



## IMPACT OF ECD / CBCC PARTICIPATION ON EARLY GRADE LEARNING OUTCOMES

### A Case of Children transitioned from ECDs/CBCCs in Livingstonia Synod AIDS Program catchment areas in TA Zalakoma in Nkhatabay district, Malawi

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#### ABSTRACT

Recent years have witnessed increased investment in ECE, driven by three main theories. Firstly, it acknowledges the critical period up to eight years of age for emotional, intellectual, and social development, with interventions during this period having long-lasting impacts. Secondly, research demonstrates that children who undergo ECE interventions or pre-primary schooling outperform those who do not, exhibiting higher motivation, better performance, and improved social integration. Lastly, ECE not only benefits education but also leads to positive outcomes in employment, family formation, and crime prevention, contributing to economic development and reducing inequalities.

A study was undertaken to assess the impacts of ECD/CBCC participation on early grade performance and specifically, the study sought to determine and compare the performance of children who transitioned from ECD/CBCC in numeracy and language in comparison to those children who did not, and sex of early grader; determine and compare promotion and repetition rates between early grade learners that transitioned from ECDs/CBCCs and those that did not, and between sex of the early grade in TA Zalakoma, in Nkhatabay district in Northern region of Malawi. The study area was chosen because it has been a project impact area for early childhood development and education for the Livingstonia Synod AIDS Programme (LISAP) since 2016. Data was abstracted (extracted) for 304 early-grade learners from end-of-year examination records for the school year 2022/2023 in 10 primary schools that were sampled by simple random sampling from the District Education Information Management System. The data were collected using

a form that was designed in Excel. Data were then entered in SPSS and analyzed to obtain descriptive statistics such as frequency tables, cross-tabulations, and proportions on categorical data, means, and standard deviations on numerical data. Statistical tests (t-tests) were performed to determine the mean differences in numeracy and language scores between early graders who transitioned for ECDs/CBCCs and those who did not, and between sex of learners, and the difference in mean promotion and repetition rates between early graders that transitioned for ECDs/CBCCs and those that did not, and between sex of learners, and Chi-square tests of independence were performed to determine the association between promotion and repetition and transitioning from ECD/CBCC or not, and sex of learners. Results of the study reveal that there are no significant differences in early-grade learners' numeracy and language performance between those who transitioned from ECD/CBCC and those who did not, and between sex of learners.

Similarly, the study found insignificant differences in promotion and repetition rates between early-grade learners who transitioned from ECDs/CBCC and those who did not, and between sex of learners. Similarly, no significant association was found between promotion and repetition on rates between ECD/CBCC transitioned learners and those that did not, and between the sex of learners. The study recommends that in future research, primary data be collected using the International Development Early Learning Association (IDELA) methodology and tools. It is a recommended tool for early-grade learning outcomes assessment.

Recommendations for future research include utilizing the International Development Early



Learning Association (IDELA) methodology and tools for primary data collection to enhance the assessment of early-grade learning outcomes. Despite the global emphasis on early childhood education investment, this study underscores the importance of rigorous research methodologies to accurately gauge its impact, inform future policy, and practice in this critical area of education and child development.

## I. INTRODUCTION

The education system in Malawi comprises pre-primary, primary, secondary and tertiary levels. There are both publicly and privately run education institutions at each level. Some privately institutions are run by religious bodies and there are also both boarding (residential) and non-residential institutions. This is true for primary, secondary and tertiary levels, while pre-primary is solely non-residential. The origin of pre-primary education is as old as the period before Malawi attained independence (Semu, *et al.*, 2022) and was given the names nursery schools (kindergartens) but was popularly known as ‘Sukulu ya Mkaka’ (in local language because a child was provided with a bottle of milk when being taken there or the institution provided milk to children while there), where mothers or home helpers took their 1 to 5 year olds early in the morning (around 8 am) and took them back home around 11am. The main purpose of pre-primary was to provide room for working mothers to go to work.

### ECD legal frameworks, strategies and guidelines in Malawi

Realizing the setbacks experienced at primary level particularly low performance, high dropout rates, and higher repetition rates in early grades at primary school level across the globe, pre-primary education has evolved with advocating for regulatory frameworks to govern and guide early child learning, culminating into Early Child Education, most countries like Malawi has adopted several ECD governing frameworks and guidelines.

According to GoM (2003), the acronym ECD refers to a comprehensive approach to policies and programmes for children from birth to eight years of age, their parents and caregivers. GoM points that the purpose of ECD is to protect the child’s rights to develop his/her full cognitive, emotional, social and physical potential (The State of the World’s Children, UNICEF, 2001 cited by GoM, 2003). In 2003, the Government of Malawi noting that Malawi has had no substantive policy on

the provision of care and support for early childhood. In order to integrate the Government agenda of poverty reduction into all sectors of life, the government of Malawi saw it necessary to develop a policy for the care, support, survival, growth and development for the Malawian child and investing in early childhood to reduce inequalities rooted in poverty and social discrimination in society by enabling all children a fair and sound start in life so that the future of the Malawian nation shall then be on a sound and solid foundation. The Government of Malawi put up an ECD policy in 2003 in recognition of various conventions and other legal human rights instruments like the CRC, CEDAW, the Dakar Declaration on Children’s Rights on Education, OAU Charter, among others, to which the Malawi Government is a signatory. The ECD policy seeks to provide guidelines and coordination of ECD activities and the enhancement of support and investment to ECD programmes in Malawi. Since then, several instruments and frameworks to support implementation of the policy have been developed. According to World Bank Group (2015), national policies and strategic plans are in place to promote ECD in all relevant sectors. While there are no specific laws guiding ECD policy, the GoM launched the National Policy on Early Childhood Development (2003, revised in 2006) and subsequently unveiled a National Strategic Plan for Early Childhood Development (2009 - 2014) to guide implementation of the national policy. Other official documents, including a Health Sector Strategic Plan (2011 - 2016) and a National Education Sector Plan (2008 - 2017), guide ECD policy and implementation in those sectors. A National Nutrition Policy and Strategic Plan (2009) guides government efforts to ensure the provision of adequate nutrition for pregnant women and young children. The Prevention of Domestic Violence Act (2006) as well as the National Registration Act (2010) promote child and social protection.

