

Relationship between Literacy Environment and Reading Fluency among Class Four Pupils in Busia County, Kenya.

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Abstract

Background: The study looked at the relationship between literacy environment and reading fluency. A correlation research design was adopted. The study was informed by Vygotsky's sociocultural theory.

Materials and Methods: The target population was class 4 pupils in public primary schools in Busia County, Kenya in 2018. Stratified, simple random and cluster sampling procedures were employed in the study. A sample of 388 pupils and 9 teachers were selected from seven public primary schools. Questionnaires and observation methods were used to collect data on the school and home literacy environment and a reading test measured pupils' reading fluency. Qualitative data was analysed using thematic analysis and quantitative data was analysed using linear regression analysis.

Results: The findings were that literacy environment significantly predicted pupils' reading fluency in English. Aided reading is the highest single contributor to reading fluency compared to reading resources at home and school.

Conclusion: To support reading fluency, parents should encourage positive social and educational interaction at home particularly among siblings as the older ones support the learning of the younger. Reading resources should be provided to readers both at home and at school.

Key Words: Literacy environment, aided reading, resources, reading fluency.

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I. INTRODUCTION

Literacy environment has been conceptualised to mean print exposure and availability of reading materials (Opiyo, 2017), shared reading and number of books a child owns (Wang'eri & Mugambi, 2014), parents who have read many books and book availability (Katzir, Lesaur & Kim, 2009) among other varied indicators. A literacy-rich environment is one that enriches literacy experiences for pupils and facilitates their access to the general education curriculum. Homes with many books where reading is valued and that offer support to young readers foster reading interest among children while children with limited print experience tend to lag in reading. Home experiences include parents helping with homework, habitual reading aloud to children, having books to read or having play alphabets among other activities.

Literacy research has looked at the instructional space, the physical setting of classrooms, presence of reading resources, access and visibility of books, text written by children, number of books in class library, children's literature, words, and labels. Access to books and opportunity to read as well as support for reading are some of the aspects of literacy environment studied in relation to reading achievement. Research findings show a direct link between rich home literacy environments and reading comprehension. A literacy-rich environment enriches literacy experiences for pupils and facilitates their access to the education curriculum while pupils with limited print experience a lag in reading (Gove & Cvelich, 2011). Homes with many books where reading is valued and which offer support to young readers foster reading interest among children while literacy practices such as parents' active role in storytelling and shared book reading have been associated with reading achievement (Sénéchal & LeFevre, 2014; Niklas & Schneider, 2013).

Many studies on pupils reading achievement both globally and nationally have focused on early or preschool years (Opiyo, 2017; Lewis, Sandilos, Hammer, Sawyer & Mendez, 2016; Yeung & King, 2015). Among school going children, studies show that schools that have reading resources motivate reading among school pupils and bridge the gap that exists among learners from literacy rich and those from literacy deprived home environments. Research shows that where lack of books at home is countered by a school that provides opportunity and support for reading activity, even learners from poor home literacy environments can become

good readers (Van-Vechten, 2013). This would imply that schools that have books and support reading activity might moderate the impact of poor home literacy environment on pupils' reading achievement. With the understanding that literacy environment can be associated with reading achievement and the apparent evidence showing that this relationship has been more focused on grade 3 pupils and below, the current study looked at selected reading resources both at home and school in relation to class 4 pupils reading fluency.

II. LITERATURE REVIEW

Literacy environment refers to the experiences and opportunities to read and write (Standen, 2010). At home, these experiences would include parents habitual reading aloud to children, letter writing, having books to read or having play alphabets. Bergen, Zuijen, Bishop and de Jong (2016) study in the Netherlands looked at the influence of parental education, shared reading and access to books on reading fluency of children from 101 families. The participants in the study were 70 girls with a mean age of 10 years. Also using a regression model, results showed that parental education explained 7% variance in reading fluency while number of books at home predicted 13% variance in reading fluency. The reading fluency of both parents explained 17% reading fluency of the children. The study showed that number of books significantly predicted reading fluency of the girls. The study did not study boys who formed part of the participants in the present study.

