An Assessment of the Structural and Process Quality in Pre-Primary Education in Tanzania: The case of Rural Schools

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ABSTRACT

In recent years, there has been an increase in the demand for early childhood education (ECE) in lowand middle-income countries, including Tanzania. There is also growing awareness that unless ECE is of high quality, children may attend school but may not learn. This study sought to establish the quality of ECE programmes. It was, therefore, important that the researcher investigates whether the ECE programmes were meeting the expectations of the quality indicators and consequently the holistic needs of children in the early years. The study utilized a descriptive survey design. Data were collected throughan observation schedule and questionnaires administered to 45 pre-primary education teachers in Dodoma, Morogoro and Mwanza regions, Tanzania. Data were analyzed descriptively using frequencies, percentages, means and standard deviations.Findingsrevealed that infrastructure, teachers'behaviours, school leadership and child-protection measures were generally fair. While teachers' qualifications, classroom characteristics, parents' participation in school activities, equipment and materials were found to be unsatisfactory. By way of conclusion, unsatisfactory structural and process quality of ECEin rural areas calls forregular in-service training for teachers, improving classroom characteristics, increasing parents' involvement in school activities, and increased budget allocations to pre-primary education (PPE). Addressing these areas can lead to better educational outcomes for children and contribute to their overall academic success.

Keywords: *Quality education, pre-primary education, structural, process, teachers' qualifications*

INTRODUCTION

Evaluating the quality of Early Childhood Education (ECE) service internationally is increasingly important. This is because the demand for ECE has grown constantly globally and in Tanzania.According to the Education for All (EFA) Global Monitoring Report (2015), enrolment in pre-primary education has increased by nearly two-thirds (to 180 million) over the past decade.In Sub-Saharan Africa,the percentage has risen from24.7% in 2014 to 31.8% in 2019 (UNESCO, 2020). For instance, in Uganda, the enrolment has increasedfrom 433,258 (29.4%) in 2014 to 563,913 (38.3%) in 2016 (Republic of Uganda, 2016).Kenya also has registered gains, with enrolmentincreasing from2.71 million in 2012 to 3.2 million in 2016, representing an increase of 10.2% (Republic of Kenya, 2017). In Tanzania, the enrolment rate has risen by 48.8% from 925,465 in the year 2010 to 1,377,409 in the year 2020(Ministry of Education and Vocational Training [MoEVT], 2010;United Republic of Tanzania [URT],2020a). That increase inenrolmentreflectsthe demand for a greater degree for pre-primary education. Several factors contribute most to the growing demand for pre-primary education. These include the increasing number of women pressed into the labour force like commercial activities and paid employment (Omar et al., 2009). Another factor for growing demand is the recognition of the importance of early childhood education (Libent, 2015).

Since the demand for pre-primary education is increasing, it is essential to understand the quality of education and services provided to children. Research in the areas of neuroscience, economics, and education has shown that high-quality early childhood education produces long-lasting benefits for children.Such benefits include stronger literacy, language and math skills, better attitudes towards school, better relationships with classmates, later academic success, employmentand labour income (Barnett, 2008;Heckman, 2017; Mullis et al., 2012; Rao et al., 2017, Organization for Economic Co-operation and Development [OECD], 2017).Based on this evidence, the United Nations included early childhood development and education in the definition of the*Sustainable Development Goals*(SDGs). Specifically, Target 4.2 of the SDGs emphasizes equal access to quality early childhood development, care and pre-primary education for both boys and girls by 2030 (The United Nations, 2015). In order to achieve the SDG agenda,there is a need to scale evidence-based programmes to ensure that all children have access to quality ECE to achieve their full developmental potential. One key to achieving quality at scale in the

context of SDG Target 4.2 is the monitoring of the quality of early childhood development programmes (Maldonado-Carrenoet.al.,2022).Assessment of the quality of ECE programmes might help inform ongoing decision-making, progress in scaling and improving the quality of ECE such as workforce supports, and policies to increase the number of children with opportunities to reach their full developmental potential (Yoshikawa et al., 2018). In this study, the terms Early Childhood Education (ECE) and Pre-primary Education (PPE) are used interchangeably.