The World Bank Group indicates that Malawi’s ECD system is guided by the National Policy on Early Childhood Development (2006) and the National Strategic Plan for Early Childhood Development (2009 - 2014), as well as several other plans and guidelines. The Ministry of Gender, Children, Disability, and Social Welfare (MoGCDSW) implements ECD policies across sectors. Pre-primary education for 3 to 5 year olds is provided free of charge at public childcare centers, as are a range of essential health services available at public hospitals and health facilities. However, despite this well-defined structure, service



delivery suffers from poor quality. Over the years, the government through the Ministry of Gender, Children, Disability, and Social Welfare (MoGCDSW) and development partners particularly NGOs have promoted establishment of community run and owned ECDCs popularly known as Community-Based Child Care Centres (CBCCCs).

### **ECD/CBCCC enrolment in Malawi**

MoE/EMIS (2022), indicates that the Early Childhood Development (ECD) forms the basis for foundation in first grade of the primary education. There is generally low access to ECD and the provision of ECD is done by both private and public centers. The main challenge is the availability of data for decision making in the ECD. According to NSO (2018) Census projections, the total number of children aged between 3 to 5 is projected at 1,693,806 for the year 2022. MoE/EMIS further point out that the 2022 ASC collected data from the districts on the number of children enrolled in ECD centers across the country indicates that the number increased from 409,000 in 2020 to 524,893 in the year 2022 representing a 28 percent increase and using the 2021 data and the national projections, the GER for ECD in 2021 is 28%. ECD GER is the total enrolment, showing a general level of participation of in early grade learning education regardless of age expressed as a percentage of eligible official ECD-age population. In 2022, the GER for ECD stood at 31 percent, meaning that 69 percent of the ECD going population were not accessing early childhood education.

### **Role of Communities and Challenges in faced in ECD**

The ECD policy and other ECD guiding frameworks empower development stakeholders and communities to provide community based ECD services that meet the needs of infants and young children and include attention to health, nutrition, education and water and environmental sanitation in homes and communities (GoM, 2003). According to GoM, the approach promotes and protects the rights of the young child to survival, growth and development.

In a study by Munthali, *et al.* (2014), on role of communities in ECD, it was found that communities provide structures, support for care givers, and food, utensils, labour and play materials for the children in CBCCCs. The first ECD centre was established in 1966 but the real surge in establishing these happened towards the end of the 1990s and by 2007 there were 5,665 CBCCCs in

Malawi caring for 407,468 children aged between 3 and 5 years. CBCCCs were established to provide pre-primary school learning, and in some cases provide special care to orphans and other vulnerable. Children were provided with nutritious foods and subjected to play that stimulated their cognitive and mental development. They also noted that despite the fact that most CBCC premises and structures fell short of the standards laid down by the CBCCC profile, the activities and services provided were mostly to the book. In their study, they report that some members of the community do not realize the value of the CBCCCs, however the existence of these institutions is an opportunity for the community to take care of their children communally, a task that has become imperative as a result of the upsurge in the number of orphans as a result of the HIV and AIDS epidemic.

Shallwani, Amina, & Nyongesa (2018), in their exploratory study on The Quality of Learning and Care at Community-Based Early Childhood Development Centers in Malawi, examined the strengths and weaknesses in the quality of early childhood care and learning at selected community-based child care centers (CBCCCs) in Malawi to understand underlying challenges and opportunities that may be addressed to improve quality and ultimately children's outcomes. They systematically observed classroom environments and interactions at 12 CBCCCs, surveyed early childhood caregiver, and conducted in-depth interviews with key informants from the community. They observed that areas of relative strength at the CBCCCs included the physical environment, adult child interactions, and inclusiveness but the CBCCCs struggled substantially with the quality of learning and play opportunities; the availability of play and learning materials; and the quality of instruction for literacy, numeracy, and science. Other challenges found included the CBCCCs' reliance on unskilled and volunteer caregivers, lack of materials, lack of food for children, and lack of interest from parents in the CBCCCs however a fundamental strength the study found was awareness by communities and stakeholders the challenges and showed to be motivated and committed to improving quality at their CBCCCs, and had already taken actions to address specific problems.

Semu, Chimphero, Namondwe, and Nyirenda, (2022) in a study to understand factors that influence enrolment of children in ECDs at St. Teresa, a paying ECD in Lilongwe found that despite the centre having almost every



infrastructure, enrolment was very low. 41% of the parents do not send their children because they cannot afford to pay the fees while over 40% of the parents interviewed indicated that they do not have food to give their children as they go to the Centre. While 24% showed a lack of interest in their children attending ECD activities. They concluded that the low enrolment in ECD Centres around the area is because of a larger lack of interest for parents to send their children. In addition, many parents in this area have a perception of free things hence they were not ready to invest cash for their children.

### **Rationale for Investing in Early Childhood Development Education and study rationale**

According to Hyde and Kabiru (2003), there are three broad strands of evidence or theories that support the investments in ECD. First strand is based on the fact that the period up to 8 years of age is of supreme importance for emotional, intellectual and social development, that interventions at this stage can have strong and lasting impacts on the health and welfare of adults and that opportunities foregone at this stage can rarely be made up for at later stages, while second strand is the growing research/knowledge base that demonstrates that children who have experienced ECD interventions, or at a minimum pre-primary schooling, do better in school than those who have not. Specifically, those children who attend ECD programs are more highly motivated, perform better and get on better with their classmates and teachers. ECD graduates are therefore less likely to drop out or to repeat. Therefore, the cost of their schooling is reduced and primary and even secondary education is more cost-effective. Thus, ECD in itself can spur educational participation in a region of the world that lags behind on most educational indicators, and the third strand is the non-educational impact of ECD that leads to better employment records, increased family formation and a reduced likelihood of engaging in criminal activities. Further, the evidence is strong that these effects are greater for girls and children from poor or disadvantaged communities. Consequently, ECD can have a generalised positive impact on economic development and the reduction of gender, income and cultural inequities.

The theory of early child learning and stimulation traces from neuroscience research, which shows that during the early years of a child's life - from birth until around six years - the child's brain has extraordinary capacity for learning. By the time a child is six, the same time most early childhood education programmes end, their brain

has already reached about 90% of its adult volume (Stiles and Jernigan, 2010; Shuey and Kankaraš, 2018). That being the case, UNICEF (2019), points out that early childhood education and care therefore spans a critical window for development, which sets the foundation for later success in school, career and life. UNICEF (2019) and OECD (2017) argue that high quality early childhood education and care has been shown to provide a wide range of benefits for individual children – especially the most disadvantaged, amongst which include supporting social and emotional well-being, lowering risks of school dropout and even contributing to higher learning and employment outcomes later in life. In addition, children's participation in early childhood education and care also offers greater opportunities for mothers and other caregivers to participate in the workforce, thus, increasing household earnings and breaking stubborn vicious cycle of intergenerational poverty.