Opiyo (2017) study on the relationship between home literacy environment and development of early literacy among 3–4-year-old pre-schoolers in Kakamega County found that homes that had rich language environment supported children and provided a stimulating home literacy environment. In the correlation study that used stratified, purposive, and simple random sample to determine participants who included 72 children, 24 preschool teachers from 24 schools, the researcher found that there were differences in early literacy development among the participants. Children from homes labelled as high socio-economic status had higher early literacy development than those from low socioeconomic status. These homes were also found to provide a more stimulating home literacy environment. Like many studies that look at the relationship between literacy environment and reading fluency, the subjects of the study were preschool children.

Where homes lacked necessary resources to support reading achievement, studies show that literary rich school environment modified the effect of home factors. Piper, Zuilkowski and Mugenda (2014) found that there were significant improvements in oral reading fluency and reading comprehension in English and Kiswahili when pupils were provided with reading material and had time for reading in school. Pupils from poor home environment would not necessarily be poor readers when school has rich literacy environment. School also provide opportunity for reading through provision and access of trained teachers who enhance pupils' literary experience. Through varied learning activities, they support reading fluency.

Literacy research has largely focused on the physical setting of classrooms and instructional space. They have been designed to study the presence of reading materials, access and visibility of books and text written by children, number of books in class library and children's literature while others have explored the classroom for print presented as words, labels etc. The presence of print in these studies has implied increased engagement between teachers, pupils, and print. Teachers read to pupils more often in print filled. Teachers emphasise pupils reading aloud and correct pronunciation and give feedback to help young readers (Allington, 2014; Zimmerman, 2014). Studies on literacy environment have studied among other home factors, reading material (Kiuru et al., 2013) and fewer studies have focused on children beyond elementary school Relationship between Literacy Environment and Text Comprehension.

Literacy environment has been conceptualised to mean print exposure and availability of reading materials (Boerma, Mol & Jolles, 2017), shared reading (Tichnor-Wagner, Garwood, Bratsch-Hines & Vernon-Feagans, 2015), number of books a child owns (Wangeri & Mugambi, 2014), parents who read and have many books (Mol and Bus, 2011) and book availability (Katzir, Lesaur & Kim, 2009). A literacy-rich environment enriches literacy experiences for pupils and facilitates their access to the general education curriculum. Homes with many books where reading is valued and which offer support to young readers, foster reading interest among children (Cove & Cvelich, 2011). Pupils with limited print experience lag in reading.

Yeung and King (2015) study on home literacy environment and English language and literacy skills among Chinese young children learning English as a second language also found that certain literacy practices carried out at home have a strong association with reading. In their study among 90 Chinese children in kindergarten, the researcher assessed the children's English vocabulary, reading words and knowledge of letters. The results of the study showed that shared reading between parents and children was a literacy practice that predicted the children's reading of English words. Results also showed that exposure to print in English predicted vocabulary expression among the children.

A rich literacy environment is one with resources that encourage print reading and at school this would be evident in having charts at eye level, name labels on doors, chairs etc., and one which provides the learner with opportunity to read and write. In Kenya, Wang'eri and Mugambi (2014) survey designed study explored both home and school literacy environment in relation to class three pupils reading achievement. In their study

of home literacy environment, the researchers used literacy indicators such as number of children's books in the home and frequency of parents reading to children to measure literacy levels at home. Experimental evidence on the importance of reading material for reading achievement showed that the delivery of textbooks and instructional materials to classrooms produced no achievement gains (Blimpo & Evans, 2011). The findings imply that provisions of reading resources alone though important are not sufficient for gains in reading achievement.

