



Montessori Model Practices in Ghanaian Childhood Centres: Teacher contributions in Effia-Kwesimintsim Municipality

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Abstract

The study examined teachers' practices of the Montessori model in Ghanaian early childhood centres within the Effia-Kwesimintsim Municipality. The explanatory sequential design was adopted for the study. The study used census sampling to include all 126 early childhood teachers for the quantitative phase. The purposive sampling technique was used to select 13 headteachers for the qualitative data. A structured questionnaire, a semi-structured interview guide, and an observational checklist were used for data collection. The questionnaire data were analysed using descriptive statistics while qualitative data were analysed thematically. The study revealed that most teachers had positive views about the Montessori model but did not fully adhere to its principles. The study therefore recommends that school authorities prioritize the professional development of the educators. There should be allocation of adequate resources, a prepared environment, and the establishment of an institution for monitoring the practices of the Montessori model in the Municipality.

Keywords: Montessori, Model, practices, views, Early Childhood Centers

Introduction

The Montessori model of early childhood education has gained global recognition, yet its implementation varies significantly. In the United States, only a small fraction of programmes undergo certification despite established guidelines by organizations such as the Association Montessori Internationale (AMI) and the American Montessori Society (AMS) (Ackerman, 2019). This highlights the need for institutional guidance to ensure adherence to Montessori principles.

In Africa, a study by Hajee (2022) revealed that parents perceive the Montessori method as highly beneficial to children's cognitive, physical, emotional, and social

development. Furthermore, they viewed it as inclusive, accommodating both abled learners and those with physical and mental challenges. Ghana has made significant improvements when it comes to the incorporation of early childhood education in the mainstream education system since 2024 (Ackah-Jnr, Appiah, et al., 2022). This has led to the adoption of several early childhood education models, including Montessori.

Despite the fact that Montessori is becoming more and more popular, there are still many obstacles that are preventing its full use, particularly with regard to teacher preparation and the fundamental ideas that guide its application. Some Ghanaian educators, for instance, lack the necessary training to apply the model effectively, according to some researchers (Ahmed, 2018). Child-centered learning, individualised instruction, and specially created materials are the tenets to adhere to when putting Montessori into practice (Mann-Bailey, 2021). However, its efficacy may be impacted by strict traditional teaching methods (Lillard et al., 2021).

The absence of regulatory oversight in Ghana is another significant obstacle. Although many preschools claim to adhere to the Montessori model, their curricula do not meet its requirements (Lillard, 2012; Aljabreen, 2020). The authenticity of Montessori education in Ghanaian schools is called into question by this misalignment. Research by Abdulai (2018) highlights the lack of understanding among early childhood educators working in Montessori environments, as many are unable to successfully apply its tenets because of a lack of institutional support and resources.

Small class sizes and experiential learning are essential components of the Montessori model (Bobo, 2012; Lillard, 2013). Effia Kwesimintsim Municipality classroom practices, however, frequently appeared to deviate from these ideals. According to observations, teachers either don't receive enough training or don't put what they've learnt into practice. To close these gaps, the region's Early Childhood Coordinator has underlined the importance of professional development.

In conclusion, the Montessori model has potential for Ghanaian early childhood education; however, insufficient teacher preparation, a lack of regulatory supervision, and inconsistent practice make it difficult to apply effectively. The integrity of Montessori education in the nation depends on addressing these issues through institutional regulation and professional development.

Theoretical Framework

Vygotsky's sociocultural theory is highly relevant to this study as it highlights the critical role of social interaction, cultural context, and teacher facilitation in children's cognitive development. The theory posits that learning occurs through guided participation in culturally meaningful activities, a concept that aligns closely with Montessori's child-centered, scaffolded approach to education (Vygotsky, 1978; Kozulin, 2021).

A key aspect of this theory, the Zone of Proximal Development (ZPD), emphasizes the importance of teacher guidance in helping learners achieve tasks they cannot yet complete independently (Chaiklin, 2022). In Montessori classrooms, teachers act as facilitators, providing structured yet flexible support that enables children to explore concepts at their own pace. This aligns with Vygotsky's notion that learning is a socially mediated process, where knowledgeable others such as teachers help shape children's cognitive abilities through interaction (John-Steiner & Mahn, 2021).

Moreover, Vygotsky's emphasis on cultural tools and mediated learning is particularly relevant in the Ghanaian context, where early childhood education incorporates both global and local pedagogical influences (Daniels, 2021). The Montessori model's hands-on materials and interactive learning methods serve as cultural tools that facilitate concept mastery. Given Ghana's linguistic and cultural diversity, this theory provides a strong foundation for understanding how teachers adapt Montessori practices to enhance learning outcomes in Ghanaian early childhood centers. Ultimately, Vygotsky's sociocultural theory offers a robust framework for analyzing the contributions of teachers in Montessori education within the Effia Kwesimintsim Municipality.

Research Questions

Based on the objectives of the study, the following research questions guided the study.

1. What are the views of early childhood educators about the practice of the Montessori model of education?
2. How do early childhood educators adhere to the principles of the Montessori model of education?

Methodology Research Approach

This study adopted the mixed methods research approach which combines both quantitative and qualitative methods to gather and analyze data. It involves collecting and analyzing both numerical data (quantitative) and non-numerical data (qualitative) to gain a comprehensive understanding of a research problem or question (Creswell, 2013; Dawadi, Shrestha, & Giri, 2021). The mixed-methods approach recognizes that using multiple research methods can provide a more complete and robust understanding of complex phenomena. It allows researchers to complement and triangulate findings from different sources and perspectives; enhancing the overall validity and reliability of the study (Dawadi, Shrestha, & Giri, 2021). The mixed-methods approach offers a flexible and comprehensive research strategy that allows researchers to explore complex research

questions, capture diverse perspectives, and generate more robust and nuanced findings.