Investing in early childhood education and care and ensuring universal access to quality services is not only one of the most effective ways to reduce inequities, it is also one of the most *efficient*. Investments in early childhood education are particularly important for promoting equity. Research shows that disadvantaged children can benefit the most from high-quality early childhood education and the returns from interventions that take place during a child's "development window" are more significant than those that occur later on (OECD, 2017).

ECDs/CBCCCs as platforms for pre-primary learning and development is a field that has attracted the global attention recently. The throng of huge investments in ECD by philanthropists lately has attracted a lot of researchers who would like to understand if the investments are paying any dividends. Being new, the impact of ECDs/CBCCCs on child development and learning has not been extensively explored or studied. Few studies that have been done have focused on the impact of ECDs/CBCCCs on child development and learning at that level. While the essence of ECDs/CBCCCs is to prepare the child for primary school learning, the few studies that have been done locally on impacts of ECDs/CBCCCs on early grade child learning outcomes have not stressed on empirical evidence.

### **OBJECTIVES OF THE STUDY**



The research study sought to determine the impacts of child participation in ECD Centres/CBCCCs on early grade (Standard 1) learning outcomes. Specifically, the study aimed to determine the performance of children transitioned from ECDs/CBCCCs to early grades (Standard 1) in Primary Schools in comparison to non-ECD/CBCCCs, and determine the promotion and repetition rates in early grade (Standard 1) for children transitioning from ECDs/CBCCCs in comparison to non-ECDs/CBCCCs.

### Research Question (s)

The research study was guided by two key research questions, both of which emanate from the two specific objectives and are: What is the performance of early grade pupils that participated in ECD/CBCCCs in comparison to non-ECD/CBCCCs? In addition, what are the promotion and repetition rates of early grade pupils that participated in ECD/CBCCCs in comparison to non-ECDs/CBCCCs?

### Importance of the study and its findings

The research study findings are of value in three fronts. First, the research was conducted for academic purpose so that the researcher is awarded a Master of Art in Community Development by the university. Secondly, the findings will add to the body of empirical evidence on the impact of ECDs/CBCCCs in early grade performance, retention, and promotion. Thirdly, the findings will provide grounds for policy advocacy/debate at local and national level to enhance child participation in ECDs/CBCCCs

### SCOPE OF THE STUDY

The research study sought to determine and understand the performance (end of year examination scores in numeracy and language) of early grade (Standard 1) pupils that transitioned from ECDs/CBCCCs in comparison with those that did not. The study also purports to determine the promotion and repetition rates of early grade pupils that transitioned from ECDs/CBCCCs in comparison to those that did not. The study managed to draw a sample of 304 early grade examination records from end of year examination records in 10 primary schools in TA Zilakoma in Nkhata bay district in Northern Region in Malawi

## II. Materials and Methods

### Population of the study

According to Scheaffer, Mendenhall III, Ott, and Gerow, (2012), target population for a study is a

collection of elements, individuals, units about which a research wants to study and to make an inference. The study focused on early graders (Standard 1) in 10 primary schools, head teachers, early grade teachers in the primary schools. The study was conducted in Traditional Authority Zilakoma in Nkhata bay in Northern region of Malawi.

### Sampling Procedure (s)

The term sample means a specimen or part of a whole (population) which is drawn to show what the rest is like (Naoum, 2007) and sampling is the process of choosing or selecting a specimen from the whole lot. The two main sampling techniques include probability and non-probability. A probability sample is selected randomly where each unit of the population has an equal or known chance of being selected while a non-probability sample is not randomly selected implying that some units in the population are more likely to be selected than others (Bryman, 2004). The types of probability sampling include simple random sampling, systematic random sampling, stratified random sampling and cluster random sampling. Examples of non-probability sampling include: haphazard sampling (haphazard sampling), quota sampling, snowball sampling, deviant-case sampling, sequential sampling and theoretical sampling. Another strategy for selecting a sample is through census.

### Sampling methods

The study employed a simple random probability sampling. A sampling frame of all primary schools in the TA were prepared and 10 primary schools were selected randomly without replacement by running a sampling code in STATA 17 (a statistical software). According to Scheaffer, Mendenhall III, Ott, and Gerow, (2012), a sampling frame is a list of items or units from which a researcher selects a sample representative of the units, individuals or items or a list of sampling units and a sample is part of the population a research would like to study. Sampling of head teachers, and early grade teachers were done purposively.

### Sample size (s)

Two samples were drawn for the research study. These were primary schools, early graders (Standard 1 pupils). The samples were drawn from infinite (unknown size) population of primary schools, early graders (Standard 1 pupils). As the study aimed to determine differences in mean performance of early graders in numeracy and language (English) between early graders



transitioned from ECDs/CBCCCs and non-ECDs/CBCCCs, differences in proportions in retention and promotion between the same categories, formulae for computing sample size for two independent samples to estimate mean and proportion as developed by Cochran were adopted however, sample sizes for primary schools were arbitrary arrived at. 5 primary schools and 2 ECDs/CBCCCs (making a total of 10 ECDs/CBCCCs) around each primary school will be randomly selected as explained in sampling procedure section

Sample size for early graders

$$n_0 = \frac{Z^2 * P * Q}{e^2}$$

Where:

$n_0$  is the desired sample size

Z is the Z-score corresponding to 95 % level of confidence, 1.96

P is the estimated proportion of an attribute that is present in the population, assumed to be 0.5

Q is  $1 - P$

e is the margin of error acceptable in estimates by the researcher, the proposing researcher would accept a margin of error of 0.05

***Fitting the above figures in the formula, a sample size of 384 early graders is arrived at. This is the total sample size for both ECD/CBCCC and non-ECD/CBCCC early graders.***

### III. DATA SOURCES AND DATA COLLECTION

The research study collected data from primary school end of year pupil examination records, that is, data were extracted from end of year examination records for the most recent past school year (that's 2022/2023). School heads and early grade teachers maintain these records. Perspectives qualitative data were collected from primary school head and early grade teachers,

#### Methods of data collection

Two methods were employed in collecting data for the research study. The first is abstraction from records. The data to determine and compare performance, promotion, retention and repetition between ECD/CBCCC and non-ECD/CBCCC early graders were abstracted (extracted) from end of year examination records maintained by school heads and early grade teachers in primary schools that were sampled. Of interest for the proposed study were end of term examination records for the

2022/2023 school year. The second method was Key Informant Interviews. Key Informant Interviews were conducted to collect qualitative data from primary school head and early grade teachers in primary schools that were sampled. They were interviewed to give their perspectives (based on their overall experiences) on the differences in the subject of the research study.

