Components of Teachers' Pedagogical Content Knowledge Associated with Children's Acquisition of Kiswahili Pre-reading Skills in Rural Tanzania

Geraldina Edward
geraldinaedward@gmail.com
University of Dodoma
Richard Shukia
richardshukia@gmail.com
University of Dar es Salaam

ABSTRACT

This study examined the components of teachers' pedagogical content knowledge associated with children's acquisition of Kiswahili pre-reading skills in high and low performing rural public schools, Tanzania. Stratified random sampling and purposive sampling were used to obtain 175 participants. Questionnaire, observation, semi-structured interview, documentary review, and tests were the methods employed for data collection. An independent sample t-test and thematic analyses were employed. Results indicated that teachers possessed moderate knowledge of Kiswahili pre-reading skills content but they had low pedagogical knowledge and knowledge of children's thinking around Kiswahili pre-reading skills. Teachers limited pedagogical content knowledge was mainly associated with inadequate training in pre-primary education among others. Thus, teachers limited pedagogical content knowledge of Kiswahili pre-reading skills was associated with children's low acquisition of Kiswahili pre-reading skills. To maximize children's learning outcomes, acquisition of Kiswahili pre-reading skills in particular, comprehensive pre-service and in-service training should be guaranteed to obtain qualified teachers to teach in pre-primary schools. School quality assurance monitoring mechanisms should be strengthened and they should visit pre-primary classes and monitor Kiswahili pre-reading skills teaching process so as to improve children's acquisition of the skills.

Keywords: Teachers' pedagogical content knowledge, literacy skills, pre-reading skills, acquisition, pre-primary schools

INTRODUCTION

Children's acquisition of reading skills remains one of the fundamental skills towards children's academic success, social and economic outcomes (Fortune, Kelly & Fhionnlaoich, 2014; Shukia, 2014; Tanzania Institute of Education [TIE] 2016). However, children's acquisition of reading skills, pre-reading skills in particular has remained low especially in rural schools in different countries including Tanzania (Reardon, Valentino, & Shores, 2012; Piper, Schroeder & Trudell, 2016). Similarly, a study conducted by Dolean et al (2019), found that children in Roma had lower levels and slower growth of early reading skills than their peers. It means that minority children living in rural contexts and in poverty contexts are more prone to low reading acquisition.

In Tanzania, regional and district disparities in reading skills among children found in urban and rural contexts exist (Ngorosho, 2011; Rawle, 2015; Kafle & Jollife, 2015; Ndijuye & Rao, 2019). For instance, the national reading assessment study conducted in Tanzania revealed that pre-primary and primary school children were not mastering basic reading skills (Ndijuye, 2020; Research Triangle Institute [RTI] International, 2014). Another study found that only 12 percent of Grade 2 pupils were able to meet the oral reading fluency benchmark of 50 correct words per minute in Kiswahili (RTI International, 2017). Marwa (2014) revealed that eight percent of Grade 2 pupils could not read with comprehension in Kiswahili. A study conducted by Anney and Mmasa (2016) revealed that about 39 percent of primary school pupils in the studied schools were unable to read letters, 37.9 percent could not read simple words, 42.3 percent were unable to read a sentence, and 59.8 percent could not read or do comprehension tasks. Likewise, (Uwezo, 2015) revealed that children from rural schools perform lower in Kiswahili basic reading skills in different tests than children from urban areas. The existing trend indicate that children learning to read in divergent rural schools, high performing and low performing schools still experience serious reading problems in Kiswahili literacy skills among others.

Despite the existing condition of inability to read among children, available studies acknowledge that the learning environment especially presence of knowledgeable teachers is one of the critical factors towards children's reading success (Alatalo, 2016; Anney & Mmasa, 2016; Olasehinde-Williams, Yahaya, & Owolabi, 2018). It means that, for children's successful acquisition of reading skills at the foundational

level, teachers among others should possess relevant pedagogical content knowledge around the subject matter in order to offer relevant instructions for successful children's reading acquisition.

