

# The role of teaching and learning materials and interaction as a tool to quality early childhood education in Agona East District of the Central Region of Ghana

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## ABSTRACT

Early years experiences in quality thinking and socialization are critical to the optimal development of children, and Quality Early Childhood Education (QECE), is crucial in achieving these quality developments. However, several literatures suggest that there is a general lack of Teaching and Learning Materials (TLMs) in Sub-Saharan Africa, Ghana inclusive. Meanwhile, the constructivists' theory and other researches indicate that to ensure QECE, TLMs should be available and accessible to learners to interact with in advance and during a lesson. Using case study design therefore, data in the form of interview and observation were collected from twelve ECE schools in the Agona East District of the Central Region of Ghana. Participants composed of twelve ECE teachers and twelve headteachers of the schools totalling twenty-four. The findings suggest that participants perceived TLMs as very important factor in ensuring QECE provision. Again, TLMs were not readily available and so the children could not interact with them. The study further revealed that the unavailable nature of the TLMs hindered children's accessibility and active interaction with them. The findings further revealed that interaction could not feature prominently in the provision of the ECE due to unavailability and inaccessibility of TLMs. Based on the findings, it is suggested that teachers and providers of ECE should ensure that TLMs are made available and accessible to learners to interact with. Teachers should also devise innovative ways of creating and developing TLMs from their locality. Moreover, they should encourage and promote children's active interaction with the TLMs, as this is a sure way of achieving learning.

**Keywords:** Early childhood education, quality, role, teaching learning materials, interaction.

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## INTRODUCTION

This paper tries to establish the significant role of TLMs and interaction in ensuring quality early childhood education provision in the Agona East District of the Central Region of Ghana. Early childhood is the most critical period of a person's life in terms of thinking and recognition. It is the time the individual develops most; socially, emotionally and cognitively. Children's experiences in their early years have a significant impact on their general and optimal development.

ECE encompasses developmentally appropriate programmes that serve children from birth through age

eight, and it often focuses on children's learning through play (Essa, 2003). Perhaps, owing to the benefits associated with ECE, it now forms part of Ghana's education system (MWCA, 2004) and demand for it has increased over the years. For example, in 2001, there were 9,634 ECE schools but this number rose to 15,192 in 2005, 23,402 in 2011 and then 31,170 by 2017. Enrolment equally has increased from 244,707 in 2001 to 1,181,620 in 2005 and then to 1,803,932 in 2011 and 2,205,012 by 2017 ([Ghana] Ministry of Education – Education Management and Information Systems [MoE-

EMIS, 2012, 2018). However, research shows that it is not just any ECE that achieves those developmental milestones. Rather, it is the quality of it that produces the benefits (Lowenstein, 2011; Sylva et al., 2011; Oppong Frimpong, 2019).

Quality Early Childhood Education (QECE) provision is thus, paramount in achieving those developments (Edwards, 1999; Shonkoff and Phillips, 2000; Murphy, Casey and Fraser, 2007; Fischer, 2012). Research shows that children who participate in ECE, for instance, develop social, literacy, mathematical and academic skills (Sylva et al., 2004; Hamre and Pianta, 2005; Sakellariou and Rentzou, 2012; Papadakis et al., 2016) and they also do better in their later schooling (Yavuz and Güzel, 2020; Schweinhart et al., 2005).

Although quality education is a subjective concept, dependent on who is considering it and what is being expected from the education, Sifuna and Sawamura (2011) noted that common to all nations and cultures is the expectation that quality education is able to improve the cognitive achievement of learners and raise individuals who are able to perpetuate the cultural values and contribute significantly to the development of that society. The Ghanaian conceptualisation of QECE could be argued to be value-based (MWCA, 2004). That is to say that ECE considered to be of quality is that which is able to achieve expected societal goals and aspirations (Ankomah et al., 2005).

