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The Role of Home Literacy Environment and Oral Language in the Development of Rhyme Awareness Skills in Preschool Children in Zambia

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Abstract

The home literacy environment and children's oral language abilities are key factors that influence the development of various components of phonological awareness skills in young children during their early years. Rhyme awareness skills, one of the earliest phonological awareness abilities to develop in children may also be fostered by these two aspects. However, the degree to which these factors support the development of rhyme awareness skills has not been extensively investigated in Zambia. This study explored the relationship between certain aspects of the home literacy environment (such as literacy resources, literacy activities, and parental literacy level), children's oral language abilities and rhyme awareness skills of preschool children in Zambia. A total of 353 children (M_{age}=81.1 months; SD=15.7) from 14 public preschools in Lusaka province were randomly selected to participate in this study. Parents completed a questionnaire on their children's literacy experiences at home, which included questions on the availability of literacy resources, the type of literacy activities children participate in, and the frequency with which they participate in literacy activities. Children's language skills were assessed by measuring their receptive and expressive vocabulary and familiarity with the language of instruction in preschool. Both the ability to recognise rhyming words and the capacity to produce rhyming words were tested as part of the rhyming skill set. The data was analysed using a multiple linear regression. Results revealed that literacy activities at home and children's language proficiency were predictors of rhyme awareness skills. However, the study did not find any association between parents literacy level, the availability of literacy resources in the home and rhyme awareness skills. Overall, the study underscores the importance of a supportive home literacy environment and oral language during early childhood. These findings hold significant implications for parents and policy makers in shaping early childhood education and promoting literacy development.

Keywords: *Home literacy environment, oral language, rhyme awareness skills, phonological awareness skills, emergent literacy, pre-schoolers.*

Introduction

Rhyme awareness refers to a child's ability to recognise that words that end with the same sound, such as "hat" and "cat," have similar pronunciations (Grofcikova & Macajovia, 2021). Research demonstrates that rhyme awareness skills are among the earliest phonological awareness skills to develop, with children displaying these skills as early as three or four years old, even before developing other phonological skills like phonemes (Bradley & Bryant; 1983, 1985, Gillon, 2004; Goswami & East, 2000; Kuppen & Bourke,2017). Rhyme awareness has been linked to success in reading acquisition, with early acquisition of this skill predicting future reading success both in the short and long term (Bradley & Bryant,1983, 1985; Kuppen & Bourke, 2017; Wimmer et al.,1994). For instance, Wimmer et al. (1994) found rhyming knowledge to be a predictor of reading and spelling success both in the short and long term when they investigated whether rhyming awareness was significant for learning to read in German among 6-7-year-old children. They found that rhyming knowledge was a mild predictor of reading and spelling success by the end of first grade but a strong predictor by the end of third and fourth grade. Researchers speculated that rhyming awareness's beneficial effect on forming mental representations of written words might account for its increased predictive effectiveness. Similarly, in a study by Kuppen and Bourke (2017), children's knowledge of nursery rhymes at the age of three was shown to have a predictive relationship with their ability to read words at the age of six.

However, some studies (e.g., Anthony et al., 2003; Dunst et al., 2011; Hayes, 2011; Ziegler & Goswami, 2005) have suggested that the relationship between rhyme awareness skills and reading acquisition is indirect rather than direct. The aforementioned studies propose that rhyme awareness skills indirectly support the development of other higher-order phonological awareness abilities, such as segmentation and phonemic awareness, which, in turn, facilitate reading development. For instance, Dunst et al. (2011) found that measures of rhyme awareness skills were positively related to several phonological and pre-literacy skills in a meta-analysis of 12 studies with 5299 children aged 3 to 6. According to Hayes (2011), children who have developed rhyme awareness understand how words are broken down into their component sounds, which helps them develop the phonetic awareness they will need to read. Although the relationship and strength of the correlation between rhyme awareness skills and reading is still a topic of ongoing scholarly discussion, overall, previous studies (e.g., Bradley & Bryant, 1983; Culatta

et al., 2007; Goswami, 1999, 2019; Harper, 2011; Kuppen & Bourke, 2017; Grofcikova et al., 2017; Wimmer et al., 1994) have underscored the importance of rhyme awareness in reading acquisition. Therefore, it should be considered an essential component of phonological awareness training.