The government of Tanzania has increased investment and considered the value of ECE significantly over the last decade. For instance,the 2014Education and Training Policy (ETP)directs that each primary school must have a Pre-Primary Education (PPE) class. Besides, the Ministry of Education, Science and Technology (MoEST) through the Tanzania Institute of Education (TIE) developed a PPE curriculum and syllabus in 2016. The one-year cycle PPE curriculum advocates for holistic development of a child, a child-centred approach, individualised instructions, play-based pedagogy and continuous assessment of pupils' progress (Libent-Mabagala & Shukia, 2019).

Since pre-primary education classes and Early Childhood Development (ECD) programmes exist in a variety of settings, it was imperative to assess the quality of services provided to children. The definition of quality may vary from one person to another and is a context-determined concept (Libent-Mabagala, 2021). Quality in ECE is an elusive concept. Postmodernism views quality in early childhood services as relative and based on values and beliefs, rather than universal reality (Dahlberg & Moss, 2008). However, grounded in socioecological and learning theories, current models of ECE define quality in terms of structural and process categories (Burchinal, 2018). Structural quality refers to aspects that may be regulated like the physical environment (buildings, space and materials), staff-to-child ratio, overall class size and teachers' qualifications. Structural components are largely controlled by forces outside ECE setting such as government financing, education and health policies which set requirements before an ECE site can commence. On the other hand,process quality includes children's interactions with adults, peers, and materials that children encounter in the classroom, daily routines, teachers' behaviour, nature of leadership and parents' involvement. Process components influence the everyday nature of ECE settings and they directly influence the quality of a child's day-to-day experience. Such components are

more constructive and require more in-depth observations than structural quality (Ishimine &Tayler, 2014). Ceglowski and Bacigalupa (2002) argue that there are four types of perspectives on the quality of early childhood education and care programmes derived from Katz's (1993) theory. These are (1) researcher and professional perspectives, (2) parent perspectives, (3) child perspectives and (4) staff perspectives. Researchers and professionals tend to focus on variables such as structural elements (e.g. teacher-to-child ratio, teacher qualifications, physical environment, including safety and health), and process elements (e.g. teacher-child interaction, parents' involvement) (Ishimine & Tayler, 2014). Although there are various perspectives on evaluation of quality in ECE programmes, this study focused on the perspectives of researchers and professionals. This choice was made because their expertise and experience in the field provide a unique and informed perspective. It is against this background that this study aimed at examining the quality of early childhood education programmes provided for children in selected regions in Tanzania. Specifically, the study intended to (i) explore the level of personnel qualification in PPE in Tanzania (ii) Identify the classroom characteristics (teacher-child ratio & class size) of PPE in Tanzania, and (iii) Examine the PPE learning environmentin Tanzania.

The study was guided by Bronfernbrenner's ecological systems theory of 1979. The theory posits that people are embedded in multiple ecological settings and the individual (child) both affects and is affected by the environment. According to this theory,a child's developmentand learning are affected by multiple levels of the surrounding environment, from immediate settings of family and school to broad cultural values, laws and customs; hence, the need for wider parental and stakeholders' involvement in ECE programmes. Different elements of the ecological model are interlinked and are based on effective partnerships among all stakeholders. The central focus for all activities of this model is collaboration and relationships among stakeholders who constitute the ecology in the promotion of quality ECE programmes. Quality ECE programmes would be the result of programmes that were well managed and organised and had all the stakeholders' involvement. These include having qualified ECE teachers, adequate resources, well-designed facilities, clear and mandatory ECD policies, and availability of quality nutrition, health and safety in ECE. This framework, thus, influenced the researcher to look at the quality of ECE programmes based on teachers' qualifications, classroom characteristics, school leadership, infrastructure,

equipment, children's learning, teachers' behaviours, parent-school partnership, and child-protection measures.