Purpose, rationale, and hypothesis

The purpose of the study was to establish whether literacy environment predict reading fluency among class four pupils in Busia County, Kenya. The study was deemed significant in the understanding of home and school literacy experiences that provide important information on learner's literacy environment. This information could help educators improve the current understanding on factors that influence pupils' reading achievement in primary school. For parents, an understanding of the relationship among the study variables may have implications for the development of a home environment that fosters reading achievement. Identifying home experiences that lead to success in reading may provide crucial information for engaging parents as agents of change in pupils' reading improvement.

The study was informed by Vygotsky's (1978) Socio-cultural Theory. This is a theory of cognitive development that supports the assertion that without social interaction with knowledgeable others no cognitive development will occur. According to the theory, children learn cognitive tasks through their interactions with others who are more knowledgeable. The person in a child's environment who is more skilled and experienced facilitates the child's learning. The objective of the study was to establish the extent to which literacy environment predicts pupils' reading fluency. The study sought to answer the question: To what extent does literacy environment predict reading fluency?

III. MATERIALS AND METHODS

The target population was all class four pupils attending primary schools in Busia County. According to statistics from the Busia County's Education office 2017 there were 3,023 boys and 2,978 girls in class four attend mixed public primary schools. These are children aged on average between 10-12 years old. Class four English language teachers were also a target population and were instrumental in providing additional information on pupils' classroom experiences and language use that would explain the findings.

Sampling techniques

Stratified random sampling technique was used to select a school from each of the seven administrative sub-counties of Busia County, Kenya. This sampling technique provides rich data from diverse geographical and socio-economic compositions. Mugenda (2008) noted that this technique is ideal when dealing with populations that are not uniform. Simple random sampling technique was used to select seven public coeducational schools. This ensured each participating school had an equal chance of selection (Cohen et al., 2017). The criterion for school selection was that the school was co-educational and had pupils from class 1 up to class 8. In each school, a cluster of class four pupils were selected as participants to the study. It employed sample of schools and then one or more intact class of students in each sampled school (LaRoche, Joncas & Foy, 2017). Teachers who teach English language to class four pupils were purposively selected to participate in the study. Seven schools were selected from mixed public primary schools in the county.

Measures

An observation checklist was used by the researcher to obtain information on reading resources available in the school. The researcher observed the classroom physical environment and looked for literacy items such as books or pupils work on display, posters, among other print materials were present in the classroom. A tick was placed beside items that were present. Observations were also made on physical classroom environment in relation to the school literacy environment. Those schools which had more than 50% of reading resources listed were classified as rich. Those schools that had below 50% were classified as poor. Participating pupils also placed a tick to indicate reading resources that were present at home.

A reading fluency test was used to measure pupils' reading accuracy. The reading test consisted of a short passage which was in English language. Each pupil repeatedly read the passage out loud before the researcher or one of the trained assistant researchers and reading fluency was determined by the average number of correctly read words in one minute (Abadzi, 2011).

Research design and data analysis

The research design was correlational where one that seeks to investigate possible relationships among variables without intervention. It can also be used where the aim is to predict an outcome based on information on another variable.

IV. RESULTS AND DISCUSSION

To find out how the pupils reading fluency scores were distributed, descriptive analysis was conducted, and the findings summarised in Table 1.

Table 1. Participants' Reading Fluency

Mean	Mode	Standard Deviation	Skewness	Kurtosis	Min	Max
47.5	0	27.88	.136	-.527	0	114

Note. N=388 Min=Minimum Max=Maximum

The wide range between the highest and lowest scores indicates that the learners are at two extremes in reading fluency. Non-readers and fluent readers are found in class 4 as is indicated by presence of the modal value of zero and maximum score of 114. The scores distribution was positively skewed as indicated by the value of .136 and they were also spread around the mean curve which is implied in the negative kurtosis value of -.527 indicating that the curve of the distribution was flatter as compared to the normal distribution curve.

