively promoted solitary play during the COVID-19 pandemic. Teachers preferred solo play over group activities, emphasizing that it allowed children to interact within safe distances. They noted that students

often brought their toys from home to use during playtime. This observation echoes the findings of Poala et al. (2020), who noted an increase in allocated time for solitary play among teachers.

4.1. Key Findings

According to the findings of this research, early childhood educators employed different teaching approaches during the COVID-19 pandemic for different reasons. While effective in many ways, these methods did not always foster more excellent social connectivity among students. Consequently, educators often relied on teaching practices such as demonstrations, discussions, online learning, and individual play in early childhood centers. On the other hand, question-and-answer sessions, role plays, field trips, group activities, and dramatization were less commonly used during the pandemic. This was primarily due to the challenge of adhering to COVID-19 safety standards, particularly those related to maintaining social distancing.

Additionally, the study revealed that teachers in early childhood centers adapted instructional techniques to address the unique challenges posed by the COVID-19 outbreak. Educators employed diverse teaching methods throughout the pandemic, including online instruction, discussions, demonstrations, and individual play.

4.2. Recommendations

In response to the findings of this study, we propose two key recommendations to enhance the quality and resilience of early childhood education in the face of challenges like the COVID-19 pandemic. First, the Ministry of Education and Ghana Education Service should prioritize developing and implementing tailored professional development programs for early childhood educators. These programs should equip teachers with the knowledge, skills, and strategies necessary to effectively adapt their pedagogical approaches in the context of emergencies that disrupt traditional learning environments.

Comprehensive training programs should cover topics such as best practices for online and remote instruction, strategies for maintaining student engagement and fostering social-emotional development in virtual learning environments, differentiated instruction and assessment techniques, effective communication and collaboration with parents and caregivers, and self-care and stress management strategies for educators. By providing this specialized training, policymakers can ensure that teachers are well-prepared to deliver high-quality instruction and support children's development, enhancing the education system's resilience and ensuring consistent, high-quality education for children.

Expected outcomes include improved teacher confidence and competence in adapting instructional strategies, enhanced quality and continuity of early childhood education during disruptions, better support for children's development during challenging times, and increased education system resilience.

Second, the Ministry of Education and Ghana Education Service should prioritize integrating ICT resources and training in early childhood education. This involves providing essential ICT resources, such as personal computers and tablets, to early childhood education centers and offering comprehensive training to educators on effectively integrating digital tools and online modules into their teaching practices.

By equipping centers with ICT resources and providing necessary training, policymakers can bridge the digital divide, ensure equitable access to technology-enhanced learning opportunities, facilitate the development of digital literacy skills among young learners,

empower teachers to create engaging and personalized learning experiences and strengthen the education system's capacity to adapt to remote or hybrid learning models when necessary.

Expected outcomes include improved access to technology-enhanced learning opportunities, development of digital literacy skills among young learners, enhanced teacher competence in integrating ICT resources, increased student engagement and motivation, and greater flexibility and resilience of the early childhood education system.

Implementing these evidence-based recommendations through collaborative efforts of the Ministry of Education, Ghana Education Service, and early childhood educators will create a more robust, adaptable, and equitable early childhood education system that effectively supports children's development and learning, even in the face of unprecedented challenges.

Declaration of Conflicting Interests

The authors have no competing interests that could influence this article's research, authorship, or publication.

Funding

This research did not receive funding from public, commercial, or not-for-profit agencies.

References

- Akram, H., Aslam, S., Saleem, A., & Parveen, K. (2021). The challenges of online teaching in COVID-19 pandemic: A case study of public universities in Karachi, Pakistan. *Journal of Information Technology Education: Research*, 20, 263–282. <https://doi.org/10.28945/4784>
- Bell, J. (2008). *Doing your research project: A guide for first-time researchers in education and social science* (4th ed.). Maidenhead: Open University Press.
- Besser, A., Flett, G. L., & Zeigler-Hill, V. (2022). Adaptability to a sudden transition to online learning during the COVID-19 pandemic: Understanding the challenges for students. *Scholarship of Teaching and Learning in Psychology*, 8(2), 85–105. <https://doi.org/10.1037/stl0000198>
- Creswell, J. W. (2003). *Research design: Qualitative, quantitative, and mixed methods approaches* (2nd ed.). Thousand Oaks, CA: Sage.
- Creswell, J. W. (2014). *Research Design: Qualitative, Quantitative and Mixed Methods Approaches* (4th ed.). Thousand Oaks, CA: Sage.
- Department of Elementary and Secondary Education (2021). *Creating Developmentally Appropriate Learning Environments During the COVID-19 Pandemic for Early Childhood Programs (Preschool up to Grade 3)*. Massachusetts: Department of Elementary and Secondary Education
- Ferdig, R. E., Baumgartner, E., Hartshorne, R., Kaplan-Rakowski, R. & Mouza, C. (2020). *Teaching, Technology, and Teacher Education during the COVID-19 Pandemic: Stories from the Field*. Association for the Advancement of Computing in Education (AACE). Retrieved September 4, 2023 from <https://www.learntechlib.org/p/216903/>
- Grindal, T. Smith, S., Nakamura, J., & Granja, M. (2021). Early childhood education during COVID-19: The experiences of Arkansas educators. SRI International. Retrieved from https://www.sri.com/wp-content/uploads/2021/12/ARISE-Memo_Early-childhood-education-during-the-COVID-19-pandemic.pdf