Materials and Methods

A descriptive survey design informed this study. A multi-stage sampling technique was applied to recruit a sample of 45 pre-primary education classes in 19 wards in Dodoma, Morogoro and Mwanza regions. In the first stage, the selection of regions was carried out througha purposive random sampling method. Specifically, seven7 districts werepurposivelyselected to participate in the current study. The second stage included the selection of wards in each selected district. The third and final stage of the multi-stage technique included the random selection of pre-primary education classes from each ward. Therefore, 45 Pre-primary teachers were selected to participate in the study. Data were collected through a self-administered questionnaire and an observational checklist designed by the researcher. The questionnaires generated information related to demographic, professional characteristics of pre-primary education teachers, school leadership, children's records, parents' involvement, and availability of child protection measures. Classroom observations were also conducted to understand the PPE learning context, which includes classroom characteristics, infrastructure, equipment, children's learning, and teachers' behaviours.

Scoring of Instrument

The quality of pre-primary education classes was assessed using seven key minimum standard indicators, namely;teachers' qualifications, classroom characteristics, school leadership, infrastructure, equipment, parent-school partnership, and child-protection measures. These indicators were selected based on a review of relevant literature and were modified to suit the study's specific context.Each item, on minimum standards, was scored based on the following 5-point Likert-type scale *0=poor/not observed, 1=Unsatisfactory, 2=Fair, 3=Good and 4=Excellent*. Scores on the 5-point Likert-type response scale were added and averaged to provide an average score of the minimum standards for each school. Scores were grouped into five groups. The five levels of school quality ratings were operationally defined as 0 - 0.99 = poor/not observed, 1.00 - 1.99= not satisfactory, 2.00 - 2.99 =fair, 3.00 - 3.99=Good and 4=Excellent. That is, if schools scored an average between 2.00 -2.99 it meant fair minimum quality standards. Data for quality minimum standards were analysed using

descriptive statistics (frequencies,percentages, means, and standard deviations).

Ethical Concerns

Approval to conduct the study was obtained from seven District Executive Directors in Dodoma, Morogoro and Mwanza regions respectively. Ethical issues were observed by first, obtaining verbal consent for participation from every teacher prior to data collection. Second, teachers were informed of the purpose of the study, and that they had the right to refuse to participate. Furthermore, codes were used to ensure the anonymity of the respondents as well as of the participating schools.

Findings

Availability of Qualified Pre-Primary Education Teachers

The study sought to explore the level of personnel qualification in PPE in Tanzania. Teachers' qualifications were assessed based on educational level, teaching experiences, and pre and in-service training courses in early childhood education.Table 1 shows the demographic and qualifications of respondents.

Table 1: Demographic and Profession Characteristics of the Respondents (n=45)

Demographic and Profession Characteristics	No.	%
Gender		
Females	32	71.1
Males	13	28.9
Educational levels		
Secondary Education & Grade 'A' certificate	42	93.3
Diploma Certificate	03	6.7
Experience years in teaching		
<01	07	15.6
01 to 10	36	80
10+	02	4.4
Pre-service training courses in early childhood education		
Yes	08	17.8
No	37	82.2

In-service training courses in early childhood education		
Yes	28	62.2
No	17	37.8

Table 1 shows that more than half of the PPE teachers (71.1%) were females, holders of secondary education and Grade 'A' teacher education certificates. Their experiences ranged from 1 month to 9 years of teaching in PPE classrooms. Only 4.4 per cent of teachers had teaching experience of more than 10 years. 82.2% of the pre-primary teachers had never attended any pre-service training course in Early Childhood Education. About 62.2% reported they had attended capacity-building seminars organized by Non-Governmental Organisations (NGOs) and an orientation workshop on the new pre-primary curriculum conducted by the Tanzania Institute of Education (TIE).Those who had attended in-service training offered by NGOs reported being trained on the 3Rs, developing competencies and skills in human development and School Readiness Programme.

PPE Classroom Characteristics

The study intended to identify the classroom characteristics of PPE in Tanzania. These were assessed based on the teacher-child ratio and class sizes. Table 2 shows descriptive data for PPE quality minimum standards including classroom characteristics (teacher-child ratio & class size).

Table 2: Descriptive Data for Pre-Primary Education Classroom Characteristics

Teacher - child ratio	Class size	Frequency	%
Over 100 children	101+	24	53.3
70 - 90+ children per teacher	70-100	9	20
50 - 60+ children per teacher	50-69	4	8.9
Less than 50 children	Less than 50	8	17.8

Overall, Table 2 indicates that most of the pre-primary education classes visited had high teacher-child ratios and unsatisfactory class sizes. It was observed that more than half of the classes had over 100 children per teacher, whichmight affect the quality of education or care provided to children.