Printed reading materials were present in all schools and the most common type were wall charts (71.4%) meaning teachers were making use of visual teaching aids. All schools (100%) had sitting space for all pupils and this environment facilitates learning. None of the schools had a library where pupils could read and borrow books, and none had visible story books in class. All schools had various textbooks which were in the possession of the teacher or school administrator. Though present most of the reading resources in the schools were not placed in the classroom but kept in school administrator's office or store. The classrooms had no lockable desks and no secure place for books and reading materials and this could explain why there was more reading materials in school office and staff room than the classrooms. Based on availability of reading resources, the schools were further categorised according to the richness of literacy resources in the environment. This was done by categorizing the school environment as follows. Those who had more than 70% of reading resources listed were classified as rich. Those schools that had between 50 and 69% of reading resources were classified moderate while schools having below 50% of required resources were classified as poor. The results are presented in Table 2.

Table 2. Classification of School Resources

School Resources	Frequency (%)	Number of Pupils
Rich	3 (42.8)	190
Moderate	2 (28.5)	170
Poor	1 (14.2)	28

Table 2 indicates that 42.8% of the participants were from schools with rich resources and only 14.2 % were from school defined as poorly resourced. The schools had resources that supported learning including desks as it was observed that none of the learners lacked a place to sit even in poorly resourced schools. This finding was unlike the season following the introduction of Free Primary Education program in Kenya where many pupils lacked their sitting place on desk and sat on the classroom floors. The schoolbook support program also enables presence of books in rural schools.

The home literacy environment looked at the presence of a variety of literacy material in the home which included among others story books, newspapers, dictionaries, phone, and television and reading support. The results are summarised in Table 3.

Table 3. Home literacy environment

Description	Frequency	Percent
Reading Resources	304	78.4
Phone at Home	298	76.8
TV at home	225	58.0
Reading Aid	215	55.4

Most of the participants (78.4%) had the selected reading materials namely story books, newspapers, calendars, and bible at home meaning only 21.6% indicated that they had less than five of these reading materials at home. This implies that all pupils have reading materials present in their home surroundings. Mzomba (2010) in his study on home literacy environment on development of literacy observed that regardless of location and socioeconomic status, homes will have reading material. No pupil reported that there was absolutely no reading material in their home. Most of the homes had a phone as was indicated by 76.8% of the participants while 21.6% of the homes had no phone. This is not unusual since trade is the main economic activities in Busia County with cross border movement of goods and agricultural produce. The common transporters or motor bike riders' operators and farmers in the area have access to at least one home which has a phone. Those who reported that they were supported to read were 55.4% of the respondents while the rest indicated that they did not have reading support at home. Further analysis was done on the reading assistance received to show the persons at home who helped respondents in reading. The findings are summarised in Table 4.

Table 4. Aided reading

Person offering reading support	Frequency	Percentage
Parent	52	(29.3%)
Father	18	(34.7%)
Mother	34	(65.3%)
Sibling	122	(68.9%)
Other	3	(1.6%)

Among those that said they had someone to help them read at home, 29.3% indicated that the person who helped them read was a parent while 1.6% mentioned other persons such as a neighbour who was a teacher or an aunt. Among the 52(29.3%) participants who mentioned parents offered them reading support, 34 (65.3%) mentioned that the mother aided them in reading related activities. Most (68.9%) of the reading support came from their older siblings.

Respondents who said that the mother is the one who helped them read also described the nature of reading support mothers gave. Some of the responses, included 'listening to me read' and 'showing me how to read and spell words.' Fathers also gave support to reading at home and this included 'buying books', 'reading story books' and 'looking at my written work'. The nature of reading support offered by older siblings was much more varied than that of parents to include 'giving me story books to read', saying 'read like this' and 'repeat this word' and 'listen to me read', and 'follow when I read'. Model readers in the literacy environment help in word knowledge, spelling, vocabulary, and general information.

To compare the contribution of reading resources at home and school, as well as the role of aided reading in pupils' reading fluency, multiple linear regression analysis was conducted, and the results are summarised in table 5.