These societal goals could not be achieved without the selection and use of developmentally appropriate TLMs and how learners can freely interact with them to achieve learning. Constructivist theorists (Dewey, 1966; Piaget, 1983; Vygotsky, 1978) and other researchers (Evans et al., 2000; Ajayi, 2007; Oppong Frimpong, 2017; Papadakis et al., 2016, 2018) suggest that TLMs and how children have contact/interact with them is the key contributor to QECE. For instance, Dewey (1966: 275) is noted as saying, "there is no such thing as genuine knowledge and fruitful understanding except as the offspring of doing". Thus, TLMs play a major role in facilitating children's learning and shaping their lives including attitudes and understanding. The review of related literature, which was informed by the anticipated objectives for the study, is presented in the subsequent section.

## LITERATURE REVIEW

The literature review covers the role of TLMs in QECE provision, the perception about the role of TLMs in QECE provision, the kind of TLMs existing at the ECE centres and how interaction features in the use of TLMs. In this study, TLMs refer to the teaching aids (textbook, workbooks, crayon, pieces of cardboard, etc) that enable and facilitate teaching and learning. Interaction is considered to be the opportunity children have to contact/interact (i.e. to feel, taste, manipulate, as the

case may be) with the TLMs to enhance their learning.

The use of TLMs is indispensable in providing QECE. The professional manner in which the teacher uses TLMs and the opportunities children get to have contact with the TLMs, likewise, plays an important role in ensuring quality learning in ECE settings (Papadakis et al., 2020; Yavuz and Güzel, 2020). For instance, Ajayi (2007) notes that textbooks and instructional materials are crucial in the teaching and learning process. These assist teachers in achieving a lesson's objectives (Oppong Frimpong, 2017).

According to Kisitu (2008, citing New Jersey State Department of Education, 2004), TLMs afford children the opportunity to have hands-on experiences, which increases and develops their knowledge. Evans et al. (2000) argue that children below the age of eight, in particular, learn best when they have materials they can manipulate. Dewey notes that sincere knowledge and productive understanding are achieved through manipulating appropriate TLMs (Dewey, 1966). This means that better knowledge and skill acquisition can be developed through hands-on activity or learning by doing (Yavuz and Güzel, 2020). The implication of this is that, the success in the teaching and learning process could be influenced by the resources made available to support it and the direct ways in which these resources are used. Therefore, inadequate textbooks could compromise the quality of an ECE provision in an ECE centre. This goes to emphasise that in Ghana, a teacher could be specifically trained in ECE and is ready to practice what is learnt through the training, yet, could be constrained by the resources made available to facilitate interactive teaching and learning process.

This notwithstanding however, Oppong Frimpong (2017) argues that teachers' ability to meaningfully use TLMs in their lessons and to create the necessary environment and opportunities for their children to have access to the TLMs and to manipulate them is central to the provision of QECE. If, for instance, TLMs are available but only the teacher is allowed to handle them during the teaching and learning process, it can be said that TLMs have been used but without necessarily being accessible to children to bring about quality learning outcome. Hence, availability and accessibility of TLMs are important to QECE provision in Ghana. Thus, learners' ability to engage and interact with the TLMs is pivotal in QECE provision (Papadakis et al., 2018, 2016; Papadakis et al., 2020).

Another issue which is worth considering is the perception participants have about what role TLMs and interaction play in ensuring QECE. It is argued that participants/providers view about a concept, for example, will influence the effort they put into implementing, using, defending or presenting it (whatever the case may be). Thus, if participants are of the opinion that TLMs with active learner involvement is paramount to QECE provision, then they will endeavor themselves to providing the needed TLMs and allowing learners to manipulate

them for effective learning (Yavuz and Güzel, 2020).

### Problem statement

In spite of all these, reports from Sub-Saharan Africa, Ghana inclusive, suggested that TLMs were in limited supply (OECD, 2006; UNESCO, 2010). MoE-EMIS (2012) indicates that inadequate textbooks and other TLMs (e.g. manila cards and colour pencils) characterise ECE provision in Ghana. ILO (2012) also reports that pre-school facilities, including TLMs, are in short supply in SSA, Ghana included. The situation of TLMs was equally a concern to MoE-EMIS (2012) that inadequate textbooks and other TLMs characterise the ECE provision in Ghana. Meanwhile when a school has the necessary TLMs, it supports the children and their learning. Barrett et al. (2006 citing Lee et al. 2005) reported that availability of textbooks had significant and positive impact on learning outcomes of children. Ankomah et al. (2005) also pointed out that the type of TLMs, their quality and quantity enable teaching and learning to impact considerably on the quality of education.

