

# Home-based Factors Associated with Competencies in Literacy Among Learners in Primary Three and Four in Uganda

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## Abstract

This study investigates the home-based factors associated with children's competencies in literacy among primary three and four children in Uganda. It identifies and analyses the various factors within the home environment that may enhance the development of literacy skills in children. This study utilized the Uwezo secondary data of August 2021 on basic literacy assessment conducted on children aged 4-16 across 29 districts. The literacy assessment centered on pre-literacy and literacy skills in English language focusing on their ability to identify letters/sounds, read short words, read sentences, read a story and comprehension. This study also identifies key home-based factors such as parental involvement, socio-economic status, parent level of education and access to educational resources that may impact children's performance in literacy. Findings reveal that the education level of the household head, source of lighting, possession of radio and television are highly significant with  $p$ -value  $< 0.05$  in fostering literacy competencies among children. The findings of this study could inform the development of targeted literacy interventions within the home-based environment as well as policies to enhance children's learning outcomes in Uganda.

**Keywords:** Home-based factors, children's competencies, literacy, learning assessment

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## 1. Introduction

Literacy plays a crucial role in education, enabling individuals to effectively communicate, understand their surroundings, and actively participate in society (Wu et al 2022; Ng et al. a, b, 2022). Harn et al., (2015) highlight the positive relationship between improved literacy skills and academic success, as well as enhanced long-term health outcomes. Proficiency in reading, writing, and mathematics not only form the foundation of learning but also contributes to overall quality of life, personal well-being, national stability, and prosperity (OECD 2018)

However, children often face limited learning opportunities in acquiring literacy skills during their early stages of education, which may lead to future academic setbacks and diminished motivation for schooling, thereby perpetuating a cycle of underachievement in school (Ball 2014). Numerous studies illustrate the gravity of this learning challenge. For example, in India, nearly half of grade 5 children struggle to read a second-grade text, indicating that almost half of school children fail to attain the basic literacy skills after five years of schooling (ASER, 2010). Similarly, in Peru, only half of grade 2 children demonstrate any basic reading ability (Crouch, 2006). Math results are equally concerning, with only 37 percent of fifth-grade children in India being able to perform simple division, and in Pakistan, only half of third-grade students can answer very basic multiplication questions (Das et al., 2006).

According to UIS and EFA GMR (2014a), reports, globally, 58 million primary school-age going children, approximately 43% of whom are girls, are out of school, and if current trends persist, around 15 million girls and 10 million boys will likely never have the opportunity to enter a classroom. Sub-Saharan Africa also accounts for a significant portion of the 30 million out-of-school children, indicating the urgent need to address this issue.

The World Bank's Education Strategy from 2000 underscores the importance of providing a basic education of adequate quality and equipping individuals with foundational skills, including literacy, numeracy, reasoning, and social skills (Perlman, 2011). While efforts have been made to improve literacy rates among children, through increased World Bank's lending to primary and secondary education, with a focus on Sub-Saharan Africa, there remains a gap in terms of enhancing learning outcomes and employment prospects (Majgaard & Mingat, 2012). Additionally, while enhancing school enrolment and promoting educational equity are crucial, equal attention must be given to ensuring the quality of education and equipping children with the necessary skills for their future success.

Uganda has made significant progress in improving access to basic education since the adoption of the Millennium Development Goals (MDGs) in 2000. The government has implemented various initiatives to

expand access to education through the provision of free primary education and over the years has increased budgetary allocations to the education sector. Similarly, efforts to increase investment in education have focused on improving learning infrastructure, teacher training, curriculum reforms, teacher recruitment and retention (Datzberger, 2018). The Uganda National Survey conducted between 2019 and 2021 also revealed a noteworthy improvement in the literacy rate for children aged 10 years and above, reaching an estimated 76 percent from the 74 percent reported in the 2016/17 survey. Notably, the literacy rate exhibited a gender disparity, with males boasting a higher rate of 81 percent compared to females at 72 percent in the 2019/20 period (UBOS, 2021). Delving into age-specific findings, a significant positive trend was observed among children aged 6-12 years, with an impressive 91 percent literacy rate. Meanwhile, the literacy rate for those aged 13-18 years stood at 79 percent, reflecting a commendable achievement in fostering educational development within these age brackets (UBOS, 2021). These findings underscore the progress made in literacy efforts in Uganda, while also emphasizing the need for targeted initiatives to address gender disparities and ensure sustained improvement across all age groups.

Additionally, the challenges regarding equity, quality, and completion rates persist. These are reflected by high pupil-teacher ratios, inadequate learning infrastructure, lack of teaching materials, and insufficient well-trained teachers, along with other factors such as poverty, early marriages, child labour, and inadequate learning environments, that have contributed to high dropout rates and hindered progress in basic education.

Despite the increased enrolment of children in many developing countries, the actual impact on literacy achievement remains largely unknown due to limited surveys on learning outcomes during schooling. Research by Mugo et al. (2015) highlights the challenge developing countries currently face due to the fact that traditionally they have relied either on the number of years spent in school or the highest level of education completed as indicators of literacy. However, such measures tend to focus on school attendance rather than evaluating acquisition of competencies which may be unreliable and misleading when it comes to informing policy development and implementation. As such, UNESCO has emphasized the importance of evaluating and tracking of Basic Learning Competencies (Akala, 2021). In East Africa, significant gaps in basic education and literacy competencies persist among learners in many schools (Uwezo, 2014).

While previous studies by Allington and McGill (2014), Jiménez and Pearson (2003), and Neuman and Celano (2001) primarily emphasize the role of the school environment in promoting learners' literacy, it is crucial to also acknowledge the significance of home-based factors in literacy promotion. Studies by Halle et al. (2012), Sénéchal and LeFevre (2002), and Baker and Scher (2002), suggest that home-based factors have often been overlooked or given insufficient attention in literacy promotion strategies. Furthermore, according to the World Bank Group Education Strategy (2020), increased investment in basic education has not translated into improved knowledge and skills acquisition among children. This discrepancy calls for the need to explore the factors beyond schooling that may contribute to children's competencies.