The development of rhyme awareness skills in young children can be fostered by exposing children to quality literacy materials, such as story and picture books, and engaging them in activities like shared book reading, storytelling, reciting nursery rhymes, and playing literacy games (Dunst et al., 2011; Goswami, 1999; Harper, 2011). Bradley and Bryant (1983) found that children aged between 4 and 4.5 years show the most rapid development of rhyme awareness skills. As most children in this age group are not yet enrolled in school, especially in the Zambian context, the home environment likely plays a significant role in developing these skills. Additionally, children's language skills are associated with various phonological awareness skills components (Walley et al., 2003). In light of this, our study aimed to explore the relationship between the home literacy environment, children's oral language skills, and the development of rhyme awareness skills in Zambian preschool children. Existing research studies on phonological awareness skills in Zambia have primarily been conducted in educational settings with primary school learners and on phonological awareness abilities other than rhyme awareness skills (Chikopela & Ndhlovu, 2017; Matafwali & Chansa-Kabali, 2017; Silungwe & Kaani, 2023). Therefore, there is a gap in our understanding of the interplay between the home literacy environment, children's oral language, and the development of rhyme awareness skills in preschool children in Zambia. The significance of this study lies in its potential to inform and shape early childhood education policies and practices in Zambia and beyond. Furthermore, it has the potential to enhance our deeper understanding of the contribution of the home and children's oral language in the development of rhyme awareness skills.

Home Literacy Environment and Rhyme Awareness Skills

The home literacy environment refers to all the oral and written experiences a child is exposed to, in which they interact with parents and other family members and influence the development of their literacy skills (Liu et al., 2017). Puglisi et al. (2017) add that the home literacy environment reflects the presence or absence of opportunities for children to learn and practice literacy skills in the context of their everyday lives. Considerable evidence shows that before formal reading instructions,

children's home literacy environment moderately predicts subsequent literacy performance (Bishop & Adams, 1990; Catts, 1993; Cunningham & Stanovich, 1997; Foy & Mann, 2003; Magnusson & Naucler, 1993). Many different aspects of the home literacy environment have been found to help the development of young children's emerging literacy skills. These include the home literacy activities (Bus et al., 1995; Sénéchal, 2006), the literacy resources (Johnson et al., 2008; Chansa-Kabali, 2014), parental education level (Manolitsis et al., 2011) and family socio-economic status (Crampton & Hall, 2017; McDowell et al., 2007; Mwanza-Kabaghe, 2022). Other elements, such as children's reading interests, parent-child interaction (Kumar et al., 2022) and reading culture (Kafusha et al., 2021), also play a role in the development of core literacy abilities.

Research has shown that engaging young children in literacy activities at home, such as reading books, singing songs, reciting nursery rhymes, and playing literacy-based games, can have a positive impact on their phonological awareness skills (Chansa-Kabali, 2017; Burgess, 2002; Dickinson & Tabors, 2001; Elmesalamy & El-Ater, 2022; Kjørholt et al., 2019; Sénéchal, 2006). For instance, Elmesalamy and El-Ater (2022) conducted a study to examine the relationship between the Home Literacy Environment, Parent Education, and Phonological Awareness in 100 Egyptian preschool children. The study found that certain factors on the home literacy environment, specifically the linguistic activities of the mother with the child, such as storytelling, singing, and imaginative play with dolls, as well as the reading frequency and level of education of the parents in conjunction with the child, influenced developmental differences in phonological awareness processes for older age groups during early childhood. In another study, Sénéchal (2006) studied 16 interventions to see how parent-child reading affects children's reading skills. The results showed that shared book reading significantly improves early literacy skills and phonological awareness.