Shulman defines pedagogical content knowledge (PCK) as knowledge beyond the knowledge of the subject matter *per se* to the dimension of subject matter knowledge for teaching (Shulman, 1986). Teachers' pedagogical content knowledge integrates the knowledge of content and pedagogy into most understandable instructional practice to enable learners to achieve the intended learning objectives (Faisal, 2015). It is made up of various components such as teachers' knowledge of the subject matter to be learned or taught, pedagogical strategies, methods and processes, and teachers' knowledge of children's thinking including errors and difficulties faced by the around the subject content (Mahmoodi-Shahrebabaki, 2017; Novianti & Febrialismanto, 2020).

Extant literature supports that it is teachers' pedagogical content knowledge among other instructional aspects, which significantly contributes to children's learning, including learning of pre-reading skills (Gess-Newsome & Carlson, 2013; Peng, 2013). Similar studies inform that teachers should possess knowledge of the content they teach for successful learning outcomes, including learning of reading skills (Alatalo, 2016; Hammond, 2015; Olfos, Goldrine, & Estrella, 2014). Likewise, teachers should possess effective pedagogical knowledge for effective instructional practices (Olasehinde-Williams et al., 2018). Keller, Neumann and Fischer (2017) argue that teachers possessing pedagogical content knowledge are able to anticipate learners' difficulties and adaptively respond when learners encounter learning problems. A study conducted by Yusof and Zakaria (2015) found that teachers' knowledge of learners has far-reaching implications for knowledge acquisition and pedagogy. It means that teachers' knowledge of errors, mistakes or questions the learner encounters in learning a specific content may facilitate efficient strategies of problem-solving. Teachers' knowledge of learners' thinking strategies can help them refine children's understanding. Informing the current study, Vygotsky's assertion from his Socio-cultural theory stipulates that a child learns well when she or he interacts with someone who is more knowledgeable than the self (Lynch, 2010; Vygotsky, 1978). In this regard, children need the help of a more knowledgeable person who scaffolds the new ideas by assisting the children in completing the task. Therefore, teachers must possess

knowledge of various components of teachers' pedagogical content knowledge to assist children acquire Kiswahili pre-reading skills.

However, significant number of existing literatures inform that teachers' lack of effective pedagogical content knowledge is associated with poor instructional practices resulting to poor learning outcomes (Arrow et al, 2015; Chapoo et al, 2014; Oh & Kim, 2013). Similarly, Zhang (2015) found that teachers' lack of pedagogical content knowledge hinders children's learning at classroom level. The study found that language teachers in the school prepare inadequately when teaching reading lessons in class and also possess inadequate knowledge on how to teach phonemic awareness skills in class (Mohammed & Amponsah, 2018). Significant number of studies acknowledge that low family socio-economic factors, lack of facilities and resources, the dominance of mother tongue, and inadequate qualified teachers remain as barriers to children's reading acquisition among others in rural contexts (Anney & Mmasa, 2016; Sa'ad & Uman, 2014; UKEssays, 2018).

The contribution of teachers' pedagogical content knowledge to children learning, acquisition of pre-reading skills in particular, is documented. However, less is still known about the way various components of teachers' pedagogical content knowledge are associated with children's learning of Kiswahili pre-reading skills in rural contexts found in Tanzania. Therefore, the current study was aimed to examine the three components of teachers' pedagogical content knowledge of Kiswahili pre-reading skills associated with children's acquisition of Kiswahili pre-reading skills in some selected high performing schools (HPS) and low performing public school (LPS) in rural Tanzania. The study was guided by the following questions: What Kiswahili pre-reading skills knowledge do teachers possess and how the knowledge is associated with children's learning of Kiswahili pre-reading skills in high and low performing schools?; What pedagogical knowledge around Kiswahili pre-reading skills do teachers possess and how the knowledge is associated with children's learning of Kiswahili pre-reading skills in high and low performing schools ?; What knowledge of children's thinking around Kiswahili pre-reading skills do teachers possess and how the knowledge is associated with children's learning of Kiswahili pre-reading skills in high and low performing schools?