Research Design

The study adopted the explanatory sequential design. This design allows researchers to achieve a more comprehensive understanding of the research topic by combining quantitative data for patterns and qualitative data for context and meaning (Taguchi, 2018). It provides a form of methodological triangulation, enhancing the validity and reliability of the research findings through the convergence of different data sources and methods. The sequential nature of the design allows researchers to refine and adapt their qualitative research questions based on the preliminary quantitative findings, ensuring that the qualitative phase addresses gaps or uncertainties.

Population

Population includes all elements that meet certain criteria for inclusion in a study (Burns & Grove, 2003). Polit and Hungler (2004) also refer to population as an aggregate or totality of all the objects, subjects, or members that conform to a set of specifications. The population of the study comprised all early childhood teachers in Montessori model schools within the Effia Kwesimintsim Municipality and the headteachers. According to the Municipal Education Directorate through the Effia Kwsimintsim Municipal Association of Private Schools (2023), there are thirteen (13) registered Montessori schools within the Municipality. The total population for the study was one hundred and thirty-nine (139) comprising one hundred and twenty-six (126) early childhood teachers and thirteen (13) headteachers.

Sample and Sampling Technique

The quality of a piece of research stands or falls not only by the appropriateness of methodology and instrumentation but also by the suitability of the sampling strategy that has been adopted (Cohen, Manion, & Morrison, 2007). The census sampling was used to include all (126) early childhood teachers in Montessori schools within the Effia Kwesimintsim Municipality. According to Lakens (2022) if the sample size is equal to the population, then there is no need for sample size determination. Again, the researcher purposively selected thirteen (13) teachers who have over ten years of working experience and have undergone training on the Montessori model of teaching for observation and subsequently interviewed. The selection of the sample size was based on Taherdoost (2016) who opined that a study aiming at exploring a phenomenon is best achieved using a sample size of 5-20 participants.

Data Collection Instruments

Some aspects of the instrument were adapted for data collection. In developing these items, the reviewed literature was taken into consideration. The items on the questionnaire were carefully selected, reviewed, and contextualized from previously reviewed literature. The items were carefully developed to measure the construct to achieve the purpose of the study. The items were categorised into a four-point Likert scale with various score values. The questionnaire was ordered into five (5) sections for the respondents. Section 'A' consists of background information on the respondents. Section 'B' captured the views of teachers regarding the practice of the Montessori Model. The next section which is the 'C' also highlighted the teachers' adherence to the principles of the Montessori principles in their practice. Section 'D' captured the influence of the Montessori Model on teacher activities whereas the final section 'E' of the questionnaire captured the challenges that early childhood teachers face in implementing the Montessori model. On the score of the items in the questionnaire, they were scored as; strongly agreed (4), agree (3), disagree (2), and strongly disagree (1). Classroom observations were conducted to provide a firsthand understanding of the implementation of the Montessori approach in early childhood centers within the Effia Kwesimintsim Municipality.

The classroom observations were conducted by the researcher and a trained person who used a structured observation checklist to collect data on various aspects of the Montessori approach, including the use of Montessori materials, the role of the teacher, the organization of the classroom, and the engagement of the children in activities. The classroom observations were conducted in sampled Montessori early childhood centers within the Municipality. The observations were done on two different occasions in the schools selected.

The data collected from the classroom observations were analyzed to provide a detailed understanding of the implementation of the Montessori approach in early childhood centers within the Effia Kwesimintsim Municipality, as well as to identify any common challenges that may exist across different centers.

A semi-structured interview guide was employed for this study, and it was based on the objectives and research questions of the study. According to Creswell (2009), a semi-structured interview is neither completely fixed nor completely free, and they are arguably best understood as adaptable. In most cases, interviews begin with some sort of predetermined questioning plan, but they then transition into a more conversational format, in which the questions may be answered in a sequence that is more natural to the flow of the conversation. It is possible that it will begin with only a few clearly stated inquiries, but it will pursue any fascinating abilities that may emerge.

Data Analysis Procedures

The research data collected were analysed both qualitatively and quantitatively. The field data was collated, sifted through, and edited to address questions that have been answered partially or not answered. The questionnaires were serially numbered to facilitate easy identification. It was necessary to observe this precaution to ensure quick detection of any source of errors that occurred in the tabulation of the data. After editing and coding, the data was entered into the computer using the Statistical Product and Service Solution (SPSS version 25.0) software.

Before performing the desired data transformation, the data was cleaned by running consistency checks on every variable. Modifications were made after the verification of the questionnaires. The demographic variables from the questionnaire were primarily analysed using frequencies and percentages. The frequencies and percentages were based on the demographic characteristics of the respondents. The second section of the questionnaire were analysed based on the research questions set for the study using descriptive statistics (means-Ms and standard deviations-SDs).

The qualitative data (interviews and observation) were analysed thematically and contently. Thematic analysis is a qualitative data analysis method that involves reading through a data set (such as transcripts from in-depth interviews or focus groups), and identifying patterns in meaning across the data to derive themes. The thematic analysis involves an active process of reflexivity, where a researcher's subjective experience plays a central role in meaning-making from data. Numbers were given to the interviews to make easy identification; this was done to ensure effective presentation and analysis of the data. The themes and sub-themes were discussed among team members to ensure the data was faithfully captured. Again, the content analysis was used to analyse data from the observational checklists.