Furthermore, studies have demonstrated that the availability of literacy equipment and materials, such as storybooks, picture books, digital nursery rhymes, TV, radio, and tablets, also significantly contribute to the promotion of early literacy skills (Chibamba & Tambulukani, 2022; Johnson et al., 2008; Strasser & Lissi, 2009). Children who have access to various quality literacy materials and equipment are more likely to develop strong early literacy skills than those who do not (Chibamba & Tambulukani, 2022; Johnson et al., 2008). Therefore, parents and caregivers must

ensure that their children have ample and diverse home literacy resources at their disposal that foster phonological awareness skills and language development.

Parental literacy levels and socio-economic status are two other important factors that have been linked to the development of emergent literacy skills, such as phonological awareness skills (Crampton & Hall, 2017; Manolitsis et al., 2011). Scholarly research has documented that children from families with higher socio-economic status and parents with higher levels of literacy tend to have better emergent literacy skills than their peers from disadvantaged backgrounds (Chibamba & Tambulukani, 2022; Crampton & Hall, 2017; Manolitsis et al., 2011; Mwanza-Kabaghe, 2022 Sénéchal & LeFevre, 2014). For example, Manolitsis et al. (2011) found that parents or caregivers who had higher levels of education had children with better reading skills. Chansa-Kabali (2014) found that the following home possessions: electricity, television, running water, flushable toilets, and stove impacted reading skills when she studied 72 grade one pupils' reading skills in a resource-constrained environment in Lusaka province of Zambia. The correlation between parental literacy and family socio-economic status and the emergence of emergent literacy skills in children is well-established. Therefore, it is crucial to account for these variables while analysing the factors that influence early literacy development.

Although many young children may not be enrolled in school during the period of rapid acquisition of rhyme awareness skills (Bradley & Bryant, 1983), there is currently limited research that has explored how the home literacy environment impacts the development of these skills. One of the few studies that have delved into this topic is the research conducted by Foy and Mann (2003). Their research aimed to examine the association between various components of the home reading environment and the development of rhyming awareness skills and phonemes in children between the ages of 4 and 6 years. The findings of this study revealed that exposure to reading-related media and active parental engagement in children's books were directly and indirectly associated with rhyming awareness abilities through their relationship with letter and word knowledge. Furthermore, Reade (2017) found that storytelling by parents improves children's rhyming awareness skills by facilitating the acquisition of new words and narrative structures. Several other studies have also found that the frequency of shared book-reading and parents' leisure-time reading

habits predict specific phonological awareness aspects, such as rhyme awareness (Crampton & Hall, 2017).

In Zambia, no known studies have been conducted to evaluate the influence of the home literacy environment on the development of children's rhyme awareness skills. Nonetheless, prior studies that have investigated the role of the home literacy environment on other early literacy skills have found a positive correlation between the home literacy environment and children's early literacy skills (Chansa-Kabali (2014, 2017; Mwanza-Kabaghe, 2022). For example, Chansa-Kabali (2014, 2017) and Mwanza-Kabaghe (2022) have investigated the connection between the home literacy environment and other early literacy skills. Mwanza-Kabaghe (2022) specifically examined the relationship between family literacy environment, socio-economic status, and emergent literacy skills in first-grade children. The study found that a favourable home literacy environment and a higher socio-economic status were associated with better emergent literacy skills in children. The mother's occupation was also found to be a significant predictor of academic success, particularly for children who did not have preschool experience. Chansa-Kabali (2014, 2017) also found a positive correlation between the home literacy environment and children's reading skills when she investigated the influence of the family environment on 72 Zambian first-grade learners' orthographic awareness and decoding skills. Her study further suggests that there are various reading materials available in Zambian homes, such as newspapers, magazines, and the Bible; however, there exists a scarcity of materials meant explicitly for children. Furthermore, the study highlighted that despite self-reported reading proficiency levels, a considerable percentage of parents (78%) faced difficulties in reading. The study also discovered a lack of widespread implementation of reading activities in Zambia. Given the constraints that characterise most low-resource Zambian households (as reported by Chansa-Kabali, 2017), one wonders the extent to which the Zambian home environment supports the development of rhyming awareness in young children. In addition to examining the effect of the home reading environment on rhyming awareness abilities, this study also investigated the relationship between children's language skills and rhyme awareness skills.