Therefore, the objective of this study was twofold: (i) to identify the home-based factors that may promote literacy among primary three and four children, and (ii) to assess the extent to which these factors influence the learning outcomes in literacy of primary three and four children. This study therefore aims to shed light on the importance of home-based factors in enhancing literacy outcomes, while taking into account their potential impact on children's overall competencies in basic literacy in English.

## 1.1 Definitions

*Home-based factors for learners* refer to the various elements and influences within a child's home environment that may contribute to their acquisition and development of literacy skills. These factors can encompass a wide range of aspects, such as parental involvement/support, access to books and resources, socioeconomic status, family support, language exposure, and the overall learning climate within the home.

*Literacy competence* refers to the ability to correctly perform oral tasks in reading and comprehension, in a given language.

*Parental involvement* -The concept of parent involvement is most frequently found in the literature in the context of parent activities related to the child's schooling, such as providing support to children towards homework and supervision, or volunteering at the child's school (Hoover-Dempsey & Sandler, 1997).

## 2. A review of related Literature

This section presents a variety of related literature on home-based factors and literacy.

### 2.1. Home-based factors and children's literacy competencies

Research indicates that the homebased environment significantly shapes the development of children's literacy skills (Sénéchal & LeFevre, 2002; Senechal & LeFevre, 2014). This is hinged in the Social Cultural Theory (SCT) advanced by Lev Vygotsky (1978), which is largely influenced by Piaget's views that the relationship between human beings and their environment, both physical and social aspects are critical. The social cultural

theory (SCT) further promotes the concept of zonal proximal development, which emphasizes the importance of social and cultural factors on children's development and learning. This underscores the fact that children can learn and solve problems as well as achieve by themselves at one level and also at higher level when working under the guidance of an adult or a more able peer. Thus, the SCT emphasizes the interrelatedness and interdependence in learning and development. This SCT also supports the idea that a child's home life is of paramount importance in shaping their literacy development (Prior & Gerard, 2007 in Kemal, 2011). Thus, children who are not supported at home in literacy and language development from an early age may fall behind their peers prior to entering school. Vechten, (2013) suggest that parental involvement and support have long been recognized as an influential factor in children's academic performance. When parents actively engage in their children's education, it fosters a sense of importance and motivation in children. Studies have also shown that parental involvement, such as reading to children, helping with their homework, and maintaining communication with teachers, may positively impacts their academic achievements (Barnard, 2004; Dearing et al., 2006; McWayne et al., 2004; Uganda Education Policy, 2016). However, the extent and nature of parental involvement may vary depending on their cultural, socioeconomic, and educational backgrounds.

The Ecological Systems Theory (EST) advanced by Urie Bronfenbrenner (1979), further reveals that the development of children is affected not only by factors within the child but also by their family and surrounding world in terms of social, political, biological, and economic conditions. Thus, the rationalization of parent involvement is critical. Furthermore, EST also emphasizes that one of the proximal processes a child interfaces with in their development, the child's exo-system that involves interaction with extended family members, parents' workplaces, local school boards, and the media are also vital influences of the child development. This argument is further made for the chronosystem which refers to change or consistency over time in the life of a person and how it influences child development including their learning. EST also reveals that, changes in family structure over time, such as its demographic characteristics have significant effects on a child's development. Whereas less prominence is made on the influence of these systems on the cognitive development of the child, they may play significant roles to the different players that either have a direct or indirect role in children's learning which we consider in this study. The home-based factors that influence learners' literacy include but are not limited to socioeconomic factors, parental involvement, and home language use.

## **2.2. Socio economic factors and children's competencies in literacy**

The literacy skills of individuals can be affected by various socioeconomic factors, including parental education, income, and available resources, which, in turn, influence the home environment (Chaney 1994 and Raz 1990). Similarly, some studies found that lower social economic status (SES) is associated with poor school achievement (Malecki & Demaray, 2006; Marks, 2006; Toutkoushian & Curtis, 2005) and hence, children are at risk of developing reading difficulties (D'Angiull et al., 2004; Whitehurst 1998; Korat 200; and Chandler 2000). A higher SES is often associated with better access to literacy resources, educational opportunities, and a supportive learning environment (D'Angiull et al., 2004; Chandler 2000; Korat 2007; Rwamwenge et al., 2020); and Whitehurst 1998; hence, better learning outcomes. Parental education has further been identified as a key determinant of variations in children's learning achievement (Sumida & Kawata, 2021).

Numerous studies have also explored the impact of socioeconomic factors on children's language and literacy skills across diverse socio-economic contexts (Hotz & Pantano, 2015; Hartas, 2011; Hanushek et al., 2015; Morrow, 2015; Muganga, 2018; Xiao, 2022; Niklas & Schneider, 2017; Sénéchal & LeFevre, 2002). Numerous research additionally reveals that household income can influence children's academic performance, with disparities associated with earnings (Hanushek et al., 2015). Children from economically disadvantaged backgrounds may face challenges in accessing quality education and essential resources at home that potentially may hinder their academic performance (Uganda National Household Survey, 2020).

Thus, understanding the relationship between socioeconomic status and educational outcomes is crucial for designing effective interventions to address these disparities. Studies have found that family income significantly impacts children's language and literacy development compared to other socio-economic factors (Hartas, 2011; Hotz & Pantano, 2015). However, some research has primarily focused on developed economies (Hanushek et al., 2015), while others have examined developing countries and highlighted the influence of parents' occupation on academic performance (Muganga, 2018).

It is worth noting that access to educational resources at home plays a vital role in children's literacy achievement. Household environments that provide diverse educational resources, including reading materials and digital resources, also have a positive impact on children's independent reading habits and language development (Morrow, 2015; Muganga, 2018; Niklas & Schneider, 2017; Sénéchal & LeFevre, 2002); and Xiao, 2022) Furthermore, Wu et al., 2022 underscore the increasing importance of internet access and digital technologies for advancement of educational purposes.