Results

Demographic Characteristics of Respondents

This section presents the demographic characteristics of early childhood teachers for the study. The demographic information of the respondents was based on gender, age, academic qualifications and working experience.

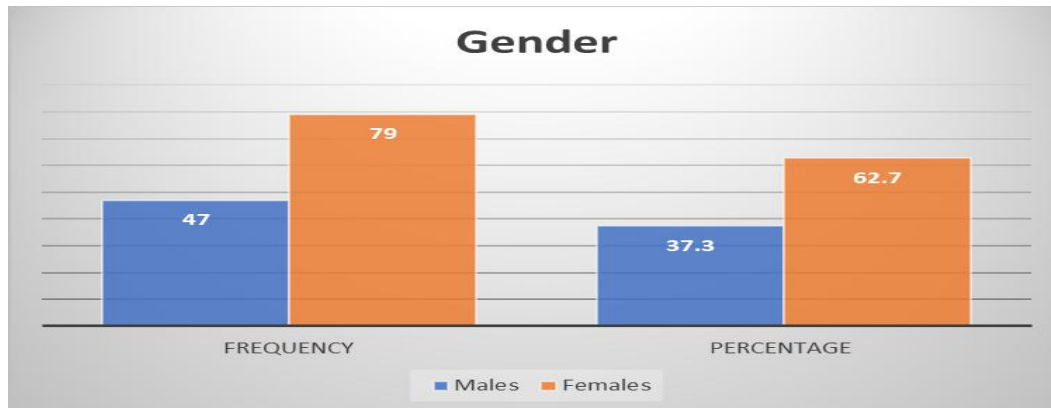


Figure 1: Gender of the respondents

Source: Field data 2023

Figure 1 shows the gender distribution of the respondents of the study. Majority of the respondents 79(62.7%) were females whilst a minority of the respondents 47(37.3%) were males.

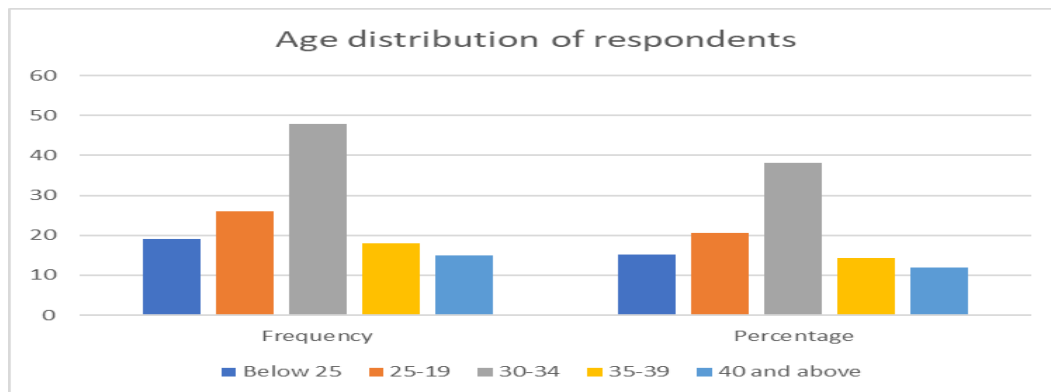


Figure 2: Age distribution of respondents

Source: Field data 2023

Figure 2 shows the age distribution of the respondents. The table indicates that 19 respondents representing 15.1% were below the age of 25 years. 26 respondents representing 20.6% were between the age of 25 to 29 years. A majority of the respondents 48(38.1%) were between the ages of 30-34 years. Also, 18 respondents representing 14.3% were between the age of 35 to 39 years whereas minority of the respondents 15 representing 11.9% were above 40 years. The age distribution suggests that the respondents are quite youthful.

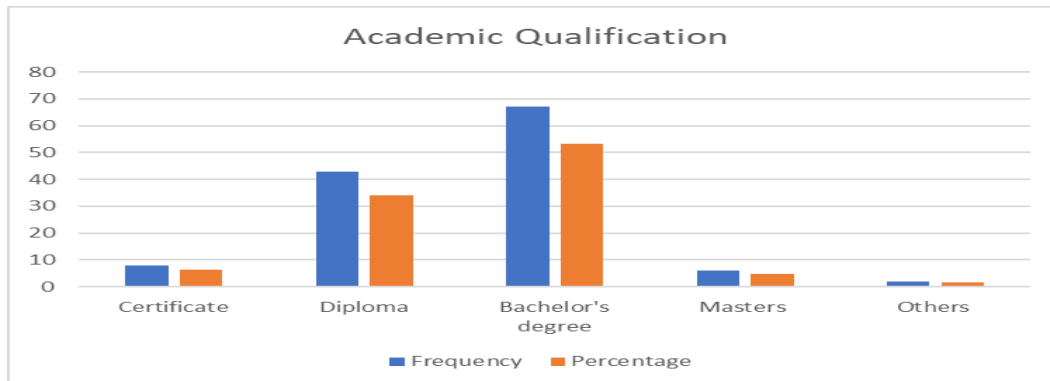


Figure 3: Academic qualifications of respondents

Source: Field data, 2023

Figure 3 shows the educational qualifications/professional level of the respondents sampled for the study. The figure shows that 8 representing 6.3% were certificate holders. 43 respondents representing 34.1% were Diploma holders whereas a majority of the respondents 67(53.2%) were Bachelor degree holders. Also, 6 respondents representing 4.8% have master's degree qualifications while a minority of the respondents 2(1.6%) have other qualifications.