Oral Language and Rhyme Awareness Skills

The acquisition of phonological awareness skills, which include rhyme awareness skills, has been linked to oral language proficiency (Bishop & Adams, 1990;

Whitehurst & Lonigan, 2001; Cassano & Schickedanz, 2015). Several studies suggest that enriching one's vocabulary is crucial to enhancing one's capacity to grow phonological awareness skills (Chaney, 1994; Cooper et al., 2002; Whitehurst & Lonigan, 2001). As a child's vocabulary expands and their comprehension of language deepens, their attention to the sounds that make up words gets more pronounced (Whitehurst & Lonigan, 2001). A study by Chaney (1994) on typically developing 3-year-old children revealed a positive association between their receptive and expressive language skills and their performance on a composite phonological assessment. Similarly, Cooper et al. (2002) found that the general oral language abilities of kindergarten students, encompassing their receptive and expressive language, syntax, and morphology, predicted their phonological awareness. Additionally, Burgess (2002) investigated the impact of speech perception, oral language proficiency, emergent literacy, and the home literacy environment on the phonological sensitivity of 115 four and five-year-old children in the United States. The study concluded that oral language proficiency and the home literacy environment were significant contributors to phonological sensitivity.

Furthermore, according to several researchers, the development of children's vocabulary and phonological awareness often occur concurrently (Chaney, 1994; Yopp & Yopp, 2000; Vihman, 2002). Initially, young children tend to acquire new words holistically, retaining them as they are (Vihman, 2002). As their vocabulary expands, they must learn to break down words into their individual phonological components, such as onsets, rimes, and phonemes. This is because children's mental representations of words are organised hierarchically (Metsala, 1999). Literature also suggests that children who are exposed to a familiar language have a better understanding of its sound patterns and can manipulate sounds more effectively, which is a crucial skill (Chibamba &Tambulukani, 2022; Mafwali & Bus, 2013).

While there has been considerable interest in investigating the relationship between oral language and general phonological awareness skills, existing literature suggests that only a few studies have specifically focused on the association between oral language and rhyme awareness skills (e.g., Foy & Mann, 2001; Jing et al., 2019). These studies have reported a positive correlation between these two variables. For example, Jing et al. (2019) found a strong link between children's vocabulary development and their ability to recognise rhymes. This conclusion was based on a study of 15 five-year-old normal-hearing children. In this study, children with strong

vocabulary skills demonstrated better rhyme awareness than those with weaker vocabulary. Also, when Foy and Mann (2001) investigated the relationship between children's speech perception and rhyming awareness measures, they found that the two variables were strongly associated, even after controlling for age, vocabulary, and letter knowledge. Their study also discovered that children with underdeveloped rhyme awareness tended to have less mature articulation patterns, regardless of age, vocabulary, and letter knowledge. Unfortunately, no prior research exists on the association between rhyme awareness skills and vocabulary in Zambia. Therefore, research is needed to explore the relationship between language and rhyme awareness skills in young children in Zambian. This is particularly important given the limited body of knowledge on this important topic.

Current study

The current study examined the relationship between home literacy environment, oral language, and preschool children's rhyme awareness skills in Lusaka province, Zambia. The research questions the study aimed to explore are as follows: (I) Is there a link between the home literacy environment and rhyme awareness skills of Zambian preschool children? (II) Is the child's oral language proficiency, which includes receptive vocabulary, expressive vocabulary, and familiarity with the language of instruction in preschool, associated with the rhyme awareness skills of Zambian preschool children? Drawing on the literature and prior empirical research studies (Chaney, 1994; Foy & Mann, 2001; Reade, 2017), we hypothesised that preschoolers from a rich home literacy environment would demonstrate better rhyme awareness skills than those from poor home literacy environments. Furthermore, based on previous research studies (Foy & Mann, 2001; Jing et al., 2019), we also hypothesised that children with a stronger foundation in oral language would perform better on rhyme awareness activities in comparison to those with poor language skills.