#### Tools for Data Collection

Two tools were used to collect data. The first was a form that was developed in MS Excel and was for abstracting data from end of year (third term) examination records for early grade learners in primary schools. The form was used for extracting data on performance, and promotion of early graders in 10 primary schools that were sampled (refer to Annex 1 for details on data that were extracted). The other tool was a guide checklists. Guide checklists are an unstructured questionnaires with open ended questions to capture data on areas of interest to the research one wants to explore on. The guide checklist was used for Key Informant interviews with primary school head and early grade teachers to collect data on perspectives with respect to performance, promotion, and repetition of pupils that transitioned from ECDs/CBCCCs and non-ECDs/CBCCCs (refer to Annex 4 for details on data that were captured). The researcher hired 3 graduates and trained them on the nature of the research study, data collection methods and tools. They were deployed to the study area and each was provided with names of sampled primary schools.

#### Data analysis and reporting

All data extracted in hard copy forms were entered in MS Excel, where the data were coded and exported to Statistical Package for Social Scientists for Windows version 26 and then saved as a STATA for Windows version 17 data file.

A number of methods were used to analyse the data. Analysis of data entailed describing, interpreting, and making judgments about the meaning of the findings in the subject context. Interpretation involved looking beyond the raw data, asking questions about what they mean, what the most significant findings are, and what conclusions and recommendations should be drawn from the findings in relation to the specific objectives of the research study. Descriptive statistical analysis on quantitative data were performed on data on children performance in early grade (Standard 1), promotion to the next grade, and repetition in early grade. Descriptive statistical analysis were



performed on numerical and coded categorical data to obtain survey means, median, totals and proportions, standard errors, confidence intervals (for numerical data), and frequency tables, cross-tabulations. Data visualization tools such as graphs – stacked graphs are used for categorical coded data to show insights on the research study specific objectives disaggregated by ECD/CBCCC and non-ECDs/CBCCSs and sex of early graders. Statistical tests have been performed and these are t-tests and Chi-square tests. T-tests have been performed to determine the difference in mean performance in numeracy, language; and differences in proportion in promotion rates and repetition rates between ECD/CBCCCs and non-ECDs/CBCCC early grade (Standard 1) pupils; and Chi-square tests have been performed to determine independence or association between promotion, and repetition whether a pupil transitioned from ECD/CBCCC or not and also with sex.

#### Limitations of the study

The research study has several limitations that are worth pointing out. It has not fulfilled some specific research objectives/hypotheses

- It was proposed that the study would collect data from ECD/CBCCs to determine transition rates however; this has not been done as data proved difficult to collect. Caregivers had no data
- Secondly, in the proposal it was indicated that the sampling design features of the data collection would be taken into account to make inference. This is not done. Data to establish appropriate population sizes was not available.
- In the proposal, it was indicated that dropout rates would be assessed, data that was provided had no appropriate classification on whether the dropout child transitioned from ECD/CBCC or not.

#### Ethical Consideration

Ethic means moral and right. An ethical person, from a Western perspective, is one who typically upholds justice, fairness, the preservation of relationships, and autonomy (Pojman, 2005 cited

by Croucher, and Cronn-Mills, 2015). Research ethics are guidelines for the responsible conduct of biomedical research; educates and monitors scientists conducting research to ensure a high ethical standard (Centre for Bioethics (2003).

In conducting the research study, the researcher and his agents abided by relevant professional and ethical guidelines and codes of conduct. These included informed consent, which was obtained from participants before the interviews. No participants (early grade teachers and head teachers) refused to participate in the study. Throughout the fieldwork period, the researcher and his agents followed the professional ethical behavioral guidelines, which included do no harm to respondents, clear introduction about the research, neutrality, and respect for respondent dignity, culture, voluntary participation, and data verification. In data analysis, all respondents' names have been kept confidential and anonymized, that is, data is not be shared with or revealed to anyone or any organisation and responses provided have been aggregated with responses from other individuals/respondents to show insights on each of the specific research study objectives. The researcher has also ensured honesty by citing all information sources (avoid plagiarism).

#### Study results and Discussions

In the next sections, I present and discuss the research study results or findings in order of the research specific objectives and/or hypotheses. I start with research study participants' demographics and then move on to specific research objective/hypotheses.

#### Early grade learners demographics

Data for the study was abstracted for 304 standard 1 learners/pupils. Fifty-three (53 %) percent (n = 160) of the learners whose data were abstracted from end of term examination results from class teacher records were females and 47 % were for male pupils. See Table 1for details.

Table 1: Sex of Early grade learners (Standard 1)

Sex of Pupil	Frequency	Percent
Female	160	53
Male	144	47
<b>Total</b>	<b>304</b>	<b>100</b>



### Primary schools of study

By primary school from which data for standard 1 learners were obtained, the 304 pupil end of third term examination results were from the following schools: 17 % (n = 53) Chihami, 12 % (n = 37) Binga, 10 % (n = 31) Vilimu, 10 % (n = 30) Kachikha, 9 % (n = 28, 27, 27) each from Hungani,

Hangala, and Chanyoli respectively; 8 % (n = 25) each from Katavu and Mdanda respectively and 7 % (n = 21) from Mzenge primary schools. Thus, Chihami contributed majority of the pupil records in the study followed by Binga and least was Mzenge. Refer to Figure 1 for details