### **2.3. Parental involvement and children's achievement in literacy**

Exploring the role of parents in a child's literacy development reveals its significant impact. According to the research conducted by various scholars (Martínez et al., 2010; MEC 2010; Ruiz de Miguel 2001), suggests that parents' higher level of education can positively affect their children's academic performance. For example, family involvement, such as supervising children's activities (Hotz and Pantano 2015; Martínez et al., 2010; Pérez 2013) and dedicating time to their education (Da Cuña Carrera et al., 2014), has been shown to play a significant role. Consistently, parental involvement has shown a positive association with improved literacy outcomes. Parental engagement in activities like reading aloud, discussing books, and participating in literacy-related conversations offers valuable support and serves as a model for developing literacy skills (Baker & Scher, 2002; Desforges & Abouchar, 2003); Eke 2011; Flouri & Buchanan, 2002; Niklas & Schneider, 2013; Sénéchal & LeFevre, 2002; and Sénéchal & Young, 2008). As such, through shared reading experiences, vocabulary, comprehension, and fluency are enhanced and this tends to nurture a genuine love for reading.

Research also conducted by Okello et al., (2020), Mahuro & Hungu (2016), and Rugumamu (2019) indicates that active parental involvement, including providing support for learning activities and engaging in educational discussions, correlates with higher levels of motivation, improved self-esteem, and academic success of children. For instance, Mahuro and Hungu (2016) study revealed the extent to which the parental participation has positive influence on children's achievement specifically in literacy and further noted that scores in literacy achievement for children increased with rising parental participation by between 6 and 15 scores. This is important as it raises a case for advocacy for parental participation as an avenue for improving children's learning outcomes.

According to Ruiz de Miguel (2001), family involvement in children's academic achievement is crucial as it encompasses both structural factors, such as parental education, occupation, and social status, and dynamic factors related to the home environment, including organization, control, and communication. Parental abilities and active engagement in their children's education significantly impact their academic success. Numerous studies have supported the positive influence of family involvement on children's academic performance (Abuya et al., 2015; Baker & Iruka, 2013; Da Cuña Carrera et al., 2014; Hotz & Pantano, 2015; Pérez et al., 2013; Robledo & García, 2006; Ruiz de Miguel, 2001). This involvement in the home setting fosters early development in children's literacy skills (Hindman & Morrison, 2011) and also enhances motivation, especially during basic education when the parent-child bond is stronger (Da Cuña Carrera et al., 2014).

However, contrasting views have been presented by Calero, Choi, and Waisgrais (2010), which challenge the notion that parents' education level and family's social background are decisive factors. Their research suggested that these factors may not be as influential as previously believed. Similarly, Pérez et al. (2013) also questioned the significance of parents' education level and family's social background in shaping children's academic success. On the other hand, Da Cuña Carrera et al., (2014), Pérez et al., (2013), Lizasoain et al., (2007), and Robledo and García (2006) concluded that parents with lower academic qualifications can still positively influence their children's academic success if they hold high expectations for their children's educational achievements.

## **3. Methodology**

Learning assessments ranging from country, regional and global are conducted to account for the gains made in the education sector and tend to focus primarily on evaluating learning achievements. Shepard (2000: 4-14) revealed that initial popularization for the measurement of learning happened during the social efficiency movement of the 1900s. Following which, such measurements of learning outcomes were underscored and have been conducted in numerous forms (Kamens and Benavot, 2015). This study focuses on the Uwezo basics learning assessment secondary data gathered in August 2021 among children aged 4-16 on their foundational literacy. The literacy assessment evaluated for pre-literacy and literacy skills in English including ability to identify letters/sounds, read short words, read sentences, read a story and comprehension.

### **3.1. Sampling of districts, households and children**

The learning assessment was conducted in 29 randomly selected districts spread across 15 statistical regions of the country. Using the 2014 Uganda Population and Housing Census frame, the districts were selected using probabilities proportional to size (PPS), with the population aged 4-16 as the measure of size where consideration of an implicit stratification by sub-region was factored in. At district level, 15 Enumeration Areas (EAs)/villages were selected by PPS, using the number of households (listed) as the measure of size. Twenty households per EA were then targeted for the learning assessment of children. At household level, all children within the ages of 4-16 present at home during the period of the assessment were assessed on the developed tasks in literacy. Overall, the assessment of English literacy was conducted on 14,553 children across 5,673 households.



### 3.2. Developing the assessment items

The assessment items in literacy were benchmarked against the primary two curriculum and were developed with input from experts selected from the National Curriculum Development Centre (NCDC), practicing seasoned teachers and other test experts who constituted the test development panel. The literacy task items developed included competences in five tasks; (1) pre-literacy tasks that involved children mentioning any letters of the alphabet they knew, (2) identifying letters/sounds of the alphabet presented, reading short words (both nouns and verbs) commonly used, (3) reading short sentences/ paragraph, (4) reading a story and (5) comprehension; where two questions (one direct and another inferred) on the story read were posed to the children who had reached that level. The last level also involved assessing learner's awareness of COVID 19 and its prevention given that the assessment was conducted just after the first COVID 19 induced lockdown.

### 3.3. Administration of the assessment

Trained volunteers who were drawn from the sampled EAs/villages visited the participating households where they assessed all the available children aged 4-16 within the assessment period. The background information was gathered about the children and their households. Extra visits were further made to the local leaders and additional information was collected at the EA/village level in relation to the indicators at village level that could affect learning outcomes. Village level indicators included availability of education and health services in the EA, supportive infrastructure such as energy and roads and socio-economic factors including main economic activity for majority of the EA residents. A school survey was also conducted in a school where the majority of children in the sampled EA/Village were enrolled and this further was focused on the key indicators at school level that influenced learning outcomes. School level indicators included enrolment statistics, pupil and teacher attendance checked through a head count and class room observations, school infrastructure such as energy sources, number of classrooms and water, sanitation and hygiene situations.