Methods

Participants

The sample for this study comprised 353 typically developing preschool children, 169 boys and 184 girls *(M_{age}=81.09* months*; SD=15.69*) from 14 public preschools in Lusaka province of Zambia. The preschool centres from which children were drawn often service children from low to middle socio-economic backgrounds. A total of 316 parents/caregivers (90%) completed the questionnaire that included items

related to family demographics, parental educational level and literacy environment. The majority of the parents/guardians (91.8%) had not attained tertiary education, and only 26.4% were in formal employment.

Design and Procedure

This was a descriptive research design that involved the random selection of children from 14 preschools located in Lusaka, Chilanga, and Kafue districts of Lusaka province in May 2018. Prior to the commencement of assessments, ethical approval was obtained from the ethics committee of the University of Zambia. Parents or caregivers provided written consent for their children to participate in the study. A team of researchers, accompanied by trained Research Assistants, conducted assessments in separate rooms within the schools. Each child was individually called from their classroom to a designated assessment room, where the researchers provided a comprehensive explanation of the activities that the children would be involved in before conducting the assessment.

Assessment Measures

Demographic Data

The Biographic Information Form was used to collect participants' demographic factors, namely, age, sex, school, district in which the school was located, and the primary language spoken by the child at home. Parental characteristics such as education level, occupation, and literacy levels were also collected. The questionnaire also assessed family socio-economic status, measured by the home possessions index. The home possession index had a minimum score of 0, with a max score of 11.

Home Literacy Environment measures

The parental questionnaire was used to collect data on the home literacy environment. Two aspects were measured- literacy materials in the home Bible, schoolbooks, child story books and pictures, and other books) and literacy activities that children are engaged in (doing the alphabet, words, sentences and reading stories).

Language Tests

Children's vocabulary skills were assessed using two researcher-constructed tests: the receptive one-word picture vocabulary test, the expressive one-word picture vocabulary test, and the familiar language test, an existing instrument previously used by Matafwali (2010), Tambulukani (2015) and Mwanza-Kabaghe (2015).

Receptive one-word picture vocabulary test (RPVT). The test measured children's receptive language skills. Each item had four pictures, one target picture and three distractors. Children were asked to point at the picture that illustrated the target word. The test was scored as correct or incorrect. The test had 29 target words, and of these words, 18 were nouns, 7 were verbs, and 4 were adjectives. This test had a Cronbach's alpha of .516.

Expressive one-word picture vocabulary test. The test was constructed in line with Dunn and Dunn's (1997) Peabody Picture Vocabulary Test (PPVT). A child was presented with a picture on a computer tablet and was asked to name the picture shown to them in Nyanja. Zero was given for an incorrect response and one for the correct answer. The target words in this test were the same as in the receptive test. Therefore, the expressive test was always administered first before the receptive test. The test had 30 target words: 19 nouns, 7 verbs and 4 adjectives. The test had an acceptable Cronbach's alpha of .772.

Familiar Language Test. This test was adapted from Tambulukani (2015) familiar language test. This test had 20 items (consisting of 16 nouns, 3 verbs, and 1 adjective), and it assessed participants' familiarity with the language of instruction. Children were shown a picture and were asked to name the picture using the local language. The score sheet had target words written in three languages: standard Nyanja, town Nyanja, and English. A correct response was ticked if the participant named the picture in standard Nyanja and incorrect if the picture was in a different language or was wrongly named. The test had a low Cronbach alpha of .563.

Rhyming Awareness Measures

Rhyme awareness skills were measured using 3 researcher-constructed measures (i.e., picture rhyme test- rhyme, rhyme recognition and rhyme production tests).

Picture Rhyming test: This test examined children's ability to recognise or identify rhyming words. This test was presented to the children in Picture format. The test had four pictures that were presented to the child; two of the pictures had words that rhymed, while the other two pictures were distractors. The child was asked to point and say out two pictures that rhymed. On the scoring protocol, the words representing the two pictures that a child had pointed at were circled. In constructing the test, researchers made efforts to include items familiar to children across a range of socio-economic and cultural backgrounds. Researchers also used phonologically

similar distractors and semantically related to the target pictures (e.g., lima, cheka, sekula, tema). The tests had 20 items with a Cronbach's alpha of .786.

