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EFFECT OF PUPIL-TEACHER RATIO ON GRADUATION RATE OF EARLY CHILDHOOD DEVELOPMENT AND EDUCATION IN EMBU COUNTY PUBLIC PRIMARY SCHOOLS, KENYA

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Abstract

Early years of human growth and individual enactment are important throughout one's life. Low ECDE levels undermine the expected social and economic benefits of public and private investments in children's education at later stages in life. It is with this background that the study sought to examine the effect of pupil/teacher ratio (PTR) on graduation rate in early childhood development and education in public primary schools in Embu County, Kenya. The study adopted a cross-sectional survey research design across a target population that comprised of 381 ECDE teachers in public primary schools in Embu County. Stratified random sampling was used to select the schools for the study from the five sub-Counties. Questionnaires were utilized as the instruments of study. Quantitative data collected was analysed using SPSS software. The study found that ECDE pupil/teacher ratio (PTR) had an effect on early childhood development and education graduation rate since the schools had inadequate trained teachers. Based on results, the study recommends that the number of ECDE teachers handling ECDE classes be increased so that learners transiting from ECDE classes are able to receive maximum attention and thus grow holistically.

***Index Terms*:** Pupil/Teacher ratio (PTR), graduation rates, Early Childhood Development and Education (ECDE), education quality, transition

I. INTRODUCTION

According to the World Bank report, investment in education is not only a basic human right, but also a basic component of social and economic development (World Bank, 1990). When adequately planned, investment in education can pay great economic dividends (Psacharopolous & Woodhall, 1985). Cumulative investment in early schooling increases both the potential earning from a given level of schooling and the net prospective benefits from additional schooling (Young, 1996). Thus, education sector has mainstreamed Early Childhood Education (ECE) at the grassroots level to promote a healthy mind and body of the targeted child. Early childhood education and care is therefore a programmatic service that broadly combines education and care in one seamless experience for young children (Republic of Kenya, 2015). Thus, Investing in children and especially in their early years is a priority.

The Pupil/Teacher ratio (PTR) refers to the average number of pupils per teacher at a specific level of education in a given school year. It measures the level of human resources input in terms of the number of teachers in relation to the size of the pupil population. A high pupil teacher-ratio suggests that each teacher has to be responsible for a large number of pupils. Thus, the higher the pupil/teacher ratio, the lower the relative access of pupils to teachers. It is generally assumed that a low pupil/teacher ratio signifies smaller classes, which enable the teacher to pay more attention to individual students, which may, in the long run, result in a better performance of the pupils and hence high graduation rate. The lower grade should have smaller classes. The large class sizes in the early grades are more likely to contribute to higher repetition and low participation especially among children from lower income homes. Some schools with low pupil-teacher ratios perform poorly but there is no rarely any school with high student-teacher ratios that perform well (Winkler, D & Sondergaard, L, 2001).

The number of children to the teaching staff is also an important indicator of the resource affecting education. The pupil/teacher ratio (PTR) indicates how resources for education are allocated. Smaller pupil/teacher ratio has to be weighed against greater investment in teaching technology or more widespread use of assistant teachers and other Para-professionals. Smaller class sizes are perceived as allowing teachers to spend less time managing the class and more time with each pupil (OECD, 2015). The pupil/teacher ratio is one indicator used globally for measuring and assessing progress at pre-primary and primary level of education (UNESCO, 2004). It is also used to determine the adequacy of the number of teachers in relation to the number of pupils. Teachers with a low pupil/teacher ratio are likely to give individual attention and interaction to pupils. Also, the teacher is able to cater for individual differences of the pupils in terms of ability and motivation. Overcrowded classes affect teaching and learning. Teacher-pupil ratio shows great inefficiency because low pupil-teacher ratios imply that more teachers serve relatively few pupils. Teachers working in a situation where teacher/pupil ratios are high would be expected to be overworked and lack time to prepare their work (Huha, 2005). Hence graduates will be many but with poor performance hence will affect the internal efficiency of education.

In the OECD member countries (Australia, Austria, Belgium, Canada, the Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Japan, Korea, Luxembourg, Mexico, the Netherlands, New Zealand, Norway, Poland, Portugal, the Slovak Republic, Spain, Sweden, Switzerland, Turkey, the United Kingdom and the United States), study by Krueger (2002) showed that smaller classes were perceived as allowing teachers to focus more on the needs of individual learner and reducing the amount of class time needed to deal with disruptions such as those from the disadvantaged backgrounds. OECD (2009)

found this relevant by noting that smaller class size allows for greater flexibility for innovation in the classroom, improved teacher morale and job satisfaction.