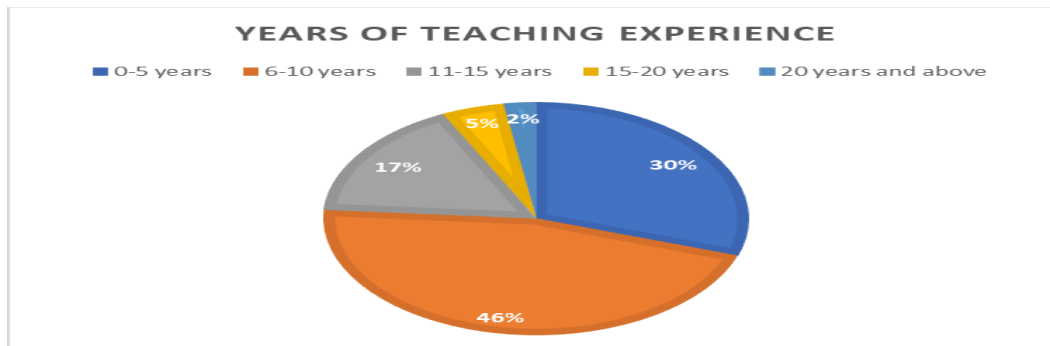


Figure 4: Years of teaching experience

Source: Field Data 2023

From Figure 4, 38 respondents representing 30.6% have a maximum of 5 years of teaching experience. 58 respondents representing 46% which contributes the majority of the total sample have between 6- and 10-years teaching experience. Moreover, 21 representing 16.6% have between 11- and 15-years' experience in teaching. Also, 6 respondents representing 4.7% have between 16-20 years of teaching experience whereas only 3 respondents have above 20 years of teaching experience.

Analysis of Research Questions (Questions 1-4)

To gather evidence for the study, the selected teachers from Montessori Schools from the Effia Kwesimintsim Municipality were made to rate their responses using Strongly Agree, Agree, Disagree and Strongly Disagrees. Using means, the scales were scored as (Strongly Agree =4, Agree =3, Disagree= 2 and Strongly Disagree =1). The criterion value of 2.50 was established for the scale. To obtain the criterion value (CV=2.50), the scores were added together and divided by the number scale ($4+3+2+1=10/4=2.50$). To understand the mean scores, items/statements on the views that scored a mean of 0.00 to 2.49 was regarded as negative views of teachers in the practice of the Montessori Model within the Effia Kwesimintsim Municipality. Those items/statements that scored mean from 2.50 to 4.00 was regarded as positive views of teachers understanding of the practice of the Montessori Model within the Effia Kwesimintsim Municipality.

Research Question One: What views do early childhood educators possess about the Montessori model of education?

The first research question of this study seeks to delve into early childhood teachers' knowledge about the practice Montessori approach in their schools within the Effia Kwesimintsim Municipality.

Table 1: Views of early childhood educators in the practice of the Montessori Model

Statements	M	SD
1. Understanding of the importance of hands-on learning, exploration, and discovery in the Montessori approach, and how to facilitate these experiences for learners.	3.58	.457
2. I have Knowledge of how to foster social and emotional development in learners, including how to promote positive relationships, communication, and conflict resolution.	3.61	.479
3. Knowledge of the curriculum and materials used in the Montessori approach, including how to present lessons and how to assess learners' progress.	3.89	.489
4. Ability to create a prepared environment that promotes independence, creativity, and self-directed learning.	3.92	.497
5. The teacher acts as a facilitator in the classroom	3.74	.488
6. I have undergone training in the Montessori approach to teaching	2.43	.467
7. I provide individualized instruction and support to enhance learners' development.	3.34	.338
8. I have knowledge of how to observe and track learners' progress,	3.82	.386
9. I belong an association of Montessori educators that organises training and workshops for its members	2.06	1.209
Mean of Means/StD	3.37	0.534444
Source: Field Data (2023) CV=2.50	(n=126)	

Table 1 presents results on teachers' views of the practice of the Montessori Model in early childhood centres within the Effia Kwesimintsim Municipality. Table 4 gives evidence to believe that generally, most teachers at the early childhood centres in Effia Kwesimintsim Municipality have positive views on the practice the Montessori Model. This was evident after the teachers' responses scored an average mean (MM=3.37) greater

than the Test Value of 2.50.

Dwelling on the individual statement, it was found that most early childhood teachers in Montessori schools within the Effia Kwesimintsim Municipality have an understanding of the importance of hands-on learning, exploration, and discovery in the Montessori approach, and how to facilitate these experiences for learners. ($M=3.58$, $SD=.457$, $n=126$). Again, it was evident that most of Montessori's early childhood teachers in the Effia Kwesimintsim Municipality understand how to foster social and emotional development in learners, including how to promote positive relationships, communication, and conflict resolution. ($M=3.61$, $SD=.479$, $n=126$).

In other related evidence, it was revealed that most Montessori early childhood teachers in the Effia Kwesimintsim Municipality have knowledge of the curriculum and materials used in the Montessori approach, including how to present lessons and how to assess learners progress ($M=3.89$, $SD=.489$, $n=126$). Similarly, most early childhood teachers in the Effia Kwesimintsim Municipality have the ability to create a prepared environment that promotes independence, creativity, and self-directed learning ($M=3.92$, $SD=.497$, $n=126$).