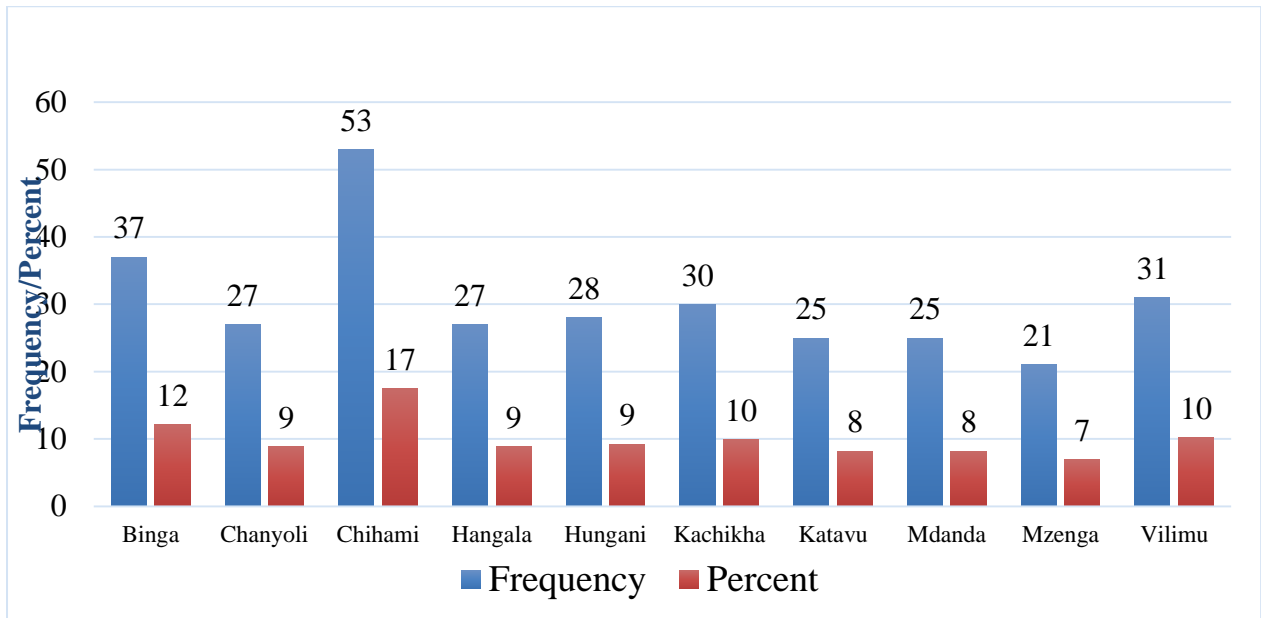


Figure 1: Distribution of early grade learners by primary school sampled

### Pupil origin- whether ECD/CBCC or Non-ECD/CBCC by Sex

Figure 2 shows the distribution of standard one pupil records by origin whether from ECD/CBCC or no-ECD/CBCC. Out of the total, 38 % (n = 116) were from ECD/CBCC and 62 % (n = 188) non-ECD/CBCC transitioning pupils.

Disaggregation by sex of pupil, 12 % of those who transitioned from ECD/CBCCs were males and 27 % females (discrepancy because of rounding off). Non-ECD/CBCC pupils, 36 % were males and 26 % females. Thus, more of the records were for non-ECD/CBCC pupils than those who had transitioned from ECD/CBCCs.



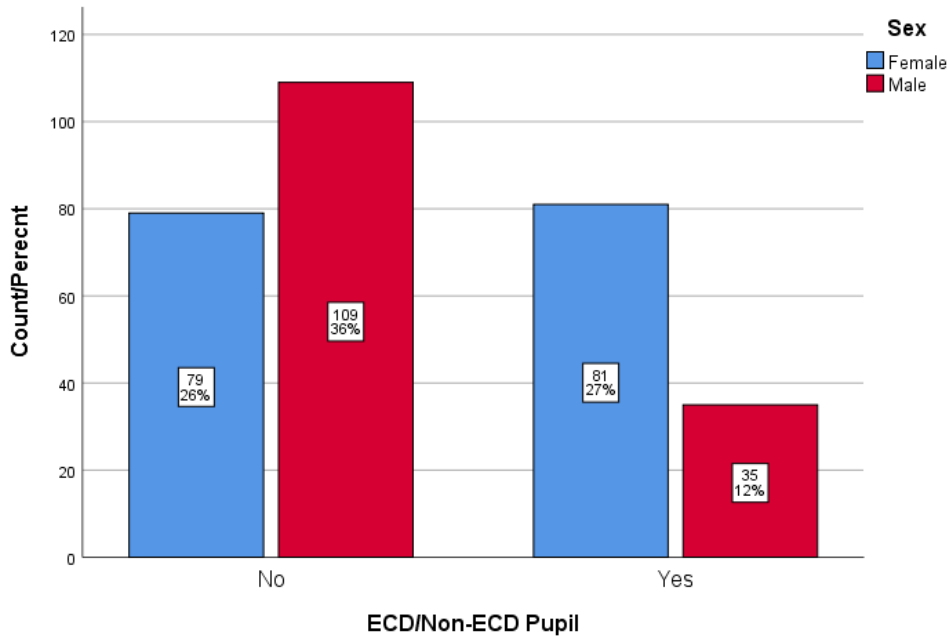


Figure 2: Origin of early grade learners (ECD/CBCC or non-ECD/CBCC) by sex  
**Pupil performance in Numeracy by origin (ECD/CBCC or non-ECD/CBCC)**

Table 2 shows summary statistics on pupil performance in numeracy by origin of pupil whether ED/CBCC transitioned or non-ECD/CBCC. Non-ECD/CBCC pupils scored 62.14 % in numeracy while ECD/CBCC transitioned pupils scored 60.82 % with standard deviation of 17.2 and 18.2 and standard error of the mean of 1.3 and 1.7 respectively. This shows that there were more variation in numeracy scores for pupils that transitioned from ECD/CBCC than those who had not.

An independent-samples t-test was run to determine if there are differences in mean score in numeracy between ECD/CBCC transitioning standard 1 pupils and non-ECD/CBCC. The results show that ECD/CBCC transitioning pupils score higher in numeracy ( $M = 62.14, SD = 18.2$ ) than non-ECD/CBCC pupils ( $M = 60.82, SD = 17.2$ ). This difference is insignificant ( $t(302) = -0.33, p = 0.52$ ).

Table 2: Early grade learners performance score in numeracy by origin

ECD/CBCC transition	Mean	Std. Deviation	Std. Error Mean
No (n = 188)	62.14	17.2	1.3
Yes (n = 116)	60.82	18.2	1.7

Table 3 shows summary statistics on pupil performance in numeracy by sex of pupil. Female pupils scored 61 % on average in numeracy while male pupils scored 61 % with standard deviation of 17.7 and 17.5 and standard error of the mean of 1.4 and 1.5 respectively. This shows that there were less differences in variation in pupil scores between the two groups.

An independent-samples t-test was run to determine if there are differences in mean score in numeracy between ECD/CBCC transitioning standard 1 pupils and non-ECD/CBCC. The results show that female pupils score higher in language ( $M = 62.18, SD = 17.7$ ) than male pupils ( $M = 61.03, SD = 17.5$ ). This difference is insignificant ( $t(302) = 0.567, p = 0.57$ ).



Table 3: Early grade learners performance score in numeracy by sex

Sex	Mean Score	Std. Deviation	Std. Error Mean
Female (n = 160)	62.18	17.7	1.4
Male (n = 144)	61.03	17.5	1.5

#### Performance scores in language by pupils

Table 4 shows summary statistics on pupil performance in language by origin of pupil whether ED/CBCC transitioned or non-ED/CBCC. Non-ED/CBCC pupils scored 58.30 % in language while ECD/CBCC transitioned pupils scored 58.92 % with standard deviation of 15.3 and 17 and standard error of the mean of 1.1 and 1.6 respectively. This show that there were more variation in numeracy scores for pupils that

transitioned from ECD/CBCC than those who had not.