Reducing PTR in Ghana for young children was viewed as a priority which may benefit them from increased teacher contact and differentiated instruction. Smaller groups can alleviate challenges related to large class sizes (Akiyeampong et al, 2011). The implementation of EFA in Tanzania in 2001 resulted in increased pupil/teacher ratio in standard one in public primary schools. The enrolment increased with 25.6 % from year 2000 to 2002 and the pupil/teacher ratio ranged between 56:1 and 79:1 in 2000. In 2002 pupil to teacher ratio ranged between 15:1 and 80:1. A research report on research on poverty alleviation (REPOA) affirmed that lack of smooth promotion to the next grade due to Pupil-Teacher Ratio (PTR) was a factor affecting student performance and graduation rates (Mbelle, 2008). The Teacher nationally stood at one teacher per 40 students. At Dar es Salaam district, the level of PTR ranged between 29 to 121 pupils for one teacher. The ministry sought to improve PTRs by allocating the deployment of anticipated new teacher graduates based on districts. This ensured that those districts which had low PTRs received more teachers while those that had high PTRs received fewer teachers. Districts which had PTRs of less than 45 students per teacher were not allocated any new teacher. This balanced PTRs in all districts thus making teacher's attendance to pupils easier. It also improved performance of primary education in the region and graduation rates (Mbelle, 2008).

The situation of the teaching force in most districts in Kenya is not promising. Teachers complain of increased pupil/teacher ratios and that many primary schools are understaffed especially those in arid and semi-arid lands (ASALs). Many school management committees are of the opinion that as a result of the ban of levies, they are unable to recruit extra teachers through the Parent Teachers Association (PTAs) as a result of FPE (Ojiambo, 2009). This was found relevant by Sifuna (2005) who noted that problems contributed significantly to schools' low participation and this seriously affected the inflow of pupils in primary education, for instance, districts that had registered over 20 per cent increase in enrolment in 2003, hardly recorded more than 5 per cent of standard one enrolment in 2004 (Republic of Kenya, 2007). This eventually had great effect on learners' graduation rates. Grade repetition takes up classroom space, teacher time, textbooks, and materials (Fabian & Dunlop, 2007). Due to increase in pupils' population following the implementation of Free Primary Education (FPE) to meet EFA goals by 2015, the PTR remained at 57:1 during the two years (Republic of Kenya, 2013).

According to Annual Report of the Ministry of Education, Science, Technology and ICT year 2013-2014 of Embu County Government, majority of the schools had temporary structures, lacked clean drinking water and thus were not conducive for learning. It was further noted that at least 50 teachers were needed to lower the teacher pupil ratio in Embu County since the pupil-teacher ratio was 32:1 which was quite high for ECDE (County Government of Embu Report, 2013-2014). It is in this early part of development for the young ones that forms the basis for strong foundations in primary level of education and if not taken care of can lead to total failure of children in their basic education. This occurs especially when confronted by among many challenges high pupil/teacher ratio hence the necessity of embarking on the study of an examination of the effect of Pupil/Teacher Ratio on graduation rates in early childhood development and education in public primary schools in Embu County, Kenya.

II. Research Objectives

The study sought to examine the effect of pupil/teacher ratio (PTR) on graduation rate in early childhood development and education in public primary schools in Embu County, Kenya.

III. RESEARCH METHODOLOGY

The study adopted a cross-sectional survey research design to examine the effect of pupil/teacher ratio (PTR) on graduation rate in early childhood development and education in public primary schools in Embu County, Kenya. The study targeted ECDE and primary school teachers in public primary schools in Embu County.

Simple random sampling procedure was used to select schools for the study from the five sub counties namely Mbeere North, Embu West, Embu East, Mbeere South and Embu North. The study used the sample size taken from these Sub Counties for study from 381 public primary schools with 380 ECDE schools. Ten percent of the schools from each sub county were considered for the study hence 10 percent of 96 schools in Mbeere North translate to 10 schools, 10% of 37 schools in Embu West are 4 schools, 10% of 71 schools in Embu East comes to 7 schools, 10% of 140 schools in Mbeere South are 14 schools, 10% of 37 Schools in Embu North comes to 4 schools for the study. Stratified random sampling procedure was used to arrive at the sample of teachers from the selected schools. The sample was drawn from three hundred and eighty (380) ECD teachers from each sub County. Those who participated in the study were a total of forty two (42) ECDE teachers, seventy six (76) lower primary teachers and thirty nine (39) head teachers. Stratified random sampling was used to select pre-primary schools for the study from each sub County. This study utilized questionnaires to get information from head teachers, lower primary teachers and ECD teachers on assessing the influence of pupil/teacher ratio (PTR) on graduation rate in early childhood development and education in public primary schools in Embu County, Kenya. To bring order, structure and interpretation to the mass of collected data, quantitative information was analysed using the Statistical Package for Social Sciences (SPSS) - version 19 to inform on accuracy of results.