With the foregoing discussions, the problem here is that the knowledge about shortage of TLMs were only presented through reports by these organisations. Again, these reports presented only availability and or shortage of TLMs and not how learners were or were not able to access the TLMs to better their learning. Moreover, available literature to the researcher points to the fact that not much research is done in the area of the role of TLMs in our Ghanaian ECE centres in bringing about QECE. What appeared to be missing, as a gap and which this study was anticipated to fill, was how children were having the opportunity to have contact or interact with the reported limited TLMs and how this was facilitating the quality of their learning. This study was therefore purported to ascertain the quality of the ECE being provided based on the participants' perception of the role of TLMs in QECE provision, the kind/type of TLMs used at the ECE centres, their quantity and availability, and how interaction was featured with respect to the use of the TLMs in providing QECE. The remaining sections of the paper present the research questions, methodology, presentation of findings and discussions, conclusions drawn from the findings and recommendations for best practice.

### Research questions

Three research questions were to guide the study. They were:

1. What is the perception of the role of TLMs in QECE provision?
2. What kind of TLMs exist at the ECE centres in Agona

East District?

3. How is interaction featured in the use of TLMs?

## METHODOLOGY

### Study design and paradigm

This study employed the case study design, which is a method of inquiry that explores in depth a programme, event, activity or process related to one or more individuals or cases (Yin, 2009). The selection of this design was influenced by the interpretive paradigm which underpins qualitative research and which contends that "reality is socially constructed" (Mertens, 2005: 12) and context-bound (Silverman, 2001). The choice for this design and the paradigm was motivated by the argument advanced by Denzin and Lincoln (2008), Bryman (2016) and Johnson and Onwuegbuzie (2004) that the nature of a research problem to be investigated and the research questions to be answered should guide the choice of a study's particular research methodology. Through the cases selected, detailed descriptions of the status of the use of TLMs provided information from data collection procedures (observation and interview) over a period of time. Case study research also provided a suitable context for the reality of ECE provision regarding the use of TLMs and how interactions featured at the ECE centres.

### Population and sampling

A population of 24 participants (12 ECE teachers and 12 headteachers) drawn from 12 ECE centres within the district were selected to constitute the sample size for the study. Data collection instruments in the form of non-participant observation guide and semi-structured interviews were used as data collection tools. The simple random and purposive sampling techniques were employed in selecting 12 teachers and 12 headteachers drawn from 12 ECE centres in the Agona East District of the central region of Ghana. The choice of non-participant observation enabled the researcher to concentrate on the observation (Cohen et al., 2011) and the semi-structured interview allowed for probing whenever necessary (Denzin and Lincoln, 2008).

### Data collection instruments and procedures

The instruments used for the data collection were semi-structured interview guide and observational checklist. The instruments were developed under the themes of the research questions. Items on the interview guide were all open ended. There were seven items for research question 1, six items for research question 2 and nine

items for research question 3. The observational checklist also had 24 items in addition to the field notes taken. Throughout the fieldwork, field notes were kept to forestall information which could otherwise be forgotten or distorted in the course of data collection (Bryman, 2016). The field notes (mental notes, jotted/scratch notes and full field notes) considered observed patterns of interaction between teachers and pupils and between learners and the TLMs and how the teachers used the TLMs.

For the sampling procedure, a simple random sampling as a method of sampling was used in which each unit (e.g. persons, cases) in an accessible population has the same likelihood of being selected and the selection of one does not in way affect the selection of another (Gay and Airasian, 2000). With this technique, the district was divided into two (according to their urban or rural location); and in each location, three schools owned by the government and three others owned by private individuals were selected. In each of the selected schools, the headteacher of the school and one of the ECE teachers were selected. Thus, the participants were purposively selected from private schools in a rural area, public schools in a rural area, private schools in an urban area and public schools in an urban area. Interview data was collected from the 24 participants and non-participant observation was done in eight out of the 12 schools. Interview appointment was booked with each of the participants at their convenience. At each of the interview sessions, the purpose of the study was introduced to the participants; the participants consent was then sought after which the interview was conducted. At the end of each interview session, the recorded interview was played back to the participant until he/she was satisfied with what was said. Member checking was also done with participants after the interview transcription. In order to fairly observe every activity (e.g. pedagogical strategies, use of TLMs, and teachers' interaction with children) throughout the school day, the time of the day and the day of the week on which an activity was observed were varied. The observation started from the beginning of the school day and ended at the close of school for that day.