### 3.4. Data Analysis Techniques

Secondary data from Uwezo 2021 was analyzed at three levels namely; univariate, bivariate, and multivariate using SPSS statistical package version 26. The univariate level mostly used descriptive statistics and frequency distribution tables to generate summary statistics describing the home-based factors as well as children's characteristics.

Bivariate analysis involved cross tabulations of the independent variables (home-based factors) and dependent variables (literacy achievement of the child) by use of contingency tables. The Pearson chi-square statistic was used to establish the relationships between the independent variables and the dependent variable. The multivariate analysis involved the running of several regression analyses to address the question of what home-based factors actually influenced literacy for children aged 4-16 years.

The ability to comprehend a primary two-level story in English was assessed with two questions that were orally asked to the children who demonstrated ability to fluently read a primary two-level story. Question 1 was a direct question that required picking responses from what had been read while question 2 was an inferred question that required responses from further interpretation of what had been read.

## 4. Results

In this study, Tables 1 and 2 reveal the impact of home-based factors on the English literacy competencies of primary three and four children. The study specifically explored the home-based factors including socioeconomic aspects within the household environment, examining factors such as demographic characteristics (education level of the household head, gender, family size, and primary source of income), ownership of assets, energy sources, water quality and safety measures, sanitation and hygiene practices and safety measures.

Despite the fact that the majority of children (70.5%) did not receive reading support at home, the study unveiled a noteworthy correlation between the education level of the household head (HH head) and the English literacy (reading and comprehension) levels of primary 3 and 4 children, with a p-value of 0.02. as indicated in Table 1. This correlation can be attributed to the positive influence of household heads with increasing education levels which may actively encourage children to engage in meaningful reading activities that could enhance literacy skills. The R-square value of the regression model stands at 0.59%, indicating that 59% of the variation in reading and comprehension in English literacy can be accounted for by the education level of the HH head.

**Table 1: Significance of home-based factors to English literacy and comprehension.**

Coefficients a								
Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	3.052	0.258		11.826	0.00	2.546	3.558
	Education Level of HH head	0.027	0.011	0.038	2.334	0.02	0.004	0.049
	Source of lighting	-0.079	0.023	-0.059	-3.398	0.001	-0.124	-0.033
	radio lessons	0.336	0.057	0.095	5.878	0.000	0.224	0.448
	tv lessons	0.699	0.08	0.14	8.694	0.000	0.542	0.857
	coaching	-0.008	0.057	-0.002	-0.14	0.889	-0.119	0.103
a Dependent Variable: literate level English								

Table 2. demonstrates results of the data analysis using SPSS statistical package version 26 and it is evident that educational attainment of the household head (HH) significantly influences comprehension competence levels. Results reveal that 18.7% of the children with HH heads who had completed primary education were capable of reading and comprehending a primary two-level story (q2), while 81.3% could not. In contrast, among the 202 households with a HH head having completed university education, a ratio of 41.1%:38.6% had children exhibiting the ability to comprehend a primary two level story for q1:q2 respectively. A noticeable trend emerged, indicating an increase in children's comprehension ability with increasing educational levels of household heads from lower to higher levels for q1 and q2 except at tertiary education level as indicated in Table 2. Therefore, it can be concluded that the education level of the household head is a significant and reliable predictor of English literacy levels for children aged 4-16 years in Uganda.

Another noteworthy factor that demonstrates a significant positive relationship, exerting considerable influence on reading and comprehension in English, is the source of lighting in the home (see Table 1: with a p-value of 0.01 and an r-squared value of 0.59). The analysis uncovered a substantial and positive correlation between the type of lighting used and reading and comprehension in English. The presence of specific lighting sources seems to have a beneficial impact on the development of English literacy skills among children. It is observable in Table 2: that where the assessed children read and answered the inferred comprehension questions (q1 and q2), majority of households mainly relied on solar power (6547 HH), followed by wick lantern lamps and electricity respectively as far as lighting sources is concerned. However, upon closer examination, it was evident that children in households that used electricity displayed the highest comprehension competence levels at 38.7%:35.8%, followed by those that used solar power at 20.5%:17.8%, lanterns at 18.2%:16.6%, and wick lanterns at 14%:12.7% respectively.

With consideration of ownership and utilization of some assets in the households, the availability of a radio and television also emerged as a crucial factor in contributing to the enhancement of English literacy skills (reading and comprehension). Both of these factors exhibited a significant impact, indicated by their low p-values of 0.000. This outcome can be attributed to the unique circumstances in relation to existing efforts at that time by government to support continuity of learning amidst the effects of the COVID-19 pandemic during the school closures. In light of the period when the study was conducted, virtual/electronic lessons, commonly known as e-lessons, had become prevalent to aid/support continuity of learning.

It was also crucial to investigate whether gender has any impact on the reading and comprehension skills of

children in a home setting. Data reveals that 70.1% of children interviewed were from male headed households, while 29.9% were from female headed households. Among the children from households led by males, 16.9% (1,677) of them exhibited the ability to comprehend a primary two-level story. The study further assessed if the child's gender also played any role in determining literacy and comprehension levels. The study involved 14,553 children, 50.1% (7,290) of whom were male, and 49.9% (7,262) were female. Among the male children assessed, 16.9% demonstrated the ability to read and comprehend a primary two-level English story by responding to the inferred comprehension question (q2), while 20.3% of the female children assessed exhibited the same skill. Overall, only 17.9% of the total children surveyed possessed the capacity to comprehend stories, with 8.3% males and 9.5% females. These figures indicate that female children have a 1.2% higher comprehension competence level than their male counterparts. For q1, it was observed that 19.9% (2,894) out of 14,553 could comprehend, with 10.7% being female and 9.2% male.

The examination of income sources revealed a significant impact on comprehension competence levels. Notably, the majority of households, constituting 82%, relied on farming as their primary source of income, with trading/business at 8.6% and salary at 3%. Interestingly, despite farming being the predominant income source, households where salary was the primary income source demonstrated higher comprehension competence levels for the inferred comprehension question (q2), accounting for 34%, closely followed by trading/business households at 30%, as detailed in the Table 2. In relation to reading the short story and responding to the direct comprehension question (q1), it is evident that households whose source of income was farming had the highest score of 14.5%.