In furtherance to the foregoing, it was evident that most Montessori early childhood teachers in Effia Kwesimintsim Municipality share the view that teachers act as a facilitator in the classroom ($M=3.74$, $SD=.488$, $n=126$). Again, few Montessori early childhood teachers within the Effia Kwesimintsim Municipality agreed to have undergone training in the Montessori approach of teaching ($M=2.43$, $SD=.467$, $n=126$). Also, most of the early childhood teachers in Montessori classroom within the Effia Kwesimintsim Municipality agreed to provide individualized instruction and support to enhance learners' development ($M=3.34$, $SD=.338$, $n=126$). Moreover, most of the Montessori early childhood teachers within the Effia Kwesimintsim Municipality have knowledge of how to observe and track learners' progress in their schools ($M=3.82$, $SD=.386$, $n=126$). Finally, few of the early childhood teachers in Montessori Schools within the Effia Kwesimintsim Municipality belongs an association of Montessori educators that organises training and workshops for its members ($M=2.06$, $SD=.1.209$, $n=126$).

Qualitative Data

To compliment the quantitative data, semi-structured interviews were conducted on the practice of the Montessori Model in early childhood centres within the Effia Kwesimintsim Municipality. The interview sought to elicit responses on the knowledge of Montessori early childhood teachers as well as the challenges they encounter in implementing the approach in their classrooms. The following themes were generated;

The knowledge of teachers to the implementation of the Montessori Model is key to ensure smooth lesson delivery in the classroom. This section sought to find out how

Montessori early childhood teachers within the Effia Kwesimintsim Municipality views on the Montessori curriculum.

Theme 1: Independent Learning

In the course of the interview here are some of the excerpts of the responses from the respondents.

Ok, the Montessori approach places a strong emphasis on fostering independence in children. The materials and activities encourage them to take charge of their learning. HT 1

In a similar case, another headteacher has this to share

In the Montessori classroom, priority is given to individualized learning. Montessori is all about recognizing that each child is unique. The curriculum is tailored to the child's individual needs and interests, which is so important for their development. HT 5.

From the aforementioned theme the excerpts from the participants suggest that in a Montessori model classroom, learners are given the opportunity to be independent learners during the teaching and learning process. This is achieved when teachers ensure that an enabling environment is created for the learners in the school or classroom setup.

Theme 2: Teacher as Facilitator

The methods of teaching used in the Montessori classroom is vital when it comes to the implementation of the Montessori approach. Here, the researcher explored the pedagogical strategies that are used by early childhood teachers within the Effia Kwesimintsim Municipality. Here are some of the excerpts from the interview;

HT7 said *learners are given the freedom to choose what is of interest to them while I serve as a guide to whatever task they choose to engage in both in the classroom and outside the classroom setting. It makes learning more practical and real to the children.*

Another teacher has this to share

The teacher's role in a Montessori classroom is to facilitate the learning of young children. The child-centeredness of learning is what the Montessori approach teaches so I make sure learners' autonomy and independence are respected because each child comes to the learning context with unique abilities. School. HT 12

The excerpts revealed that early childhood teachers serve as a guide in the Montessori classroom which grants the learners the freedom to choose what they want to learn. Here the teacher's role is to facilitate what the learner wants to learn rather than imposing on them what the teacher prefers for the learners in the classroom setting.

Theme 3: Optimal Learning Environment

The environment of the school is highly considered when it comes to the implementation of the Montessori approach in the early childhood setting. This section captures the views of teachers in Montessori model schools in the Effia Kwesimintsim Municipality when it comes to the implementation of the Montessori Model.

HT3 has this to share *“The school environment is very big so that early childhood learners can engage in outdoor activities that promote their physical development. Outdoor areas are equipped with Montessori materials that are suitable for the outdoor environment. These materials are designed to foster exploration and discovery, such as gardening tools, nature specimens, and outdoor art supplies*

Also, another teacher shares a similar view *“In terms of classroom set-up, I create learning centres in the classroom with the necessary material for each of the centres. I have a literacy corner in the classroom that is geared towards the development of Language and literacy in the learners.* HT13

These data suggest that the early childhood teachers in Montessori model school creates an enabling environment for learners to explore and learn. Learners are able to interact with materials available to them in the classroom and the outdoor setting to enhance their quest for knowledge and understanding. The prepared environment in a Montessori model school enhances self-directed learning among learners when they freely choose what they want to engage in.

Theme 4: Practical Learning Materials

The Montessori model highly recognises the relevance of teaching and learning resources in the classroom. The data collected on theme have been presented as follows;

HT 8 had this to share *“I make sure teaching and learning resources they will enable my learners understand a particular concept are readily available before the start of the lesson because the Montessori model is about making the learning more practical to the learner rather than just teaching them the theory”*

In a similar vein, HT9 was of the view that *“This philosophy guides my choice of materials because I aim to provide resources that cater to individual interests and developmental stages. The materials are carefully designed to be self-correcting and hands-on, allowing students to explore and learn independently”*

The data from the interview suggest that the Montessori early childhood teachers recognize the importance of teaching and learning resources when it comes to the implementation of the Montessori model. They believe that when teaching and learning

resources are available, children interact and manipulate them at their own pace and subsequently engendering their self-directed learning approach.

Research Question Two: How do early childhood educators adhere to the principles of the Montessori model of education?