Rhyme recognition test. This test measured a child's ability to identify rhyming words. Participants were given two words (e.g*., poto, moto* or *kapokola, Nkoloko*), and they were asked whether the two words rhymed or not. Participants had to respond with a *yes* or *no* answer. The test had three practice samples, which were done to orient the children. On the scoring protocol, data collectors circled a zero if the child did not produce a word or produced a word that did not rhyme with the target word and a one if they produced a rhyming word. The test had a total of 15 items, and its Cronbach alpha was .540.

Rhyme production test. The rhyme production test measured the child's ability to produce rhyming words. In this test, the researcher read out a word (e.g., gona, supuni, mbululuka), and a child was asked to produce a word that rhymed with that target word. Nonsense words were accepted as long as they rhymed with the target word. On the scoring protocol, incorrect was ticked if a child did not produce a word that rhymed with the target word and correct if they produced a rhyming word. The actual word produced by the child was written down, whether correct or incorrect. Researchers used this information to verify the scores. The Cronbach alpha for this test was .849.

Statistical Analysis

A multiple linear regression analysis was carried out in SPSS version 26 to determine if there were associations between the home literacy environment, children's vocabulary language skills, and their rhyme awareness skills. Covariates, such as age, gender, and family socio-economic status, were included in the analysis.

Results

Descriptive Statistics

Levels of home literacy environment and oral language abilities

Table 1 presents the home literacy environments' means *(M*) scores and mean scores of vocabulary language. The literacy materials composite score comprised schoolbooks, children's books, picture books, and the Bible available at home. The literacy activities score included adult reading with the child, siblings reading with children, storytelling, parents engaging their children in alphabet activities, and reading words and sentences.

Table 1: *Descriptive statistics of the home literacy measures, Socioeconomic status and oral Language*

Items	*N*	*M*	*SD*	*Min*	*Max*
Literacy materials	291	2.44	1.275	0	1.00
Reading activities	239	5.665	6.220	0	1.00
Receptive vocabulary	351	11.57	3.246	3.0	22.0
Expressive vocabulary	353	4.14	2.014	0	11
Familiar language	352	6.24	1.82923	1.0	11.0

Levels of Rhyme Awareness Skills

The means and standard deviation (*SD*) scores for the dependent variables-rhyme awareness, were calculated. According to the data presented in Table 2, the mean scores for rhyme production were relatively low (*M=2.3, Maximum=15*), indicating a general deficiency in children's ability to produce rhyming words.

Table 2*: Description statistics for the rhyme awareness tests*

	N	*M*	*SD*	*Min*	*Max*
Rhyme Production	351	2.30	3.097	0	15
Picture Rhyming	351	5.49	3.915	0	17
Rhyme recognition	353	8.12	2.737	0	15

Bivariate correlations

Before conducting the correlational analysis, principal component analysis (EFA) was carried out to generate a rhyme awareness composite score based on the 3 rhyming measures. All items were found to load on a single component, and a normal distribution of the composite variable was confirmed through a normality test. Furthermore, factor analysis using PCA was conducted to create a composite score for vocabulary. All three items loaded on one component.

The Pearson correlation coefficients were computed for the variables under investigation, as shown in table 3. A positive statistically significant correlation (r=.234**) existed between vocabulary proficiency and rhyming awareness skills. Additionally, there was a small correlation between the literacy activity the child engaged in at home and rhyme awareness skills (r=.123). None of the other variables

(Parental literacy, Literacy materials, home possession, age, sex) significantly correlated with rhyme awareness, as shown in Table 3**.**

Table 3: *Intercorrelation between home literacy, language measures and rhyme awareness skills*

		1	2	3	4	5	6	7	8
1	Rhyme Awareness	1							
2	Age	-.036	1	.					
3	Sex	-.066	.008	1					
4	Parental Literacy	.036	-.086	.020	1				
5	Home Possession	.015	-.196*	-.017	.249**	1			
6	Literacy materials	.035	-.016	.008	.031	.172	1		
7	Literacy activities	**.123**	-.026	.029	.110	.085	.253**	1	
8	Vocabulary	**.234****	.337**	-.058	.084	.018	-.011	-.120	1
	Mean	.000	81.08	.52	1.59	8.54	2.44	3.83	.000
	SD	1.000	15.676	.0500	1.083	2.210	1.275	1.708	1.000

*$p < .05$, two-tailed; **$p < .01$

Association between Home Literacy Environment, oral Language and Rhyme Awareness Skills

The impact of the home literacy environment and vocabulary language on rhyme awareness skills was evaluated in the study. The following hypotheses were proposed:

1. $H_{1:}$ Home literacy activities have a significant positive impact on children's rhyme awareness skills.