**Table 2: Factors influencing children's English literacy Comprehension levels for q1 and q2**

Question	Percentage response (q1)		Comprehension level (%)	Percentage response (q2)		Comprehension level (%)
Gets assistance with reading	Yes	29.5	9	Yes	29.5	27.6
	no	70.5	11	No	70.5	14
Private tuition/coaching paid	Yes	17.2	29.3	Yes	17.2	22.9
	No	82.8	20.3	No	82.8	18.3
Gender of household head	Male	70.1	18.9	Male	70.1	16.9
	Female	29.9	22.1	Female	29.9	20.3
Gender of child	Male	50.1	9.2	Male	50.1	8.3
	Female	49.9	10.7	Female	49.9	9.5
Education level of HH Head	Completed Primary	16.6	20.6	Completed Primary	16.6	18.7
	Completed O-level	8.0	28.1	Completed O-level	8.0	26.0
	Completed A-level	1.8	39.4	Completed A-level	1.8	34.5
	Completed tertiary	3.5	33.1	Completed tertiary	3.5	30.5
	Completed university degree	1.4	41.1	Completed university degree	1.4	38.6
Source of lighting	Electricity	11.7	38.7	Electricity	11.7	35.8
	Solar	45.5	20.5	Solar	45.5	17.8
	Lantern	5.7	18.2	Lantern	5.7	16.6
	Wick Lantern (tadooba)	24.5	14.0	Wick Lantern (tadooba)	24.5	12.7
	Others	12.5	12.4	Others	12.5	11.8
Main source of income	Farming	82.2	14.3	Farming	82.2	15.5
	Fishing	1.2	0.3	Fishing	1.2	21.7
	Remittances from relatives	0.6	0.1	Remittances from relatives	0.6	18.8
	UNHCR Stipends	0.2	0.1	UNHCR Stipends	0.2	20.8
	Mining	2.0	0.5	Mining	2.0	21.5
	Salary Earner	3.0	1.1	Salary Earner	3.0	34.2
	Trading/ Business	8.6	2.8	Trading/ Business	8.6	30.1
	Other (Specify)	2.2	0.7	Other (Specify)	2.2	29.3

## 5. Discussion

This study investigated the home-based factors associated with enhancing competencies in literacy among learners in primary three and four in Uganda. This is cognisant of the importance associated with reading skill development as an essential element that entails the development of comprehension skills in literacy among others (Snow, Burns, and Griffin, 1998). Historically, literacy was predominantly defined as the capability to read and write (McBride, 2015). The objective of this study was to identify home-based factors that contribute to the promotion of literacy and comprehension competence levels in literacy among primary three and primary four learners. Additionally, the research also aimed to establish the extent to which these home-based factors influence the literacy and comprehension performance of children. The results indicated that various home-based factors, particularly socioeconomic status (SES) and parental engagement play crucial roles in shaping children's English literacy competence levels. Socioeconomic status (SES), as an indicator of one's overall prestige and social status in society, is usually measured by education, occupation, and income (Conger and Donnellan, 2007).

Specifically, SES indicators, such as the education level of the household head, ownership and use of television and radio for educational purposes, and access to privately paid tuition or coaching, were identified as significant contributors to substantive variations in the comprehension abilities of the evaluated children. These factors demonstrated statistical significance with p-values less than 0.05, underscoring their substantial impact on shaping children's literacy skills.

The findings of this study align well and are consistent with previous research. For instance, Sumida & Kawata (2021) identified parental education as a key determinant that influence significant variations in children's learning achievements. Likewise, studies conducted by Hartas (2011); Hanushek et al. (2015), Hotz & Pantano (2015); Muganga (2018); Niklas & Schneider (2017); Morrow (2015); Ogoye (2007); Sénéchal & LeFevre (2002); and Xiao (2022), have explored the influence of socioeconomic factors on children's language and literacy skills across diverse socio-economic contexts. In particular, the research by Hanushek et al. (2015) highlighted the influential role of household income on student performance, corroborating on the notion that socioeconomic factors significantly contribute to the academic outcomes of children. Therefore, the findings of this study provide valuable insights into the interplay between home-based factors and literacy and comprehension competence levels among primary school children.

Previous research has consistently underscored the pivotal role of parents' educational levels in influencing various aspects of parent-child relationships and, consequently, shaping children's holistic development. For instance, studies by Aizer and Currie, 2014; Bradley and Corwyn, 2002 have demonstrated the profound impact of socioeconomic status (SES), with a specific focus on parents' educational attainment, on children's overall development. Curenton and Justice (2008) and Hoff (2003) have emphasized a noteworthy connection between parent-child literacy activities and the educational level of parents. Specifically, these studies highlight that parents with higher educational achievements tend to engage more actively in literacy-related activities with their children. Additionally, investigations conducted by (Bornstein and Bradley 2003); Crittenden 2008; Rowe et al., 2016) and Sohr-Preston et al., 2013; and collectively suggest that parents with elevated educational levels exhibit greater involvement in their children's daily activities. This heightened parental engagement, in turn, has been linked to positive outcomes in children's social, emotional, and cognitive functioning. Similarly, social economic factors such as parental support in children's achievement in reading greatly influenced the competence levels of literacy. This supports the views of Wagner 2010 and New 2001 that reading and comprehension are a cognitive, social and cultural activity that culminates into literacy as an individual competence, a social act and a cultural tool. Therefore, the results of this study concur with existing research, highlighting evident relationship between a child's English comprehension and the educational attainment of parents, specifically at the University completion level. As parent's level of education increased, so did the children's achievement in reading and comprehension of a primary two-level story. This suggests that when parents have primary education or less, the positive impact on their children's academic performance has less marginal effect than those with post- secondary education. This could be explained by the fact that better educated parents are in an advantaged position to pay attention to their children's learning outcomes and are more likely to guide and support them with their school work.