- Hong, X., Zhang, M. & Liu, Q. (2021). Preschool Teachers' Technology Acceptance During the COVID-19: An Adapted Technology Acceptance Model. *Frontiers in Psychology* 12(691492) 1-11 <https://doi.org/10.3389/fpsyg.2021.691492>
- Iivari, N., Sharma, S. Ventä-Olkkonen, L. (2020). Digital transformation of everyday life - How COVID-19 pandemic transformed the basic education of the young generation and why information management research should care? *International Journal of Information Management* 55(102183), 1-6. <https://doi.org/10.1016/j.ijinfomgt.2020.102183>
- Khanal, P. (2021). Lived experience of online teaching during the COVID-19 pandemic: Implications for curriculum and teaching. *Interdisciplinary Research in Education*, 5(2), 89–102. <https://doi.org/10.3126/ire.v5i1-2.34738>
- Knig, J., Jger-Biela, D. J., & Glutsch, N. (2020). Adapting to online teaching during COVID-19 school closure: teacher education and teacher competence effects among early career teachers in Germany. *European Journal of Teacher Education*. 43(4), 608–622. <https://doi.org/10.1080/02619768.2020.1809650>
- Kruse S. D., Hackmann D. G. & Lindle J. C. (2020). Academic leadership during a pandemic: department heads leading with a focus on equity. *Frontier of Education*, 5(614641), 609-622. <https://doi.org/10.3389/feduc.2020.614641>
- Milman, N. B. (2020). This is emergency remote teaching, not just online teaching Global Education Coalition. The Covid-19 outbreak is also a major education crisis. Retrieved from <https://www.edweek.org/leadership/opinion-this-is-emergency-remote-teaching-not-just-online-teaching/2020/03>
- Mphahlele, R., & Jikpamu, B. T. (2021). Re-imagining pedagogy for early childhood education pre-service curriculum in the face of the COVID-19 pandemic. *Journal of Interdisciplinary Studies in Education*, 10(1), 118–138. Retrieved from <https://www.ojed.org/index.php/jise/article/view/3445>
- Nikolopoulou, K., (2021). Online education in early primary years: Teachers' practices and experiences during the COVID-19 pandemic. *Education sciences*, 12(76) 1-12 <https://doi.org/10.3390/educsci12020076>
- Patton, M. Q. (2002). *Qualitative research and evaluation methods* (3rd ed.). Thousand Oaks, CA: Sage Publications.
- Poala, G., R., Weiland, C., Taylor, A., Penfold, L., Snow, C., Sachs, J., & McCormide, M. (2021). Effects of COVID-19 on early childhood centres. Retrieved from <https://edpolicy.umich.edu/research/epi-policy-briefs/effects-covid-19-early-childhood-education-centers>
- Quezada, L., R, Talbot, C., & Parker, K., B., Q. (2020). From bricks and mortar to remote teaching. A teacher education program. Response to Covid-19. *Journal of Education for Teaching*, 46(2) 1-12 <https://doi.org/10.1080/02607476.2020.1801330>
- Reimers, F., Schleicher, A., Saavedra, J. & Tuominen, S. (2020). *Supporting the Continuation of Teaching and Learning during the COVID-19 Pandemic-Annotated Resources for Online Learning*. Organisation for Economic Co-Operation and Development, Paris. Retrieved from <https://www.oecd.org/education/Supporting-the-continuation-of-teaching-and-learning-during-the-COVID-19-pandemic.pdf>
- Slovin, E. (1960). Slovin's Formula for Sampling Technique. Retrieved from <https://prudencexd.weebly.com/>

- Vijayan., R. (2021) Teaching and learning the COVID-19 pandemic; A topic modeling study. *Education Sciences*, 11(7), 2-15; <https://doi.org/10.3390/educsci11070347>
- Zohrabi, M. (2013). Mixed method research: Instruments, validity, reliability and reporting findings. *Theory and Practice in Language Studies*, 3(2), 254–262. <http://dx.doi.org/10.4304/tpls.3.2.254-262>