Probing deeper into the details of the practice of the Montessori model in Ghanaian early childhood centres, the second research question of this study focuses on discerning the extent to which early childhood educators adhere to the principles of the Montessori model of education within the Effia Kwesimintsim Municipality. By investigating the principles of the Montessori approach that early childhood teachers in this Municipality adhere to in the course of their teaching in their respective schools is very necessary.

Table 2: Montessori early childhood teachers' adherence to the principles of the Montessori model within the Effia Kwesimintsim Municipality

Statements	M	SD
1. I always engage learners to learn in a prepared environment	3.77	.423
2. The independence of young children is crucial to the classroom instruction	3.82	.728
3. Play is highly recognised in my school	3.73	.632
4. Learners are given the opportunity to freely choose from options that enhance their development	3.69	.502
5. I understand that each child is a unique individual with his or her own needs, capabilities, and way of learning	3.85	.412
6. Emphasis is placed on practical life skills of young children to be independent and self-sufficient	3.88	.486
7. Children of different age groups work together in my classroom	3.62	.762
8. Child-led learning is recognised in the classroom where children learn at their own pace	3.81	.572
9. Observation is seen as the main assessment tool for young children	3.79	.728
Mean of Means/StD	3.73	0.582778

Source: Field Data (2023) CV=2.50

(n=126)

Table 2 presents the results on how early childhood Montessori teachers within the Effia Kwesimintsim Municipalities adhered to the Montessori principles. The data give evidence to confirm that generally, most early childhood teachers in Montessori schools within the Municipality adhere to the principles of the Montessori approach. This was evident after the teachers' responses scored an average mean ($MM=3.73$ and $SD=0.583$). These values are greater than the Test Value of 2.50.

Reporting on teachers' adherence to the principles of the Montessori Model, most of the early childhood teachers within the Effia Kwesimintsim Municipality shared the view that they always engage learners to learn in a prepared environment ($M=3.77$, $SD=.423$, $n=126$). It was evident that few early childhood teachers within the Municipality see that the independence of young children is crucial to the classroom instruction ($M=3.82$, $SD=.728$, $n=126$). Also, it was found that most of the teachers at the Montessori early childhood centres within Effia Kwesimintsim Municipality share the view that play is highly recognised in their school ($M=3.73$, $SD=.632$, $n=126$).

In addition to the above, it was found that the majority of Montessori early childhood teachers in the Effia Kwesimintsim Municipality agreed that learners are allowed to freely choose from options that enhance their development ($M=3.69$, $SD=.502$, $n=126$). Another evidence suggests that most of the early childhood teachers within the Effia Kwesimintsim Municipality understand that each child is a unique individual with his or her own needs, capabilities, and way of learning ($M=3.85$, $SD=.141$, $n=126$). Finally, on the formative assessment, it was found that the majority of the teachers use assessment to guide the next steps associated with teaching and learning ($M=3.88$, $SD=.412$, $n=126$).

Focusing on practical life skills of young children to be independent and self-sufficient, most Montessori early childhood teachers within the Effia Kwesimintsim Municipality agreed to that assertion ($M=3.62$, $SD=.486$, $n=126$). Similarly, it was found that majority of Montessori early childhood teachers in the Municipality believed that children of different age groups work together in their classrooms ($M=3.81$, $SD=.762$, $n=126$).

In another related results, it was found that most of the Montessori early childhood teachers in the Effia Kwesimintsim Municipality agreed to the fact that child-led learning is recognised in the classroom where children learn at their own pace ($M=3.79$, $SD=.572$, $n=126$). Finally, it was found that few of the teachers in Montessori schools in the Effia Kwesimintsim Municipality believe that observation is seen as the main assessment tool for young children ($M=2.12$, $SD=.728$, $n=126$).

Qualitative Data (Observational Checklist)

To have a deeper understanding of the implication of the teacher's knowledge on

the Montessori model for practice, the researcher used an observational checklist. The observation was done to ascertain whether early childhood Montessori teachers adhere to the principles of the Montessori model. Here are some of the attributes that were observed;

Most of the classroom environments observed were not conducive and the classroom set-up appeared not to suit learners in a Montessori model school. Some of the classrooms did not have enough teaching and learning materials, well-chosen colors, and a welcoming atmosphere. The seating arrangement in the classroom are semi-circular in nature. Also, the furniture used in most of the early childhood centres observed were not suitable for the learners. Again, most of the classrooms were spacious and fortified with print rich learning materials that promote language development as well as facilitate literacy skills development among children in the classroom.

Mathematics centres where children work with Montessori materials to explore concepts such as counting, addition, subtraction, multiplication, and division, were also found in most of the classrooms observed. From the classroom observations that were done, most of the teaching and learning activities were teacher-directed rather than child-centered as the Montessori approach recommends. The interests of the children and their uniqueness as well as the pace at which they learn are mostly not taken into consideration during classroom activities.

In the course of the observation, it was realized that most of the Montessori early childhood teachers acting as facilitators sometimes end up adopting the teacher-led method that is practiced in traditional classrooms. This did not grant the freedom that the Montessori learner required to explore to be independent because the teacher needed to maintain a structured and orderly classroom environment. This change may require additional training and professional development to effectively implement the Montessori philosophy.

Again, it was also observed that most of the Montessori early childhood teachers within the Effia Kwesimintsim Municipality do not facilitate individualized learning for each child in a diverse classroom. Most of the teachers were not able to assess each student's progress, interests, and needs and provide appropriate guidance and materials for the learners' optimum development.