Learning Environment

The PPE learning environment was assessed through seven minimum

standards, namely: infrastructure, equipment and materials, children's learning, teachers' behaviours, school leadership, parent-school partnership, and availability of child-protection measures.The findings are presented in Table 3.

Table 3: Descriptive Data for PPE Quality Learning Environment

No.	Dimension and Items	Mean	SD
Learning environment		**2.15**	**.92**
Infrastructure		**2.72**	**.48**
1	Availability of a permanent building	2.88	1.92
2	Building is safe	2.70	1.17
3	Toilet safe and appropriate	2.60	0.88
Equipment and Materials		**1.70**	**1.05**
4	Learning materials available and accessible	1.76	.82
5	Learning materials enough and safe to use	1.63	.89
6	The learning areas are organized.	1.59	.64
7	Availability of outdoor play equipment	1.30	.65
8	Blackboard for children to use	2.00	.56
9	Minimal appropriate and safe desk	1.31	.47
10	Floor coverings	2.41	1.22
11	Hand-wash facilities	1.00	.00
Children's Learning		**1.98**	**.81**
12	Children actively engaged in learning	2.42	1.30
13	Children interacting positively	2.26	1.04
14	Children interacting with materials	1.26	.56
Teachers' Behaviours		**2.39**	**.99**
15	Responsive when children ask questions	2.22	1.00
16	Use positive discipline	2.39	.99
17	Use calm, encouraging and positive language	2.66	1.23
School leadership		**2.52**	**.45**
18	Availability of SMC	3.05	.22
19	Functional management committee including parents, that has been trained in ECE and received follow up support	1.57	.50
Parent-school partnership		**1.74**	**.73**
20	Active parent-school partnership	1.50	.68
21	Feeding programme	1.63	.95
Child-protection measures		**2.00**	**1.22**
22	Schools have minimum child protection measures in place	2.00	1.22

**4= Excellent, 3=Good, 2 =Fair, 1=Unsatisfactory, 0= Poor/not observed

As indicated in Table 3, the mean values for all dimensions and items for the learning environment ranged from 1.00 to 3.05. The overall mean score for the PPE learning environment was 2.15 (*SD = .92*). This implies that the quality of the learning environment in the study classes was fair.However, the standard deviation of .92 indicates that there was a high variation in thequality ofthe pre-primary education learning environment. Specifically, the findings indicated that the mean for infrastructure was 2.72 (*SD=.48*), whereby a fair number of the schools visitedhad permanent buildings for pre-primary children. However, 42 per cent had no permanent building designated as a classroom for pre-primary education children. It was noted that in some of the schools, PPE classes were conducted in early-grade classrooms by shift, under the trees, while in other schools, pre-primary education children were mixed with other grades. Besides, some schools employed other approaches to accommodate pre-primary education children. These approaches included using abandoned buildings, stores and other grades' classrooms.Of the available PPE buildings, 50% had inadequate space for the number of children. Moreover, the majority of schools (80%) had toilets separate for boys and girls. However, there were no toilets special for pre-primary children as they shared with primary school children.

As indicated in Table 3, equipment and materialshad unsatisfactory quality in many classes (*M=1.70, SD=1.05*). It was found that67% of classes had no learning area. Teaching-learning materials were largely lacking in almost all the classes visited. Commonly available materials in a few classes were alphabet and number charts displayed on classroom walls, letter and number cards, and some pictures of some objects such as bloom, bucket, knife, and brush but they were not labelled. Similarly, 86% of visited pre-primary classes had no outdoor play equipment. A few schools, which had these equipment were observed to be unsatisfactory because they were neither adequate for all pre-primary children to use nor age-appropriate.With regards to chalkboards for children, 70% of PPE classes had chalkboards, which were at the child level, but their conditions were unsatisfactory. Other classrooms' chalkboards were at a level that children could not reach easily.Moreover, 46% and 55% of PPE classes had inadequate and inappropriate desks sizes, tables and chairs respectively. Besides, in five per cent of these classes, desks were congested inhibiting easy movement of teachers and pupils. A great number of pre-