IV. DATA ANALYSIS, FINDINGS AND DISCUSSIONS

Introduction

Data on age, gender, academic qualification and teaching experience of the teachers was sought. The gender of head teachers was sought with the aim of establishing the distribution of head teachers by gender across all the schools. Nearly two thirds (62%) of the ECD teachers were males while the rest (38%) were

females. ECD teachers with college and university level of education constituted (57%) while those with certificates were (43%). The longest serving ECD teachers had 31 years of service. Those with the least years of service had 1 year of service. However, the average years of service for ECD teachers were 12 years.

Effect of pupil/teacher ratio on graduation rate in early childhood development and education in public primary schools

The research sought to examine the effect of teacher/pupil ratio on graduation rate in early childhood development and education in public primary schools**.** Two items were examined which included the effect of pupil.teacher ratio on academic achievement and effect of teacher/pupil ratio on pupil progression.

Influence of Pupil/Teacher Ratio on Academic Achievement

The teachers were asked to indicate their opinion about the effect of pupil/teacher ratio on academic achievement. The results are presented in Table 1.

Table 1: *Teachers' Responses on Effect of Pupil/teacher Ratio on Academic Achievement*

	Frequency	Percent
High population is not manageable	2	50
Inadequate classrooms leading to congestion	1	25
High workload	1	25
Total	4	100

From table 1, 50% of the teachers indicated that when the pupil/teacher ratio is high, the number of students in class becomes unmanageable. 25% of the respondents stated that inadequate classrooms lead to a high pupil/teacher ratio while another 25% indicated that there was a high workload.

Effect of Pupil/Teacher ratio on Pupil Progression

Further, the ECD teachers were asked to indicate how student teacher ratio affects pupils' progress. Distribution from the findings is illustrated in table 2.

Table 2

Teachers' Responses on Effect of Pupils/teachers Ratio on Pupil Progression

	Frequency	Percent
ECD class is unmanageable	6	22.2
Teachers overwork to cover syllabus	7	25.9
There is poor performance	5	18.5
Negatively affect smooth transition	7	25.9
They do exams those who pass are promoted	1	3.7
By giving them home-work	1	3.7
Total	27	100.0

Table 2 shows that 25.9% of the teachers acknowledged that the pupil/teacher ratio makes them overwork to cover the syllabus while another 25.9% indicated that it negatively affects smooth transition. Another 22.2% of the teachers stated that the effect of high pupil-teacher ratio makes classes unmanageable while 18.5% acknowledged there is poor performance due to the pupil/teacher ratio. 3.7% of the teachers acknowledged that those who do exams are promoted due to the pupil/teacher ratio while another 3.7% they are able to handle the pupil/teacher ratio by giving the pupils homework.

V. SUMMARY AND DISCUSSION

Most of the teachers stated that when the pupil/teacher ratio is high, the number of students in class becomes unmanageable while others indicated that there was a high workload. This is in agreement with a study by Yelkpieri, Namale, Esia-Donkoh and Ofosu-Dwameng (2012) which established that to some extent large class size affects student learning. This eventually affects graduation of children and thus low internal efficiency is experienced in schools. It also aligns with another study by Diaz, Fett and Torres (2003) which showed that a class with a pupil-teacher ratio of 1:19 would be the most beneficial in a classroom setting.

Twenty five point nine percent of the teachers acknowledged that the pupil/teacher ratio makes them overwork to cover the syllabus while another 25.9% indicated that it negatively affects smooth transition. Another 22.2% of the teachers stated that the effect of high pupil-teacher ratio makes classes unmanageable while 18.5% acknowledged there is poor performance due to the pupil/teacher ratio. This concurs with research by Yelkpieri et al (2012) which revealed that organizing large classes makes teaching unmanageable. The results are also in line with a study by UNESCO (2005) which showed that the child/teacher ratio in ECD centres was still very high and sometimes was more than 30 children per class hence being an indicator of insufficient numbers of teachers and poor quality teaching and learning processes to individual pupils.

VI. CONCLUSION

The graduation rate as established in the study demonstrates that enrolment in class one is greatly influenced by size of the class transiting from ECD classes. Further, the effect on graduation rate by pupil/teacher ratio is highlighted from the findings on the effect of profession qualification of teachers on promotion for ECD pupils. Particularly, the research reveals that some of the head teachers indicated some schools had inadequate trained teachers. Generally, majority of the head teachers acknowledge lack of a smooth transition from ECD to primary level of education. The study therefore recommends that more teachers should be hired who are equipped with skills to handle pupils transiting from ECD classes to class one which would lower the pupil/teacher ratio. This would ensure seamless learning process when pupils graduate to the next level of education.

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