The observations that were undertaken revealed that mixed-age classrooms, that is the situation where children vary significantly in terms of their developmental stages, abilities, and interests were not adhered to. Mixed-age groupings require teachers to use differentiated instruction to address the varying needs of each child were not used in the observed schools. Learners across different ages and developmental stages are grouped into classes that best suit their level of thinking ignoring the situation where older ones mentor younger ones in the learning contexts.

On the aspect of learners' participation in hands-on experience, most of the learners in the observed schools did not have the feel for the teaching and learning

resources that were used in the teaching instruction because of limited availability in those schools. Again, it was also revealed that the lack of classroom space does not permit the full utilization of hands-on experience in the classroom. The large number of learners in the classroom does not enhance such participation.

In the course of the observation, the researcher observed that most of the early childhood teachers in Montessori schools within the Municipality resort to testing as the main assessment tool in assessing the learners in their school. This mode of assessment is not in sync with what the Montessori model preaches where early childhood teachers are trained to keenly observe learners to gain valuable insight into each child's developmental progress, interests, strengths, and areas that may require additional support.

However, few of the schools had suitable classrooms that enhanced the free movement of the learners due to the space available in the class. Similarly, there were few schools with learning centres in most of the classrooms that were observed. Centres such as practical life centre where learners learn practical life skills such as lacing, transferring objects with tweezers, buttoning, and washing hands, etc. Also, sensorial materials to help children refine their senses and develop concepts related to size, shape, color, texture, sound, etc. were found in most of the classroom.

Discussion

Early Childhood Teachers' Views on the Montessori Model of Teaching

Results from the study indicated that generally, most of the teachers at the early childhood centres in Effia Kwesimintsim Municipality have positive views about the Montessori model. Data from the quantitative analysis indicate that most of the teachers view the Montessori approach because of its importance on hands-on learning, exploration, and discovery among young children and how teachers facilitate these experiences. Also, the results from the finding proves that early childhood teachers have positive view in creating a prepared environment that promotes independence, creativity, and self-directed learning during teaching and learning. In addition, the data give evidence to the fact that teachers in Montessori schools have positive views in assessing learners in their classrooms and beyond.

Similarly, data from the qualitative analysis support the positive views as already established in the quantitative analysis as the teachers indicated that learners are allowed to be independent learners during the teaching and learning process. It was also found that the teacher's role in a Montessori classroom is to facilitate what the learners want to learn rather than imposing on them what the teacher prefers for the learners in the classroom setting.

The teachers demonstrated their understanding of how learners are allowed to actively participate during teaching and learning. This aligns with a study by Mann-Bailey

(2021) which suggests that creating a child-centered classroom is a fundamental principle of the Montessori approach which emphasise the role of the child as an active participant in his/her education. A study by Lillard (2017) suggested that the teachers' role is to facilitate self-directed exploration and discovery, empowering students to actively participate in their education. The main objective of the facilitator is to promote independence, autonomy, and customized learning experiences (Kahn, 2019).

Furthermore, the data suggest that the teachers view the Montessori classroom as a well-prepared one fortified with enough teaching and learning resources that engender self-learning among young learners by directly manipulating these materials. Stearley (2022) opined that Montessori teachers appreciate the prepared environment's ability to promote independence among learners. Carefully chosen materials and accessible resources allow children to engage in self-directed learning, make choices, and develop practical life skills (Rennie, et al. 2019). Similarly, Livingstone (2022) argued that in a Montessori educational centre, the careful selection and use of teaching and learning resources play a pivotal role in creating an environment conducive to child-centered learning.

Early Childhood Educators' Adherence to the Principles of Montessori Education

The results from the analysed quantitative data indicate that most of the early childhood teachers in the Effia Kwesimintsim Municipality adhere to the principles of the Montessori model. The creation of a prepared environment coupled with child-directed learning in the classroom setting is very paramount in the classroom set-up. Again, the analysed data shows that the use of play, child centered approach to teaching, children as active learners as well as recognising the uniqueness of the individual child all emanated from the data analysed. This is in sync with a study by Lillard and Else-Quest (2006) who found that classrooms that identified as Montessori had higher levels of adherence to the approach's principles, such as providing child-directed activities and mixed-age groupings, compared to non-Montessori classrooms. One common concern that needs to be considered in a Montessori model school is for the teacher to carefully prepare an environment with appropriate materials to support independent learning (Bahatheg, 2011; Feez, 2009). The results from the data analysed shows that most of the Montessori early childhood centres did not adhere to the principles of the model by not freely allowing children to choose. Similarly, Sharma and Srivastava (2015) investigated the implementation of Montessori principles in preschool classrooms.

However, the data from the qualitative analysis shows that most of the teachers fail to create an enabling classroom environment that is filling the classrooms with excessive visual stimuli or imposing strict structures that hinder learners' freedom to explore. The

researcher found that while the teachers reported using some Montessori materials and techniques, their adherence to the approach's principles varied. For example, some of the teachers used the materials in a rigid and predetermined way, rather than allowing children to explore them freely. This directly links with a study by Lillard (2017) which suggested that the absence of a conducive setting can impede a child's ability to develop independence, concentration, and a sense of order, crucial aspects of the Montessori philosophy.

The data from the qualitative analysis further revealed that most of the teachers in Montessori schools placed emphasis on academic achievement of the learners in their schools rather than ensuring that other aspect of the young child is developed. Palm (2019) pointed out that some of them focus excessively on academic achievement, neglecting the importance of fostering creativity, emotional intelligence, and practical life skills.