An independent-samples t-test was run to determine if there are differences in mean score in language between ECD/CBCC transitioning standard 1 pupils and non-ED/CBCC. The results show that ECD/CBCC transitioning pupils score higher in language ( $M = 58.92, SD = 17$ ) than non-ED/CBCC pupils ( $M = 58.30, SD = 15.3$ ). This difference is insignificant ( $t(302) = -0.33, p = 0.75$ ).

Table 4: Early grade learners performance score in language by origin

ECD/CBCC transitioning	Mean	Std. Deviation	Std. Error Mean
No (n = 188)	58.30	15.3	1.1
Yes (n = 116)	58.92	17.0	1.6

Table 5 shows summary statistics on pupil performance in language by sex of pupil. Female pupils scored 58.71 % on average in numeracy while male pupils scored 58.35 % with standard deviation of 15.7 and 16.3 and standard error of the mean of 1.4 and 1.5 respectively. This shows that there were less differences in variation in pupil scores between the two groups.

An independent-samples t-test was run to determine if there are differences in mean score in numeracy between ECD/CBCC transitioning standard 1 pupils and non-ED/CBCC. The results show that female pupils score higher in language ( $M = 62.18, SD = 17.7$ ) than male pupils ( $M = 61.03, SD = 17.5$ ). This difference is insignificant ( $t(302) = 0.567, p = 0.57$ ).

Table 5: Early grade learners performance score in language by sex

Sex	Mean	Std. Deviation	Std. Error Mean
Female (n = 160)	58.71	15.7	1.2
Male (n = 144)	58.35	16.3	1.4

The findings non-significance difference in early grade performance in numeracy by early grade learners transitioning from ECD/CBCC and non-ED/CBCC contradicts what others had found on similar studies, for example Mitchell, Wylie, and Carr (2008) in literature review on Outcomes of Early Childhood Education in New Zealand and other large international studies found consistent positive gains associated with children participation/attendance in ECE particularly better performance in mathematics and literacy. They report that medium to large effect sizes on the outcome measures have been reported in United States (U.S.) “intervention” studies targeting

children from low-income families, and combining good quality ECE with parenting support/education ( $d=0.32$  to  $0.81$  for mathematics in the short term,  $0.19$  to  $0.44$  long term;  $0.34$  to  $0.89$  for reading in the short term,  $0.17$  to  $0.44$  long term). Small to medium effect sizes from ECE participation were found in studies reporting on everyday ECE experiences ( $d=0.10$  to  $0.23$  for mathematics in the short term,  $0.02$  to  $0.23$  for reading).

Similarly, the insignificant performance differences between male and female early graders between both male and female early graders in this study are in contradiction to what Mitchell, Wylie, and Carr (2008) in a literature review on Outcomes



of Early Childhood Education in New Zealand and other large international studies found. They found gender differences in three studies and showed mixed differential gains for boys compared with girls, with boys gaining more than girls on early number concepts over the time of ECE attendance in the English EPPE study despite having (boys) lower home learning environment scores (measured by parent reports of activities such as playing with letters and numbers, going to the library, reading to the child) than girls.

On the other hand, Taylor (2021), in conducting Evaluation of 'M'mera Mpoyamba/Planting the seed' - Investing in Early Childhood Development Programme in Malawi using a panel of ECD going children across Centres found little significant difference between boys and girls across centres, except for one centre, where girls out-performed boys in numeracy skills gain from the baseline (2018). Other studies, e.g Berlinski, Galiani, and Gertler (2006) in Argentina found found out that one year of pre-primary standard 1 pupils had been promoted to grade 2 while 52 % had been retained (repeated) in standard 1

school increases average third grade test scores by 8 percent of a mean or by 23 percent of the standard deviation of the distribution of test scores. Sabola (2016) in a similar study in Blantyre, Malawi found that promotion rate was higher for ECD centre graduates than for non-ECD centre graduates while repetition rate were lower for ECD centre graduates than for non-ECD centre graduates.

The results are such because of the differences in data collection approaches. This study used secondary data through abstraction from end of year examination records, which may not be the most appropriate for early grade performance assessment

### Pupil promotion to grade 2

Table 6 shows the distribution of standard 1 pupils that had been promoted to grade 2 in the primary schools where data on end of term examination results were obtained. The results show that 48 % of the

Table 6: Distribution of Early Grade learners promoted to Grade 2

Promoted to Grade 2	Percent
No (n=159)	52
Yes (n = 145)	48
<b>Total</b>	<b>100</b>

Disaggregated data on promotion to grade 1 is presented in Figure 3, which is a bar graph showing the distribution of promotion of early grade (standard 1) pupils to grade. Those who had been promoted to grade 2, 26 % (n = 78) were females and 22 % (n = 67) and those who were retained, 27 % (n = 82) were females and 25 % (n = 77) were males.

A chi-square test of independence was performed to examine the relation between sex of pupil and promotion from grade 1 to grade 2. The results show that there is an insignificant relation between these variables,  $X^2(1, N = 304) = 150, p = 0.699$ . This imply that promotion and sex of pupil are independent of each other, that is, promotion does not dependent of sex of the child.

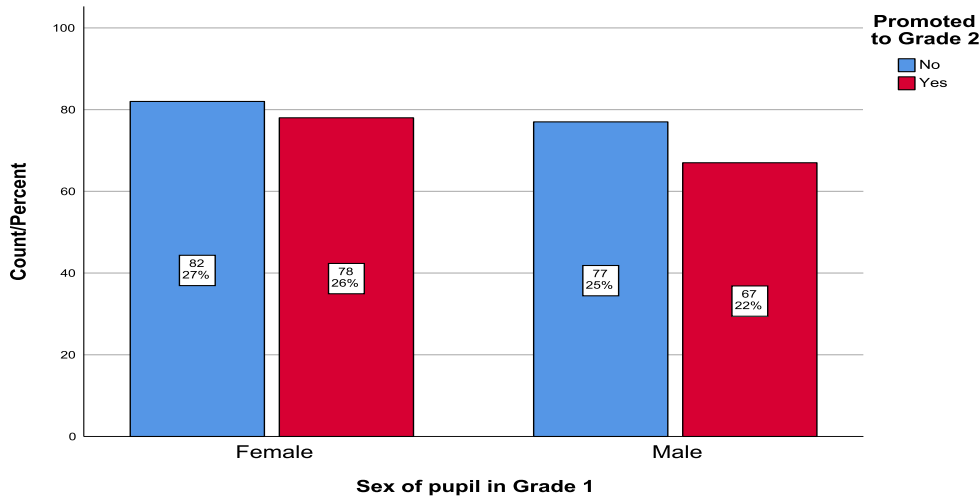


Figure 3: Association between Early grade learner promotion and sex

**Pupil origin (ECD/CBCC or non-ECD/CBCC) and pupil promotion**

Figure 4 is a bar graph showing distribution of pupils promoted to grade 2 and origin (whether the child transitioned from ECD/CBCC or not. The results show that 32 % (N = 188) of those who were promoted to grade 2, did not transition from ECD/CBCCs and only 16 % (N = 116) did transition from ECD/CBCCs.