Table 5. Multiple linear regression analysis for literacy environment and reading fluency

Model		Un-standardised Coefficients		Standardised Coefficients	Sig.
		B	Std. Error	Beta	
1	(Constant)	33.941	2.318		.000
	Aided Reading	13.752	2.745	.245	.000
	Home Resource	7.286	3.241	.108	.025
	School Resource	9.304	2.733	.167	.001

Among the aspects of literacy environment examined, the unique contribution of aided reading (.245) beta value was the highest in relation to reading fluency and among the three, the lowest contributor to reading fluency was home reading resources. Reading resources at school are also a significant contributor to reading fluency so is reading resources at home.

V. DISCUSSION OF FINDINGS

Blimpo and Evans (2011) study on the importance of reading materials for reading achievement did not record any significant gains in reading among their study subjects which would indicate that provision of reading materials though important is not sufficient for reading achievement. In this study, reading resources at home and school positively contributed to participants reading fluency and aided reading was highest contributor to their fluency. Provision of reading materials alone is insufficient for reading fluency. Aided

reading in this study referred to pupils' engagement in reading related activities while at home and these as included among others; books purchased for or given to participants, being asked to repeat a word read, reading to an audience e.g., a sibling, help received to read which came from parents, sibling, or neighbours. These served as a community of teachers supporting learning of reading. The role of model readers in the immediate environment supports reading fluency and social interaction with knowledgeable others facilitates learning (Vygotsky, 1978) through scaffolding, guidance, and encouragement.

The current study found that reading resources at home and school were significant predictors of reading fluency in English. The findings were like Piper, Zuilkowski and Mugenda (2014) who observed significant improvements in oral reading fluency in English and Kiswahili when pupils were provided with reading material and had time to read. In their review on effects of a reading initiative in Kenya through provision of instructional materials and books in Kiswahili and English, school reading resources significantly predicted pupils reading fluency. The challenge with inadequate textbooks for pupils' reference during language lessons means that pupils turn to sharing books or rely on teachers writing on the chalkboard for the to read. Although the current study did not examine the number of books pupils have or the ratio of shared books as previous studies; it was able to observe the visibility of printed matter within the specific classrooms and schools and reading resources available at home. Reading charts and calendars on walls in schools were not a common sight in class 4 classrooms and when these charts were in place, they were old and non-functional leaving most walls were bare of words to read.

It is not surprising that the nature of support that parents offer is varied. Fathers generally are breadwinners and their role in support of reading has largely in the purchase of text and story books while mothers who probably have more contact hours with the children would have time to listen to the child read. An important aspect related to home support was level of education of parents and this was not included in the study. It may be implied following the support from parents that the parents who were more involved in offering direct support to reading such as listening to a child read were literate. The findings could not explore this further. The reading support children receive at home can be passive such as provision of reading materials as was evidenced by most fathers in the study who would purchase books. The most active support in reading which was given by older siblings, and this could be explained by the age of child, presence of younger siblings and parents working outside the home which lessens time for parental involvement in reading with their children.

Bergen et al (2016) study found a significant positive correlation between home literacy environment and reading fluency. Home literacy environment influence on reading fluency however may not be a direct one. Nineteen studies done between 2001 to 2014 revealed that providing multiple interventions namely, model fluent reading, assisted reading with audio books, repeated reading with peers, performance feedback, using easier level text, setting goals contributed to improved reading scores among the students (Stevens, Walker and Vaughn, 2017). In a synthesis of research on effects of interventions on reading fluency for students from kindergarten to 5th grade, researchers found that multi-component interventions assisted struggling readers improve both reading fluency and text comprehension. Although the study designs were different with the current study being nonexperimental and carried out in one class only, there are similarities in some of the correlations.

VI. CONCLUSION

After 3 years of schooling, reading fluency in English remains a challenge to class 4 pupils. Reading resources at school and home as well as aided reading at home contribute significantly to reading fluency. The availability of reading resources both at home and school is important for reading though not sufficient. Aided reading contributes more to reading fluency than reading resources. For successful out of school reading, parents should promote positive social and educational interaction among siblings at home because these siblings offer the most frequent and varied reading support to pupils. Parents should also be encouraged to provide reading resources for children.

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