primary classes had rough floors and were dusty with no displays in the classroom. Based on the data collected, it appears that children's learning experiences, as measured by their interactions with peers and materials, were unsatisfactory *(M=1.98,SD =.81).* More specifically, the data suggests that children had limited interaction with learning material (*M=1.26, SD=.56),* which could potentially be attributed to limited availability of learning materials. However, it is worth noting that there was a fair quality of positive interaction with peers (*M=2.26, SD=1.04*), which suggests that socialising with their peers was a more prominent aspect of the learning experience. On issues of teachers' behaviours, it was found that the majority of teachers (57.5%) were responsive when children asked questions (*M=2.22, SD=1.00*). Also, teachers were observed to use positive discipline methods(*M=2.39, SD=.99*), such as redirecting undesired behaviour and reinforcing desirable behaviour. This approach encourages positive behaviour and can have long-term benefits for children's development. Moreover, most teachers were noted to use calm, encouraging and positive language (*M=2.66, SD=1.23*).This positive approach creates a welcoming and supportive classroom environment that promotes learning. However, it was observed that a few teachersraised their voices and used loud language when children misbehaved.

Findings further revealed that the majority of the schools visited have established school management committees (*M=3.05, SD= .22*), with member numbers varying from 7 to 12. However, it was reported that nearly all committee members had not received any trainingon pre-primary education-related matters(*M=1.57, SD= .50*). This lack of training could potentially hinder the committee's ability to effectively manage pre-primary education programmes. Further, findings revealed that parent-school partnership in the schools visited was limited (*M=1.74, SD=.73*). 61.5 per cent reported rare parent participation and 30.8% rated parent participation as ad-hoc or sometimes. It was revealed that there were neither parent-school meetings nor parents involved in classroom activities despite school management efforts to engage parents. In a few schools where there was parental engagement, such engagement could be described as unsatisfactory as they were rarely involved in school matters. In the case where they were engaged, it was about discussingfeeding programmes, financial contribution and construction of buildings. With regard to the feeding programmes, 77.5% of schools visited neither had a feeding programme for pre-primary children nor for the entire school. However, 50 per cent of the schools reported to have made efforts to establish feeding programmes. It was observed that certain schools had

inconsistent feeding programmeswhere children were only provided with porridge during the harvest season; maize contributions from parents were requested during this period. On the other hand, other schools had a more structured feeding programme, where parents contributed to the provision of porridge throughout the year. However, it was revealed that most of the parents did not contributeas expected. As a result, their children were not provided with porridge. Furthermore, the study revealed thata significant majority (84%) of schools did not have any establishedchild protection measures, handling complaints, positive discipline practices, sanctions for non-compliance; a first aid kitor committees to safeguard children against any form of abuse or harm. This lack of protection mechanisms puts children vulnerable and susceptible to abuse by perpetrators within or outside the school environment.Only 3 (6.66%) out of 45 schools had functional child protection committees and fairly well child protection measures in placeto identify and prevent any potential harm to their children.

Discussion

The quality of early childhood education was found to be averagely fair. The results of this study are consistent with those of previous studies (UNICEF, 2017; Libent-Mabagala & Shukia, 2019; URT, 2020b) which revealed that pre-primary education teachers hada deficiency in training programmes on ECE.Consequently, this finding may suggest for more increasing investment in capacity building for PPE teachers. This can be through pre-service and in-service training.A well-trained teacher is better able to provide children with services that are suitable for their developmental needs, meets their needs more professionally (Burchinal, 2018) and has fewer difficulties in relating to family members in comparison to a teacher who has a lower level of education. Studies reveal that there is an affirmative linkage between teacher qualification and programme structure. Usually, the teachers' high level education is correlated to a high-quality learning environment in early childhood (Manning, et al., 2017). Similarly, a study by Pianta et al. (2016) demonstrated that teachers with educational experiences and preparations in early childhood education help to improve the quality of children's learning. In this study, the quality of pre-primary education classroom characteristics (class sizes and teacher-child ratio) were found to be unsatisfactory. These findings are consistent with URT (2020a) data, which indicate that in the year 2020, thequalified teacher-child ratio in government classes was 1:193, which is considered unfavourable,compared to the standard norm of 1:25.These results