A chi-square test of independence was performed to examine the relation between transitioning from ECD/CBCC and pupil promotion to grade 1. The relation between these variables is found to be insignificant,  $X^2 (1, N = 304) = 2.238, p = 0.135$ . This shows the two variables are independent of each other, implying that promotion to grade 2 is not dependent on a children transitioning from ECD/CBCC or not.

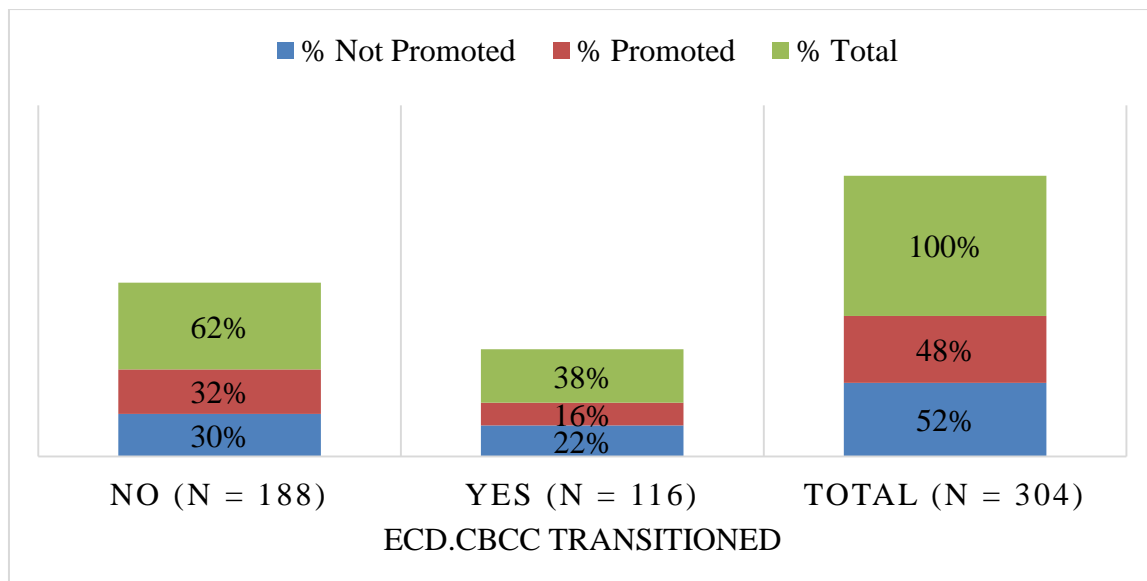


Figure 4: Association between promotion and early grade origin

**Early grade (Standard 1) pupil repetition rate and origin**

Table 7 shows summary proportion statistics on early grade pupil repetition by origin

(whether pupil transitioned from ECD/CBCC or not). The results show that 49 % (N=188) of pupils who were non-ECD/CBCC repeated standard 1 while 58 % (N = 116) from ECD/CBCCs repeated



standard 1. Both groups of pupils had an equal standard deviation (0.05) and a correspondingly equal standard error of the mean (0.04 and 0.05 respectively).

An independent sample proportional test was ran to determine if there are differences in mean proportion in repetition rate between ECD/CBCC

and non-ECD/CBCC pupils shows that more pupils who transitioned from ECD/CBCCs repeated standard 1 ( $M = 0.58$ ,  $SD = 0.50$ ) compared to those that did not ( $M = 0.49$ ,  $SD = 0.50$ ). This difference not significant ( $t(302) = -1.497$ ,  $p = 0.136$ ). This means that repetition rate between ECD/CBCC transitioning early graders is not difference.

Table 7: Early grade learn origin and repetition and origin

ECD/CCC transition	Mean	Std. Deviation	Std. Error Mean
No (n = 188)	0.49	0.50	0.04
Yes (n = 116)	0.58	0.50	0.05

The findings on insignificant difference between ECD/CBCC transitioned and non-ECD/CBCC early grade learners on promotion to the next class is in contradiction to what Sabola (2016), in a study to ascertain claims by community members that graduates from ECD Centres perform better in primary school than non-graduates, he/she studies performance of children in 4 purposively sampled primary schools that enrolled more ECD Centre graduates in Grade 1 in Blantyre district. He/she tracked performance of 943 children, of which 159 were ECD centre graduates in which found that promotion rate was higher for ECD centre graduates than for non-ECD centre graduates.

#### Early grade (Standard 1) pupil repetition rate and sex

Table 8 shows summary proportion statistics on early grade pupil repetition by sex of pupil (male vs female). The results show that 51% ( $N=160$ ) of pupils who were females repeated standard 1 while 53 % ( $N = 144$ ) males repeated standard 1. Both groups of pupils had an equal standard deviation (0.05) and equal standard error of the mean (0.04 and 0.04 respectively).

An independent sample proportional test was run to determine if there are differences in mean proportion in repetition rate between female and male pupils shows that more pupils who were males repeated standard 1 ( $M = 0.53$ ,  $SD = 0.50$ ) compared to females ( $M = 0.51$ ,  $SD = 0.50$ ). This difference not significant ( $t(302) = -0.386$ ,  $p = 0.70$ ). This means that repetition rate between female and male early graders is not difference.

Table 8: Early grade learn origin and repetition and sex

Sex of pupil	Mean	Std. Deviation	Std. Error Mean
Female (n = 160)	0.49	0.50	0.04
Male (n = 144)	0.47	0.50	0.04

#### Association between early grade pupil repetition in Standard 1 and ECB/CBCC transitioning

Figure 5 shows the distribution of early grade learners, who repeated grade 1 and their origin whether the pupil transitioned form ECD/CBCC or not. The results show that 22 % ( $n = 67$ ) of early grade learners who repeated grade 1 were from ECD/CBCCs and 30 % ( $n = 92$ ) were not from ECD/CBCC. In contra, early grade learners who did not repeat grade 1, 16 % ( $n = 49$ ) were from ECD/CBCCs and 32% ( $n = 96$ ) were not from ECD/CBCCs

A chi-square test of independence was performed to examine the relation between transitioning from ECD/CBCC and pupil repetition in grade 1. The relation between these variables is found to be insignificant,  $X^2(1, N = 304) = 2.238$ ,  $p = 0.135$ . This shows the two variables are independent of each other, implying that pupil repetition in grade 1 is not dependent on a children transitioning from ECD/CBCC or not.