Furthermore, household wealth as depicted by socio economic indicators is observed to significantly influence children's learning achievement. Key socio-economic indicators including income source, type of lighting used, as well as possession of assets such as a television or radio significantly impacted comprehension abilities. For example, households with a more reliable source of lighting such as solar and hydroelectricity lighting had children that performed better in comprehension of a story in English compared to those that used traditional lighting sources such as paraffin wick lantern lamps. Furthermore, the children are more likely to possess and access reading materials, hence, increasing not only their vocabulary but also the ability to comprehend what they have read.

The study also unveils a noteworthy link between lighting and English literacy, with a significant p-value of 0.001. This underscores the pivotal role of energy access and electrification in fostering a child-friendly educational environment. Reports from the International Energy Agency (IEA) in 2005 and the United Nations Development Programme (UNDP) in 2004 emphasize the intricate connection between electricity consumption per capita and the education index. Additionally, research by Kanagawa and Nakata in 2008 reinforces this relationship, highlighting the positive impact of energy access, particularly for lighting purposes through electrification, on creating favorable educational environments for children. Their findings indicate a direct correlation between an increase in electrification rates and an enhancement in literacy rates.

This study has also revealed that the availability of radio and television has proven to be pivotal in fostering the development of English literacy skills, specifically in reading and comprehension. This conclusion is supported by a significant p-value of 0.000. The studies conducted by Hegde et al., in 2019 have also highlighted the positive influence of electronic gadgets on the enhancement of both motor and cognitive skills in children. These gadgets are also recognized as effective tools for facilitating education, by offering a convenient and accessible means for learning. Furthermore, Ayuningtyas and Adullah's research in 2016 also sheds light on the



affirmative impact of internet use, particularly through electronic gadgets, on elementary school students in South Korea. This underscores the importance of incorporating technology, such as gadgets, into educational practices to harness their potential for positive outcomes. Results in this study implicate children from households that owned and utilized these gadgets, read and comprehended a primary two story better than those who resided where these gadgets were non-existent.

However, contemporary perspectives have broadened its scope to also encompass emerging domains such as media, digital, information, computer, and artificial intelligence (Kong et al., 2021). Presently, students possessing proficiency in these literacies can harness related technologies and computers in numerous sophisticated ways, facilitating collaborative learning and skill acquisition alongside their peers (Bell, 2010; Griffin & Care, 2014; Larson & Miller, 2011). Thus, the findings of this study also underscore the significance of literacy competence that integrates the use of modern technology within the learning process. However, it is important to note that the likelihood that children in these households used these assets as learning aids could have been a great contributing factor to this.

The household source of income significantly influenced the comprehension abilities of children. The findings reveal that children from households where the main source of income was farming had a lower score of 15.5%, compared to those from households whose main source of income was salary-earning households and trade/business households as depicted from q2 comprehension abilities. The possible explanation of the findings could be that most of the peasant households are financially unable to afford a range of literacy enhancing factors such as paying for extra learning sessions (coaching) or availing reading materials at home compared to salary earning households. This is consistent to what Hanushek found that household income can influence children's academic performance, with disparities associated with earnings (Hanushek et al., 2015). Further still, the Uganda National Household Survey of 2020 also confirmed that, children from economically disadvantaged backgrounds faced challenges in accessing quality education and essential resources at home, that potentially may hinder their academic performance (Uganda National Household Survey, 2020). Although question one had 14.4% comprehension score, this is a relatively low.

## 6. Conclusion and Recommendation

This study explored the home-based factors which influence literacy competencies among primary three and four learners in Uganda. The findings emphasize the significance of socioeconomic status (SES) and parental engagement as key determinants shaping children's literacy and comprehension abilities. Specifically, indicators such as the education level of the household head, source of lighting, and possession of radio and television in significantly influencing literacy competencies among children. The observed significance levels, with p-values less than 0.05, highlighted the robustness of these associations. These results align with previous research highlighting the impact of parental education on children's academic achievement, emphasizing the importance of parent-child literacy activities. Furthermore, the findings underscored the role of modern technology in enhancing literacy skills, suggesting the integration of digital literacies into educational practices. However, disparities in literacy outcomes were evident based on household income sources, with farming households facing challenges in providing literacy-enhancing resources compared to salary-earning households.

Based on the findings of this study, policy recommendations can be proposed to address the identified factors influencing literacy outcomes among primary school children in Uganda: Policy initiatives to support parental education and engagement, including adult literacy programs and workshops that empower parents to actively participate in their children's literacy development. This could involve partnerships between schools, community organizations, and government agencies to provide resources and support to parents; improving access to educational resources such as books, educational media, and learning materials for all children, regardless of socioeconomic background through government subsidies to communities to purchase resources, as well as initiatives to establish community libraries and learning centers; Policies should aim at addressing socioeconomic disparities in the access to educational resources and expanding opportunities through implementation of targeted interventions for economically disadvantaged communities e.g. target funding allocations, scholarships, or subsidies to ensure equitable access to quality education for all children.

By implementing these policy recommendations, Uganda can take significant strides towards improving literacy outcomes among primary school children and promoting equitable access to quality education for all. Future research can also look into the specific factors that may influence local language proficiency to provide a more nuanced perspective on the complex nature of language development in children.