### Data analysis procedures

Thematic analysis which breaks up texts to unearth the themes salient in them was used. After transcribing the interview responses, important and/or common themes that emerged from the text (interview transcription) were identified after which they were organized into similar and coherent themes in line with the pre-determined themes informed by the research questions (Braun and Clarke, 2006). Data collected from the observation were also organized into themes in accordance with the research questions. The main ideas from these data sets were

then organised under the broad themes for analysis.

### ANALYSIS AND INTERPRETATION OF FINDINGS

The interview data collected from participants were first transcribed after which they were organized based on the emerging themes as informed by the research questions. Throughout the study and analysis, pseudonyms have been used for the schools and the participants. In addition to the participants' pseudonyms are letters of the English alphabet indicating the designation (either a head teacher or a teacher). The letter **T** represents a teacher and **HT** represents a head teacher.

#### Research question 1: Perception about the role of interaction and TLMs

Children at the ECE having access to TLMs and play items were perceived to affect interaction, from the participants' responses. Their perceptions were that, if TLMs are available and accessible to learners, they would be able to handle and manipulate them to facilitate their learning. Again, it will create a variety to activities learners can engage in. For example, **Mrs Allotey (T)** stated:

*if the child does not have interaction with the items to play with, TLMs to handle and know what they are, the child will be doing nothing. This will affect the quality of interaction because the child will only be listening and there will not be contact between the child and the TLMs.*

The perception of **Ms Rejoyce (HT)** was:

*... KG children learn better when they play with the materials and they manipulate or handle them. So I think if we provide quality and enough TLMs, the children will be able to learn well or interact enough to make them achieve whatever aim we want them to achieve.*

Another perception from **Mr Amidu (HT)** was that,

*Children learn through what they see so the schools must be equipped with materials, visual and audio visuals items that the children can see and play with.*

From the data **Mr Issah (HT)** stressed that:

*Everything done at the early childhood setting must be aided by a teaching and learning materials so that the children will understand what is being taught .... Whatever*

*you are teaching' if you are teaching 1, they must know what is 1, it must not just be an idea but they must conceptualize that idea.*

In line with this, **Mr Sackey (HT)** stated:

*If you are pointing something like a broom, you have to show them that particular broom for them to see that this is what is called broom.*

The perception of **Mrs Adoma (T)** about using TLMs was that:

*if the teacher uses real objects at that level the children will see they will touch and they will understand.*

**Mr Ayeyi (T)** added that:

*Children at the KG are supposed to play and learn so if they have TLMs, the interaction is easier and better.... In our KG classrooms the classroom walls should be literally talking. ...the KG classroom wall should be print rich.*

Still, other had these to say:

*oh TLMs are good but where the teachers don't have them, they will have to just teach. If the teachers are able to teach well, then the learning can go on well (Mr Monney [T])*

*You should know that TLMs should be the centre of our teaching. As for me, I see that if you don't have it you can't even teach. You have to talk too much. But you will not talk too much if you have TLMs because the children we see it and understand the lesson better (Ms Abiba [HT])*

It can be gathered from the responses that if TLMs and play items are available and the children have access to their use, then learning can be enhanced because arguably, it will make teaching more real and practical to the learners. This can be argued to promote the learners' understanding and retention.