Key Findings

The study found that most early childhood educators in Montessori schools within the Effia Kwesimintsim Municipality demonstrate positive views about the Montessori model, such as hands-on learning, exploration, and discovery among young children, child-centered learning, mixed-age classrooms, and the importance of self-directed activities. This suggests that educators have a basic understanding of Montessori approach and practices.

Findings from the study revealed that early childhood Montessori teachers in Effia Kwesimintsim Municipality adhere to Montessori principles, with high average scores highlighting prepared environments, child independence, and formative assessments. However, observations reveal inconsistencies regarding non-conducive environments, insufficient materials, and teacher-directed activities. Implementation of individualized learning and mixed-age groupings is limited, with traditional methods and testing often used, hindering effective Montessori practice due to resource and space constraints.

Conclusion

The conclusion the study arrived at was that educators in Montessori schools that are in the Effia Kwesimintsim Municipality like the Montessori model. But for it to be implemented effectively, hands-on learning, child-centered approaches, and self-directed activities need to be improved. Some other challenges that the study concluded affect the implementation of Montessori principles in the Effia Kwesimintsim Municipality were non-conducive environments, insufficient materials, and teacher-directed activities. Also, mixed-age groupings, individualized learning that is limited together with traditional methods, and testing were additional challenges that negatively affected Montessori

adoption.

Recommendations

The study recommends that Schools that use the Montessori Model must train early childhood educators on how to use the principles. Some of the things they can train them includes programmes and workshops that explain the Montessori principles properly and how to use them. The training must cover both the theoretical and the practical aspects.

When it comes to teachers' ability to properly use appropriate resources, administrators play a key role in helping the teachers not just acquire but also use them well. Monitoring and Evaluation systems can also be implemented so that the teachers follow the Montessori principles and philosophies to ensure a child-centered approach that helps student their cognitive and motor skills. This is a proactive approach that will preserve the integrity found in Montessori education and provide learners with the necessary experience.

References

- Abdulai, I. (2018). *Challenges of Montessori education in Ghana: A case study of selected preschools*. Tamale, Ghana: University for Development Studies Press.
- Ackah-Jnr, F., Appiah, M., et al. (2022). *Early childhood education in Ghana: Policies, practices, and prospects*. Accra, Ghana: Ghana Education Service.
- Ackerman, D. J. (2019). *Montessori education in the United States: Challenges and opportunities*. Early Childhood Research Quarterly, 48, 1-14.
- Ahmed, S. (2018). *Understanding Montessori pedagogy: Teacher training and implementation challenges in Ghana*. Journal of Early Childhood Studies, 7(2), 45-62.
- Aljabreen, H. (2020). *Montessori education: An overview of key principles and contemporary practices*. Early Child Development and Care, 190(7-8), 1163-1175.
- Bobo, L. (2012). *The impact of Montessori education on early childhood learning outcomes*. New York, NY: Routledge.
- Burns, N., & Grove, S. K. (2003). *Understanding nursing research* (3rd ed.). Philadelphia, PA: Saunders.
- Chaiklin, S. (2022). *The zone of proximal development in Vygotsky's theory of learning and development*. Cambridge University Press.
- Cohen, L., Manion, L., & Morrison, K. (2007). *Research methods in education* (6th ed.). London, UK: Routledge.
- Creswell, J. W. (2013). *Research design: Qualitative, quantitative, and mixed methods*

- approach* (4th ed.). Thousand Oaks, CA: Sage Publications.
- Daniels, H. (2021). *Vygotsky and pedagogy* (2nd ed.). Routledge.
- Dawadi, S., Shrestha, S., & Giri, R. A. (2021). Mixed-methods research: A discussion on its types, challenges, and criticisms. *Journal of Practical Studies in Education*, 2(2), 25–36.
- Hajee, F. (2022). *Parental perceptions of Montessori education in Africa: Benefits and challenges*. Cape Town, South Africa: African Early Childhood Review.
- John-Steiner, V., & Mahn, H. (2021). Sociocultural approaches to learning and development: A Vygotskian framework. *Educational Psychologist*, 56(3), 183–197.
- Kozulin, A. (2021). *Vygotsky's educational theory in cultural context* (2nd ed.). Cambridge University Press.
- Lakens, D. (2022). Sample size justification. *Collabra: Psychology*, 8(1), 33267.
- Lillard, A. S. (2012). *Montessori: The science behind the genius* (2nd ed.). New York, NY: Oxford University Press.
- Lillard, A. S. (2013). *Playful learning and Montessori education*. *American Journal of Play*, 5(2), 157-186.
- Lillard, A. S., Else-Quest, N., Taggart, J., & Williams, C. (2021). *Revisiting Montessori education: Evidence from contemporary research*. *Developmental Psychology*, 57(4), 611-626.
- Mann-Bailey, C. (2021). *Montessori in practice: Implementing child-centered learning approaches*. London, UK: Sage Publications.
- Polit, D. F., & Hungler, B. P. (2004). *Nursing research: Principles and methods* (7th ed.). Philadelphia, PA: Lippincott Williams & Wilkins.
- Taguchi, N. (2018). *Research methods in second language acquisition: A practical guide* (2nd ed.). Hoboken, NJ: Wiley-Blackwell.
- Taherdoost, H. (2016). Sampling methods in research methodology; How to choose a sampling technique for research. *International Journal of Academic Research in Management*, 5(2), 18–27.
- Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes*. Harvard University Press.