suggest that the larger class sizes and unfavourable teacher-child ratio may impact children's school readiness and learning outcomes. Thisaligns with Bronfenbrenner's ecological systems theory, which explains how different factors in a child's environment interact to influence their development. In this case, the classroom characteristics can be viewed as microsystems, and factors such as class size and teacher-child ratio can affect a child's learning experience and overall development. Therefore, efforts to improve the structural quality components of classroom characteristics should target most of the PPE classes. Studies (Canbeldek&Isikoglu,2017; Connolly & Haeck, 2020) demonstrate that classsize is one of the components of a quality ECEprogramme that producespositive outcomes for young children.Research on childcare classrooms(Skalicka, et al., 2015;Hu, et al., 2016) indicates that when groups are smallerand staff-child ratios are lower, teachersprovide more stimulating, responsive,warm, and supportive interactions.

They also provide more individualizedattention, engage in more dialogueswith children, and spend less timemanaging children and more time ineducational activities. With regard to the learning environment, generally,the findings suggest that the quality of the learning environment in the study classes was fair, but there were variations across different dimensions. Four quality dimensions, including infrastructures, teachers' behaviours, school leadership, and availability of child-protection measures were found to be fair. However, the dimensions of equipment and materials, children's learning, and parent-school partnership were observed to be unsatisfactory. These findings can be linked to Bronfenbrenner's ecological systems theory, whichemphasises the importance of considering multiple factors in a child's environment that interact to influence their development. In this case, the quality of the learning environment can be viewed as a combination of various micro and meso-sytems factors, includinginfrastructures, teachers' behaviours, school leadership, availability of child-protection measures, equipment and materials, children's learning, and parent-school partnership. The study findings highlight the need for collective efforts to improve the quality of the learning environment in early childhood education (ECE) as it can significantly influence young children's performance(Tsiakara & Digelidis, 2015). This aligns with previous research, which has shown that a high-quality learning environment positively impacts children's cognitive, social, and emotional development (Burchinal et al., 2011).

Conclusions and Recommendations

Considering the findings of this study, the following conclusions were drawn. Firstly, regarding the level of PPE staff qualification in Tanzania, it was found that teachers who are teaching in PPE classes are qualified as primary school teachers. However, the majority lacked early childhood education-related training. Similarly, school leadership, including the school management committee, also lacked training on PPE. Therefore, there is a need for more training and professional development opportunities for PPE teachers and school management committees. Secondly, concerning the PPE classroom characteristics, it was found that the teacher-to-child ratio is unfavourable, and classes are suffering from a lack of age-appropriate teaching-learning materials and resources. This indicates that the PPE classroom teaching-learning conditions are largely unsatisfactory, which threatens the quality delivery of PPE. Finally, concerning the PPE learning environment, it was found that community engagement with PPE is largely lacking parent-school partnerships and food programmes.

Therefore, there is a need for increased community involvement and support to improve the overall quality of PPE in Tanzania.In conclusion, the study found that the quality of pre-primary education in rural areas is averagely fair, but there are significant challenges that need to be addressed. Drawing on conclusions, this paper makes practice and policy recommendations. Since early childhood has a positive influence on the educational development of children in later life, it is therefore imperative that it should be based on sound foundations to yield high returns. Therefore, there is a need to organize regular in-service training to teachers so as to improve teachers' qualities. Furthermore, the involvement of committed different stakeholders is an important aspect in providing access to high-quality pre-primary education. That is, parents and the community as a whole should be given opportunities to participate in some of the school's special programmes. Policies can be developed to promote parental engagement, such as offering parent-teacher meetings, parent-teacher associations, and volunteer opportunities. Moreover, there is a need to expand funding for early childhood education this can help improve the quality of infrastructure, equipment, and materials in schools. This is because a completely-prepared learning environment gives young children a feeling of belonging, promotes meaningful learning experiences, encourages higher levels of performance, and motivates the practice of critical thinking skills.

Limitations

Even though this research identified many important findings and implications,it has limitations. Primarily, this study reached a limited number of selected schools from three regions, and it cannot generalise findings across Tanzania. Future researchneeds to be conducted with a larger sample size across several regions of Tanzania.

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