## **Research question 2: State of the TLMs in the schools**

Table 1 presents analysis of the checklists concerning the state of TLMs in the schools for the observation. The table has been arranged according to the location and type of the school selected. In the columns, the English alphabet letter 'A' meant the TLM was available and 'NA' meant the TLM was not available. The table shows that there were variations in terms of availability and or non-

availability of the TLMs under consideration. It can be inferred from the table that some of the items were readily available in some of the schools while others were not available. There was however, no school which did not have any of the TLMs at all. An interesting pattern has to do with the fact that there was no single school which had all the TLM and none of the schools observed had material like the conversational poster and the Flip charts.

Materials such as reading books, story books, counters for number work, pictures of scenes on the walls and play equipment outside the classroom were available in all the schools. Textbooks for teachers were found to be unavailable in the private school in the rural area. It can be inferred from the table that the private schools in the rural area in particular lacked most of the items checked, followed closely by the public schools in the rural area. The schools that were best provided with TLMs according to the checklist and the observation were private schools in the urban area followed by public schools in the urban area.

Regarding play equipment, the table shows that the schools in the urban area have more than those in the rural area. It further shows that the private schools in the urban area had more of the facilities considered than any other category of school followed by the public schools in the urban area. The category of school which was most lacking in these facilities was public schools in the rural area. Yet, with respect to TLMs, the responses show that the private schools in the rural area are particularly deficient. This is followed closely by the public schools in the rural area.

Concerning the situation of TLMs and play equipment in the schools, my observation and experience throughout the data collection revealed that most of the schools lacked the needed TLMs and play items to make learning and the free play period more meaningful. Although it appears that the materials were available in the schools, as shown by the table, it is important to point out that the table does not show the quantity and the state of the materials checked. The observation revealed that in almost all the schools, the materials that were available were but only in very few quantities. This was particularly the case for the schools in the rural area. The few TLMs that were available in some of the schools were fixed and so the teachers just made reference to them without the learners having the opportunity of touching or manipulating them.

It was equally observed that there were no drawings of learners on the walls in most of the classrooms of the selected schools for the study. The seemingly unavailability of the materials can hamper the opportunity to have practical experience of what is being taught (Papadakis, et al., 2020). Assuming that practical lessons are delivered using appropriate TLMs, one may ask what kind of practical experience children at schools in the rural area can have given that the majority of the schools lacked those facilities.

**Table 1.** A checklist of the state of TLMs in the schools observed.

Items	Location and Type of School				Location and type of school			
	Rural private		Rural public		Urban private		Urban public	
	A	NA	A	NA	A	NA	A	NA
Textbooks for teachers	√		√		√		√	
Textbooks for learners		√		√	√		√	
Exercise books	√		√		√		√	
Drawing books		√		√	√		√	
Materials for tracing		√		√	√		√	
Reading books	√		√		√		√	
story books	√		√		√		√	
The big book		√	√			√	√	
The conversational poster		√		√		√		√
Flip chart		√		√		√		√
Flash cards/word cards/sentence cards		√	√		√		√	
Empty cans and boxes for teaching shapes	√		√		√		√	
Bottle tops, sticks, counters and or straw for numeracy	√		√		√		√	
Cardboards for other activities	√		√	√	√		√	
Realia		√		√	√		√	
Pictures of scenes on the walls	√		√		√		√	
Drawings of learners on the walls		√	√		√		√	
Learning centres		√	√		√		√	
Sand try		√		√	√			√
Other TLMs (cardboards, crayons, Scissors Sellotape)	√		√		√		√	
Pictures and paintings of scenes on the walls		√		√	√			√
Play equipment for inside the classroom	√		√		√		√	
Play equipment for outside the classroom	√		√		√		√	
Age-appropriate play equipment for gross motor development	√		√		√		√	

Source: Field data: Nov., 2019

On the other hand, given the importance of meaningful play to interaction and QECE provision, the apparent shortage of age-appropriate play items and equipment in the observed schools is problematic. Without these items, one could argue that the children may not be able to relax their brains, interact with their peers or benefit from physical exercise through play. Similarly, learning centres can play an important role in children's independent learning (Roblyer, 2006) enabling them to practise whatever they have learnt on their own and to break away from the "formalised" teaching setting. Without such centres as the situation was in most of the selected schools, children may not have the opportunity to learn or practice independently. These shortages could affect the quality of the ECE provision and how much the children can learn (Papadakis et al., 2018, 2016).