2. $H_{2:}$ Home literacy materials have a significant positive impact on children's rhyme awareness skills.
3. $H_{3:}$ There is a significant positive impact of parental literacy and children's rhyme awareness skills.

The dependent variable (rhyme awareness) was regressed on predicting variables of home literacy materials, home literacy activities, parental literacy levels, child's vocabulary language, and covariate variable of home possession, child age and sex. The independent variables significantly predicted rhyme awareness skills, *F (7, 81) =2.201, p=.043*. This indicates that the 7 factors that were entered into the regression model significantly impacted rhyme awareness. Moreover, the R^2=.160 depicts that the model explains 16% of the variance in rhyme awareness.

Furthermore, the coefficients were examined to determine the impact of each factor on the criterion variable, which is rhyme awareness. The first hypothesis (H_1) examined whether literacy activities at home positively impacted rhyme awareness skills. The results indicated that literacy activities at home significantly impacted rhyme awareness skills (*B=.157, t=1.002, p=.008*), supporting H_1. On the other hand, the second hypothesis (H_2) tested whether literacy materials at home had a positive effect on rhyme awareness skills. However, the results revealed that home literacy materials did not significantly affect rhyme awareness skills *(B=-.065, t=-.769, p=.444)*, indicating that H_2 was not supported. Lastly, the third hypothesis (H3) explored whether the child's vocabulary influenced rhyme awareness skills. The results indicated that vocabulary language had a significant positive effect on rhyme awareness skills *(B=.2830, t=.2.669, p=.009)*, supporting H3. There was a significant correlation observed between age and rhyme awareness competence (p=.044). The connection observed indicated a negative association, implying that older children tended score lowborn rhyme awareness measures. Other variables such as parental literacy levels, home possession and child sex did not significantly correlate with rhyme awareness. Table 4 presents the results of the regression.

Table 4: *Regression results*

	Model	B	Std. Error	Beta	t	p-value
1	(Constant)	.705	.703		1.002	.319
	Literacy activities	.157	.057	.300	2.732	.008*
	Literacy Materials	-.065	.085	-.082	-.769	.444
	Parental Literacy	-.391	.258	-.159	-1.518	.133
	Vocabulary	.283	.106	.289	2.669	.009*
	Childage1	-.011	.005	-.217	-2.049	.044*
	Child sex	-.015	.186	-.008	-.081	.936
	Home possessions	-.015	.039	-.040	-.379	.706
	R^2	*.160*				
	F (7,81)	*2.201*				

Dependent Variable: RHYME AWARENESS

Discussion

The present study investigated the influence of the home literacy environment and oral language on children's rhyming awareness skills. We hypothesised that children who were exposed to a favourable home literacy environment and had better oral language abilities would exhibit higher levels of rhyme awareness skills compared to their counterparts from disadvantaged home literacy environments with limited language skills.

The Impact of Home Literacy Environment on Rhyme Awareness Skills

This study found a significant and positive relationship between home literacy activities and children's rhyme awareness skills. The findings suggested that children who engaged in literacy activities at home, such as practicing the alphabet, reading words and sentences, and listening to short stories, had a better understanding of rhyming than those who were less exposed to such activities. These results are consistent with previous literature that has shown the positive effects of home literacy activities on children's rhyming awareness skills (Foy & Mann, 2003; Reade, 2017). For instance, Reade's (2017) study found that when parents read stories to their children and engage them in different literacy activities, such as learning the alphabet and syllables, their ability to recognise and create rhyming words improved. Therefore,

it can be concluded that home literacy activities play a crucial role in enhancing children's rhyming awareness skills in Zambian.