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## References

- Abuya, B. A., Mutisya, M., & Ngware, M. (2015). Association between mothers' education and grade six children numeracy and literacy in Kenya. *Education 3-13*, 43(6), 653-665.
- Aizer, A., & Currie, J. (2014). The intergenerational transmission of inequality: Maternal disadvantage and health at birth. *science*, 344(6186), 856-861.
- Akala, B. M. M. (2021). Revisiting education reform in Kenya: A case of Competency Based Curriculum (CBC). *Social Sciences & Humanities Open*, 3(1), 100107.
- Allington, R. L. (2014). How Reading Volume Affects both Reading Fluency and Reading Achievement. *International Electronic Journal of Elementary Education*, 7(1), 13-26.
- Allington, R. L., & McGill-Franzen, A. (2014). Comprehension difficulties among struggling readers. In *Handbook of research on reading comprehension* (pp. 575-592). Routledge.
- Alvarez-Valdivia, I. M., Chavez, K. L., Schneider, B. H., Roberts, J. S., Becalli-Puerta, L. E., Perez-Lujan, D., & Sanz-Martínez, Y. A. (2013). Parental involvement and the academic achievement and social functioning of Cuban school children. *School Psychology International*, 34(3), 313-329.
- Ayuningtyas, F., & Abdullah, A. Z. (2016). Penggunaan Internet Yang Sehat dan Baik Bagi Murid SD Dharma karya UT Tangerang Selatan. *Prosiding Temu Ilmiah Nasional Guru (TING) VIII*, 400-410.
- Baker, L., & Scher, D. (2002). Beginning readers' motivation for reading in relation to parental beliefs and home reading experiences. *Reading psychology*, 23(4), 239-269.
- Ball, J., Paris, S. G., & Govinda, R. (2014). Literacy and numeracy skills among children in developing countries. In *Learning and education in developing countries: Research and policy for the post-2015 UN development goals* (pp. 26-41). New York: Palgrave Macmillan US.
- Barnard, W. M. (2004). Parent involvement in elementary school and educational attainment. *Children and Youth Services Review*, 26, 39-62
- Bell, S. (2010). Project-based learning for the 21st century: Skills for the future. *The clearing house*, 83(2), 39-43.
- Bornstein, M. H., & Bradley, R. H. (Eds.). (2014). *Socioeconomic status, parenting, and child development*. Routledge.
- Bradley, R. H., & Corwyn, R. F. (2002). Socioeconomic status and child development. *Annual review of psychology*, 53(1), 371-399.
- Bronfenbrenner, U. (2005). Ecological systems theory (1992).
- Chandler K (2000) Home literacy activities and signs of children's emerging literacy, 1993 and 1999. *Washington*, 55, 100871.
- Chaney C (1994) Language development, metalinguistic awareness, and emergent literacy skills of 3-year-old children in relation to social class. *Appl Psycholinguist* 15: 371-394. doi: 10.1017/S0142716400004501.
- Conger, R. D., & Donnellan, M. B. (2007). An interactionist perspective on the socioeconomic context of human development. *Annu. Rev. Psychol.*, 58, 175-199.
- Crittenden, P. (2013). *Raising parents: Attachment, parenting and child safety*. Routledge.
- Curenton, S. M., & Justice, L. M. (2008). Children's preliteracy skills: Influence of mothers' education and beliefs about shared-reading interactions. *Early Education and Development*, 19(2), 261-283.
- D'Angiulli A, Siegel LS, Maggi S (2004) Literacy instruction, SES, and wordreading achievement in English-language learners and children with English as a first language: A longitudinal study. *Learn Disabil Res Pract* 19: 202-213. doi: 10.1111/j.1540-5826.2004.00106.x
- Datzberger, S. (2018). Why education is not helping the poor. Findings from Uganda. *World development*, 110, 124-139.
- Dearing, E., Kreider, H., Simpkins, S., & Weiss, H. B. (2006). Family involvement in school and low-income children's literacy: Longitudinal associations between and within families. *Journal of Educational Psychology*, 98, 653-664
- Griffin, P., & Care, E. (Eds.). (2014). *Assessment and teaching of 21st century skills: Methods and approach*. Springer.
- Eke, U. (2011). Role of parents in a child's reading and literacy development. *Journal of Education and Practice*, 2(5), 10-16.
- Hahn, R. A., & Truman, B. I. (2015). Education improves public health and promotes health equity. *International journal of health services*, 45(4), 657-678.
- Halle, T. G., Hair, E. C., Wandner, L. D., & Chien, N. C. (2012). Profiles of school readiness among four-year-old Head Start children. *Early Childhood Research Quarterly*, 27(4), 613-626.
- Hanushek, E. A., Schwerdt, G., Wiederhold, S., & Woessmann, L. (2015). Returns to skills around the world: Evidence from PIAAC. *European Economic Review*, 73, 103-130.