### Research question 3: How interaction is featured in the use of TLMs

With participants understanding that interaction involves

contact between learners and TLMs, it implies that interaction will be enhanced if learners have access to TLMs and play items. Participants of this study equally identified availability and accessibility to TLMs as a factor that promotes interaction. This paper now considers the availability of the TLMs and how interaction was featured. Concerning the availability and accessibility of TLMs, the interview revealed the following. For instance, some teachers bemoaned:

*... school lacks a lot of facilities (eg. Play equipment TLMs) to help the children acquire their skills like writing language and for that matter quality education. (Mr Ayeyi [T])*

*We don't have most of the things the children can play with in the school. When it comes to the textbooks and the exercise books, some of the children don't even have one at all and the school may have very few copies that cannot to reach all the children in the class (Ms Ntow [T])*



It was observed that textbooks were virtually unavailable and **Mr Awer (T)** attested to this:

*The only problem I have in my daily activities is the unavailability of textbooks.*

Mrs Allotey complained that:

*materials like swings, mary-go-round, sea-saw, colours, writing books, abacus etc.) are not available in the school to help us. This is the major challenge to teachers in the public schools. We hold the material for the children or not everybody will get it.*

The challenge of exercise books for learners as reviewed by **Mrs Allotey** was that:

*my children don't come to school with the exercise books. The parents also don't buy for them. It is only the few that my head teacher is able to provide that we use. Because of this sometimes I give the children chalk to write on the floor.*

It was indeed observed that some of the children wrote on the floor during some classes and Figure 1 attest to some children writing on the floor due to unavailability of the writing materials.

Some headteachers also lamented:

*as you can see, we don't have even a single play item outside for these children to play with. How can the children interact? (Mr Amidu [HT])*

*It is a big problem for the teachers in the school. The compound itself is small and we don't also have the items that the children can play with. (Mr Tawiah [HT])*

To confirm these situations, the observation equally revealed that in some schools, although teachers in those schools had their teacher's guide and the curriculum, the children did not have textbooks and other TLMs to facilitate their learning. In some schools which seemed to have some TLMs (e. g. cardboards), where to fix them was also a challenge. Figures 2 to 4 provide evidence to support this.

Regarding how infrastructure affected the interaction and access to TLMs, **Mr Sacky (HT)** lamented:

*Even though we have teaching aids, we can't paste them because we don't have walls around to let the wall talk for the children to see and hear.*

The situation appeared to be different as was revealed by



**Figure 1.** A learner solving numeracy problem in a public school in the rural area.



**Figure 2.** TLMs fixed on walls in a public school in the rural area.



**Figure 3.** TLMs fixed on walls in a private school in the rural area.

some of the participants. For instance, **Mr Narh (T)** pointed out thus:



**Figure 4.** TLMs fixed on walls in a public school in the urban area.

*We have to commend the parents who bring their children to the school. Sometimes you can see that they try to make the effort to get the things the children need (textbooks, workbooks etc) for them. Even when they don't have the money, they will come and talk to you to give them some time and they pay.*

**Mrs Adoma (T)** added:

*we have a lot of the TLMs in our class. The children are able to get access to them and handle them and it helps in their learning and improves their understanding.*

Observation in **Mrs Adoma (T)**'s school revealed that she had enough materials that could facilitate interaction and promote learning in the school. Figure 5 depicts a scene (a sand try learning centre) in the classroom.

In a seemingly corroborative manner to what **Mrs Adoma (T)** stated, **Mr Sackey (HT)** said in confidence:

*we provide all the basic or the requisite teaching and learning materials being them play materials, teaching materials.*

In spite of what Mr Sackey said concerning providing TLMs for the teachers, it was observed in his school that the KG1 teacher had only the textbook for Environmental studies and English and the KG2 teacher had the textbook for the English, Mathematics and Environment studies. These were for the teachers and not the learners so the learners had to copy or draw whatever they were to do or occasionally refer to the few charts that were pasted or hanged on the walls.