The relationship between home literacy resources and rhyme awareness skills was also investigated in this study. The findings revealed that there was no significant correlation between the availability of home literacy resources and rhyme awareness skills. These results diverge from previous research, such as Castro et al.'s (2008) study, which found a positive relationship between rhyming skills and exposure to reading materials at home. It is possible that the lack of influence of literacy resources on rhyme awareness skills can be attributed to the types of literacy materials that are accessible in most low-income households in Zambia. For instance, Chansa-Kabali (2014) discovered that the most commonly available book in such households was the Bible, which has limited potential for supporting emergent literacy skills in young children compared to children's storybooks and picture books, which have been shown in previous studies (Elmesalamy & El-Ater, 2022; Castro et al., 2008) to be effective in supporting children's emergent literacy skills.

Another possible explanation for the lack of correlation between resources and rhyme awareness is the shortage of nursery rhymes in local languages. During the data collection process for this study, the researchers discovered that there were no nursery rhymes in the local languages in the preschool books. The few rhymes available in the preschool books were in English, while the remainder of the content was in a local language (Cinyanja). As a result of a scarcity of nursery rhymes in local languages, most Zambian households may not expose their children to them. Children learn to read better and faster in a familiar language (Matafwali & Bus, 2013; UNESCO, 2006). This is because children are more familiar with the sound of the language when it is a familiar language than when it is a foreign language, and one needs to be able to play with sounds to rhyme. Therefore, providing age-appropriate reading materials (such as storybooks and picture books) written in the language of instruction and nursery rhymes in local languages may be beneficial to young children in Zambia's development of early literacy abilities. In addition to examining the relationship between oral language and rhyme awareness skills, this research also looked at the link between the home reading environment and rhyme awareness abilities.

Influence of Oral Language Skills on Rhyme Awareness Skills

A significant positive correlation was found between Zambian preschool children's vocabulary abilities and their rhyming awareness skills. These findings are in line with previous research conducted by Jing et al. (2019) and other earlier studies (Foy & Mann, 2001; Metsala, 1999; Parra et al., 2011), which have demonstrated that a child's linguistic proficiency plays a critical role in their capacity to acquire rhyming awareness skills. Children with better vocabulary skills are more likely to break down words into smaller components such as rimes, onsets, and phonemes (Metsala, 1999). As this study and previous research have shown, a child must possess a specific vocabulary to be able to produce a word that rhymes with another. Therefore, children with a larger vocabulary find it easier to recognise the rhyming patterns because they can identify the sound of a word that rhymes with another word. Thus, fostering a child's vocabulary expansion during early childhood is crucial to their overall literacy development.

Conclusion

This research delved into the relationship between the home literacy environment, oral language, and rhyme awareness skills of preschoolers. The findings revealed that literacy activities and children's vocabulary language were significant indicators of rhyming awareness, whereas the home literacy resources had no considerable impact. The results of this study suggest that simply having literacy resources was not enough to support the development of rhyming abilities, but literacy activities in which parents engaged their children did. The researchers speculated that the relationship between literacy resources and rhyme awareness may have been affected by the lack of suitable resources that are found among most low-income families in Zambia. To promote the development of rhyme awareness skills, it is essential to expose children to age-appropriate materials such as nursery rhymes in the language of instruction. The study concludes that creating a conducive environment that fosters the acquisition of these skills is crucial for fostering rhyme awareness skills and building a strong foundation for future reading success.

Limitations and Future Directions

This research contributes to the existing body of knowledge highlighting the significance of home literacy environment and oral language in fostering rhyme awareness skills. Nonetheless, it is crucial to acknowledge some of the limitations of this study. One of the limitations is that the research was confined to only 14

preschools situated in urban and peri-urban regions within the Lusaka province. Therefore, a more extensive study covering both rural and urban settings is essential to investigate the influence of home literacy environments and oral language on the development of rhyme awareness abilities. A comprehensive study encompassing diverse locations would provide a more holistic understanding of the impact of these factors on rhyme awareness skills of early childhood learners in Zambia.

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