- Hegde, A. M., Suman, P., Unais, M., & Jeyakumar, C. (2019). Effect of electronic gadgets on the behaviour, academic performance and overall health of school going children-a descriptive study. *Journal of Advanced Medical and Dental Sciences Research*, 7(1), 100-103.
- Hoff E (2003) The specificity of environmental influence: Socioeconomic status affects early vocabulary development via maternal speech. *Child Development* 74: 1368–78.
- International Energy Agency (IEA), 2005. *Energy Prices & Taxes: Quarterly Statistics, First Quarter 2005*. OECD/IEA, Paris
- Kanagawa, M., & Nakata, T. (2008). Assessment of access to electricity and the socio-economic impacts in rural areas of developing countries. *Energy policy*, 36(6), 2016-2029.
- Kong, S. C., Cheung, W. M. Y., & Zhang, G. (2021). Evaluation of an artificial intelligence literacy course for university students with diverse study backgrounds. *Computers and Education: Artificial Intelligence*, 2, 100026.
- Korat O, Haglil S (2007) Maternal evaluations of children's emergent literacy level, maternal mediation in book reading, and children's emergent literacy level: A comparison between SES groups. *J Lit Res* 39: 249–276. doi: 10.1080/ 10862960701331993. 33. Nord CW, Lennon J, Liu B,
- Kosonen, K. (2005). Education in local languages: Policy and practice in South-East Asia. *Asia-Pacific Programme of Education for All First Language First: Community-based Literacy Programmes for Minority Language Contexts in Asia. Bangkok: UNESCO Bangkok, 2005.*, 96.
- Larson, L. C., & Miller, T. N. (2011). 21st century skills: Prepare students for the future. *Kappa Delta Pi Record*, 47(3), 121-123.
- Ma, L., Xiao, L., & Hau, K. T. (2022). Teacher feedback, disciplinary climate, student self-concept, and reading achievement: A multilevel moderated mediation model. *Learning and Instruction*, 79, 101602.
- Mahuro, G. M., & Hungi, N. (2016). Parental participation improves student academic achievement: A case of Iganga and Mayuge districts in Uganda. *Cogent Education*, 3(1), 1264170.
- Malecki, C.K., & Demaray, M.K. (2006). Social support as a buffer in the relationship between socioeconomic status and academic performance. *School Psychology Quarterly*, 21(4), 375–395
- Marks, G.N. (2006). Are between- and within-school differences in student performance largely due to socio-economic background? Evidence from 30 countries. *Educational Research*, 48(1), 21–40.
- McBride, C. (2015). *Children's literacy development: A cross-cultural perspective on learning to read and write*. Routledge.
- McWayne, C. M., Hampton, V., Fantuzzo, J., Cohen, H. L., & Sekino, Y. E. (2004). A multivariate examination of parent involvement and the social and academic competencies of urban kindergarten children. *Psychology in the Schools*, 41, 363–377
- Muganga, L. (2018). *You Can't Make "Fish Climb Trees": Overcoming Educational Malpractice through Authentic Learning*. FriesenPress.
- Mugo, J. K., Ruto, S. J., Nakabugo, M. G., & Mgalla, Z. (2015). A call to learning focus in East Africa: Uwezo's measurement of learning in Kenya, Tanzania and Uganda. *Africa Education Review*, 12(1), 48-66.
- Neuman, S. B., Celano, D. C., Greco, A. N., & Shue, P. (2001). *Access for All: Closing the Book Gap for Children in Early Education*. Order Department, International Reading Association, 800 Barksdale Road, PO Box 8139, Newark, DE 19714-8139.
- Ng, D. T. K., Luo, W., Chan, H. M. Y., & Chu, S. K. W. (2022). Using digital story writing as a pedagogy to develop AI literacy among primary students. *Computers and Education: Artificial Intelligence*, 3, 100054. DC: US Department of Education, National Center for Education Statistics. 19–27.
- Organisation for Economic Co-operation and Development (OECD). (2018). *The future of education and skills: Education 2030. OECD Education Working Papers*.
- Ogoye-Ndegwa, C., Mengich, W. S., & Abidha, O. (2007). Parental Participation in Pupils' Homework in Kenya: In Search of an Inclusive Policy. *International Education Journal*, 8(1), 118-126.
- Okello, M. (2023). The Role of Parents in Their Children's Education. *African Journal of Education and Practice*, 9(1), 28-38.
- Perlman Robinson, J. (2011). A global compact on learning: Taking action on education in developing countries. Available at SSRN 3956223
- Raz IS, Bryant PE (1990) Social background, phonological awareness and children's reading. *Br J Dev Psychol* 8: 209–225. doi: 10.1111/j.2044- 835X.1990.tb00837.
- Robledo-Ramón, P., & García-Sánchez, J. N. (2012). The family environment of students with learning disabilities and ADHD. *Learning Disabilities. In: Dr Sittaprapaporn W (ed)*, 129-148.
- Rowe, M. L., Denmark, N., Harden, B. J., & Stapleton, L. M. (2016). The role of parent education and parenting knowledge in children's language and literacy skills among White, Black, and Latino families. *Infant and Child Development*, 25(2), 198-220.
- Rwamwenge, E., Zikanga, D. K., & Mugizi W. (2020). Instructional materials and English reading and literacy

- of pupils in primary education schools in Fort Portal Municipality in Uganda. *Journal of Education and Practice*, 11(6), 23-31.
- Scott, S., & Palincsar, A. (2013). Sociocultural theory.
- Sénéchal, M., & LeFevre, J. A. (2002). Parental involvement in the development of children's reading skill: A five-year longitudinal study. *Child development*, 73(2), 445-460.
- Sénéchal, M., & LeFevre, J. A. (2002). Parental involvement in the development of children's reading skill: A five-year longitudinal study. *Child development*, 73(2), 445-460.
- Sohr-Preston, S. L., Scaramella, L. V., Martin, M. J., Neppel, T. K., Ontai, L., & Conger, R. (2013). Parental socioeconomic status, communication, and children's vocabulary development: A third-generation test of the family investment model. *Child development*, 84(3), 1046-1062.
- Sumida, S., & Kawata, K. (2021). An analysis of the learning performance gap between urban and rural areas in sub-Saharan Africa. *South African journal of education*, 41(2), 1-17.
- Tárraga García, V., García Fernández, B., & Ruiz-Gallardo, J. R. (2018). Home-based family involvement and academic achievement: a case study in primary education. *Educational Studies*, 44(3), 361-375.
- Tárraga García, V., García Fernández, B., & Ruiz-Gallardo, J. R. (2018). Home-based family involvement and academic achievement: a case study in primary education. *Educational Studies*, 44(3), 361-375.
- Toutkoushian, R.K., & Curtis, T. (2005). Effects of socioeconomic factors on public high school outcomes and rankings. *Journal of Educational Research*, 98(5), 259–271
- Uganda Bureau of Statistics. (2021). *The Uganda National Household Survey (UNHS) 2019/2020*. Uganda Bureau of Statistics.
- UNDP, 2004. Human Development Report 2004. United Nations Development Programme, New York
- Van Vechten, D. (2013). Impact of home literacy environments on students from low socioeconomic status backgrounds.
- Whitehurst GJ, Lonigan CJ (1998) Child development and emergent literacy. *Child Dev* 69: 848. doi: 10.1111/j.1467-8624.1998.tb06247.x
- Wu, L., Hsieh, P. J., & Wu, S. M. (2022). Developing effective e-learning environments through e-learning use mediating technology affordance and constructivist learning aspects for performance impacts: Moderator of learner involvement. *The Internet and Higher Education*, 55, 100871.
- Young, A. R., Beitchman, J. H., Johnson, C., Douglas, L., Atkinson, L., Escobar, M., & Wilson, B. (2002). Young adult academic outcomes in a longitudinal sample of early identified language impaired and control children. *Journal of Child Psychology and Psychiatry*, 43(5), 635-645.

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