Much as interaction is hindered by unavailability and accessibility of TLMs and play items. It was equally noted that the time the learner has with the play item or the time



**Figure 5.** Learning corner (sand try) in a private school in the urban area.

the teacher allows the learner to interact with the play item can similarly affect the interaction particularly between the teacher and the learner. For example, **Mr Issah** argued that:

*"Sometimes some children will not answer your question or refuse to do any activity that will go on in the classroom because you did not give them enough time to play with the material when they are out there playing."*

The implication from the response is that a teacher has to be careful in apportioning the contact time learners should have with play items in order to get the attention of every learner in the classroom after their play. This may mean that there should be enough time or enough play items so that within the shortest possible time, every child can have a reasonable time to interact with the play items. The responses again suggest that TLMs and play items should not only be available and accessible but also there should be enough of them such that every child can have access to the play item or the TLMs whenever there is the need. Perhaps, the reason is that if the children do not have enough or they don't have access to the play items or TLMs when they want to or during a lesson, they may end up struggling among themselves to have access and this may put their minds under stress (Hu et al., 2014), as they struggle and compete for the limited TLMs.

## DISCUSSION

### Perception of the role of TLMs in QECE provision

The findings suggest that respondents were of the opinion that interaction and TLMs are central to QECE.



The availability and accessibility of TLMs help the children to have practical experience of the TLMs. This seems to agree with Kisitu (2008 citing New Jersey State Department of Education 2004) that TLMs afford the children opportunity to have hands on experience which increases and develops their knowledge (Papadakis et al., 2018).

Given that children learn through what they see, if they have access to TLMs, they will see, touch and understand and so ECE classrooms should be 'print rich'. What this implies is that, an ECE classroom which does not have these TLMs and play items, children's academic performance can be negatively affected. This is because they will not understand what is being taught due to lack of TLMs. All these point to the fact the success of teaching and learning is likely to be influenced by the resources made available to support the teaching and learning process and the direct ways in which these resources are managed by teachers and are utilised by learners (Yavuz and Güzel, 2020). Notwithstanding these, however, to ensure effective use of TLMs which will in turn ensure quality teaching and learning, Montessori stated that TLMs and play equipment should be accessible to children and they should be organized in such a way that the children can find and put away when the need be (Mooney, 2000). What this implies is that if the teacher teaches and the children do not have access to the TLMs, then it will be difficult for the children to have a better understanding of what they learn.

Perhaps, the interaction will be easier in the presence of TLMs because the children can easily have contact with them as they can conveniently find and put away anytime they want. If children can conveniently find TLMs and put away after use, then it may imply that they will be able to describe the said TLMs and their use as they manipulate them. This possibly will facilitate their learning and retention and consequently better the quality of the provision (Papadakis et al., 2018).

Children at the ECE having access to TLMs are also known through literature to facilitate interaction (Papadakis et al., 2016). Participants of this study equally identified availability and accessibility to TLMs and play items as a factor that affects interaction and quality ECE. Literature indicates that the use of TLMs is indispensable in providing ECE and the professional manner in which the teacher uses TLMs is another factor that plays an important role in ensuring quality learning at the ECE settings (Rinaldi, 2001).

### **The kind of TLMs existing at the ECE centres and how interaction featured in them**

The study revealed that most of the schools lacked the TLMs they needed. Debatably, the situation of TLMs in the school's (as presented by the respondents and in my observation) may not be the one that will promote

interaction and for that matter QECE delivery. TLMs are supposed to be available for the teacher to use in his or her teaching and also for the learners to have access to them so they can manipulate them - for instance by touching, moving and tasting in order to have an experience - for better understanding of what they learn (French, 2007). Therefore, if the materials are not available, the teachers cannot have them to aid the teaching and the learners' interaction with the material will be limited or non-existent. Teaching in such schools is likely to be abstract rather than real and practical. This situation however contradicts the assertion by Evens et al. (2000) that children below the age of eight learn best when they have objects (materials) they can manipulate. Again, such an instruction may not be able to make the lesson interesting and therefore capture the attention of the learners and make them active as advocated by Montessori (1949).