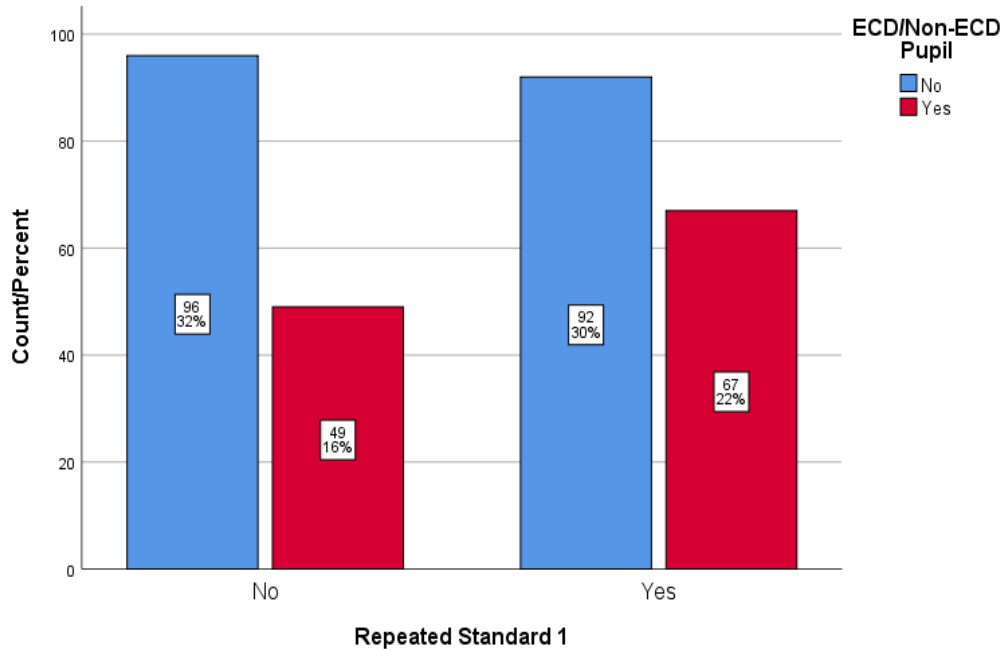


Figure 5: Association between early grade pupil repetition in Standard 1 and ECB/CBCC transitioning  
**Association between early grade pupil repetition in Standard 1 and Sex**

In Figure 6 are summary statistics on association between early grade pupils repeating class and sex. From the table, it is observed that 52 % pupils repeated grade 1 and 48 % did not repeat. 25 % of those who repeated were females and 27 % were males.

A chi-square test of independence was performed to examine the relation between sex and

pupil repetition in grade 1. The relation between these variables is found to be insignificant,  $X^2(1, N = 304) = .150, p = 0.70$ . This shows the two variables are independent of each other, implying that pupil repetition in grade 1 is not dependent on sex of the pupil.

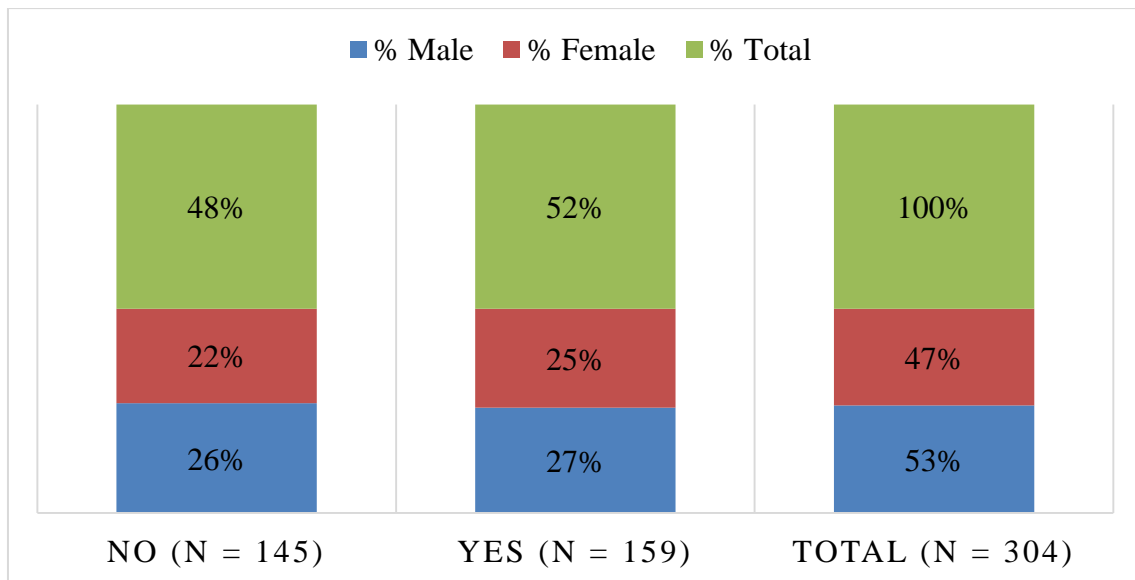


Figure 6: Association between early grade pupil repetition in Standard 1 and Sex



The finding of insignificant difference between early grade learners transitioned from ECD/CBCC and non-ECD/CBCC contradicts what Sabola (2016) in hi/.her study He/she found that repetition rate was lower for ECD centre graduates than for non-ECD centre graduates

#### IV. CONCLUSIONS AND RECOMMENDATIONS

The research study on impact of ECD/CBCC participation on early grade (standard 1) learning outcomes has found that early grade learners transitioning from ECD/CBCC performance in numeracy and language is not different from those that did not. It has also established that there are no differences in numeracy and language performance between male and female early grade learners. The study has further found that promotion and repetition rates are not different between early grade learners who transitioned from ECD/CBCC and those that did not and both promotion and repetition are independent of sex of the early grade learner. In future similar research, there is need to adopt appropriate primary data collection method particularly the International Development Early Learning Assessment (IDELA) tools to determine early grade learners performance in numeracy and language. IDELA is a methodology and tools that have been adopted to collect primary data to assess impact of early childhood education interventions on early grade learning outcomes.

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