Aside most of the schools not having the TLMs they needed, even the few TLMs that were available were often fixed on the classroom walls, so teachers could only reference them without learners being able to touch or manipulate them. The children did not have the privilege of feeling/touching or tasting, as the case may be, because real objects were not generally used. Also, when pictures or charts were used, because there were not many of them, teachers either drew that particular object on the chalkboard for the children to draw into their workbooks, held it and referred to it when necessary, or held the picture and round closer to the children. In such an instance, the children are cautioned not to touch it lest, they spoil it. Meanwhile, learning with the use of TLMs is achieved by the individual learner having contact with the TLMs and manipulating them. The researcher argues that seeing the materials alone is not enough. The suggestion is that in addition to seeing the TLMs the children must have access to them to manipulate them.

Even more to the availability of the TLMs to facilitate manipulation is the TLMs' ability of providing feedback of a sort to the learner. Consequently, learners should have TLMs and or practice or use them and have them kept and not just writing on the floor which will be trodden upon the next moment. Indeed, it could be commended that, given the circumstance (not much writing materials for the learners), this was the best the natural environment could afford the teacher. This possibly allowed the children the opportunity to practice. Nevertheless, it should be advocated that efforts should be made by both parents and the school to make materials (e. g. for writing) available for the learners. Records of these exercises could not be kept to serve as a feedback to the learner but as it was written on the floor, other children were likely to trample upon them and wipe them in no time. Meanwhile, when children see their own work displayed on the walls in the classroom it serves as feedback to them and it also shows that their work is appreciated (Elliott, 2005). The implication is that

that aspect of the feedback will be missing.

Due to the unavailability of textbooks, the study revealed that most of the teachers had to draw whatever they wanted to illustrate on the chalkboard and either let the learners draw into their exercise books or draw it for them. The implication was that there was time wasting of some of the instructional time and the lack of TLMs also mostly made the teaching more theoretical than the practical activity-based teaching that should characterise ECE teaching. In view of this, Ajayi (2007) noted that textbooks and instructional materials are important in teaching and learning process. In sum, TLMs were virtually not available and so the children could not interact with them to enhance their learning. These findings should be a concern given all the importance attached to using TLMs in teaching which will contribute to QECE provision. Where TLMs are unavailable and inaccessible the teacher may not be able to make the lesson interesting and therefore capture the attention of the learners and make them active as advocated by Montessori (1949).

## CONCLUSION

Not only are materials expected to be available and accessible for use. According to Montessori, teachers are also expected to appropriately use them by sequentially presenting them to suit the individual learner. This study contributes to knowledge by establishing that the participants appreciated that TLMs with active learner involvement is and should be the anchor of quality early childhood education. It has been established, through the study, that having developmentally appropriate TLMs where the learners have access to them for manipulation reduces teachers' task of having to provide detailed explanation to concepts. The selection and use of appropriate TLMs provide visual explanation and enhance understanding of learners. This study has further established that interaction could not feature prominently in the selected schools because most of the schools used for the study lacked or had inadequate TLMs and play items.

Arguably, if materials are available then one could consider the accessibility by learners, but as it were, they were non-existent or in limited supply. Also, if the materials are not available, the teachers cannot have them to aid their teaching and the learners' contact with the material will equally be limited. It comes out quite clearly through this study that sometimes participants may know what is good and or right but circumstances may prevent them from practising what is good or what is right. For example, the participants appreciated the use of TLMs and learners' opportunity to manipulate them as very key to ensuring QECE provision but they could not position themselves to ensure active manipulation by learners because the material were either in short supply or unavailable.

## RECOMMENDATIONS

Based on the findings, teachers should liaise with their head teachers and parents to provide TLMs for their lessons. They should develop some of the TLMs and encourage their learners to do same. This should be done by using local materials, to augment what the head teachers and parents would supply. These would probably contribute to make TLMs availability for their lessons. They should also create opportunities for learners to interact with TLMs and play items, as all these could facilitate better understanding of what children learn and also foster learning since children learn by doing. Through their development of the TLMs, they can set up a variety of learning centres and train their learners as to how to use such facilities for their independent learning. The teachers should also be innovative to identify the natural environment/resources, use them and encourage the learners also to use them to better the teaching and learning process.

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