MATERIALS AND METHODS

Design

Concurrent triangulation mixed method design was employed and helped researchers to examine teachers' pedagogical content knowledge as well as exploring their diverse opinions and views concerning the phenomenon under study.

Study Sample

Stratified random sampling was employed in the selection of children while teachers were purposively sampled for the virtue of their positions. Teachers possessed rich information related to their level of pedagogical content knowledge and children's acquisition of Kiswahili pre-reading skills. In total, there were 175 participants, 155 children, and 20 teachers. Participants' demographic characteristics are presented in Table 1.

Table 1: Demographic Characteristics of the Participants (N=175)

Participants	Variables	Items	Frequency	Percentage
Children	Gender	Male	77	49.7
		Female	78	50.3
	Age (years)	Below 5	5	3.2
		5	75	46.5
		5 and above	78	50.3
Teachers	Gender	Male	4	20.0
		Female	16	80.0
	Age (years)	20-29	8	40.0
		30-39	1	5.0
		40-49	4	20.0
		50-59	7	35.0
	Education level	Grade III A certificate	1	5.0
		Diploma certificate	19	95.0
	Pre-primary teaching qualification	With pre-primary teaching qualification	1	5.0
		Without pre-primary teaching qualification	19	95.0
	In-service training attendance	Once	16	80.0
		Twice	1	5.0
		Non	3	15.0

Data collection methods

Documentary review guide

The guide was used to study teachers' knowledge of preparation of lesson plans of Kiswahili pre-reading skills. Analysis of the lesson plans was aimed to generate data on teachers' ability to plan and implement various

aspects of teachers' pedagogical knowledge. Specifically, teaching and learning methods, materials, and assessment techniques were examined. *Classroom Observation Checklist.*

The tool was used to assess each observed teacher's use of instructional methods, materials, and activities in terms of identifying and correcting children's Kiswahili pre-reading errors and difficulties. A rubric of five levels (1=Not evident at all, 2=Not evident, 3=Neutral, 4= Evident, 5=Evident at high level) with 18 items was used. Twenty classroom observations were conducted, one observation for each teacher. Likewise, each classroom learning environment was observed in terms of availability, use, relevance and amount pre-reading teaching and learning materials.

Questionnaire
The tool was employed to assess teachers' pedagogical content knowledge as related to children's acquisition of Kiswahili pre-reading skills. A 4-point Likert scale type (1= Not knowledgeable, 2= Moderately knowledgeable, 3= Knowledgeable 4= Completely knowledgeable) with 12 items to get their total scores around teacher content knowledge and knowledge of learner's sub-components of pedagogical content knowledge. The questionnaire was self-administered by the researcher. Self-administration of the questionnaire ensured that each teacher responds to questionnaire items independently without external assistance and the researcher was able to collect all questionnaires as this reduced the chance of missing the information. The instruments' Cronbach's reliability was .958 which was considered excellent.

Semi-structured interview guide
The tool was used with teachers to get their views and meanings related to phenomena under the study. The interviews were conducted in school premises and they lasted for 30-45 minutes. They were voice recorded and the researcher wrote some notice in a notebook.

Children's Kiswahili pre-reading skills assessment tests
This tool was divided into two main sections: children demographic characteristics such as age and sex, and testing items. The testing items were further subdivided into three sub-tests: phonemic awareness, letter knowledge, and vocabulary knowledge. The total number of items were 24, and were scored as: Correct, Incorrect and I don't know. The test was

administered by the first author in a quiet place around the school premises. The instrument's Cronbach's reliability was .970 which was considered excellent.

Data analysis

Statistical Package for Social Sciences (SPSS) version 21 software was used to perform descriptive analysis of the items in the study instruments. Thus, frequency and percentage of the study instruments was calculated. On the other hand, an independent sample t-test was employed to assess if there was any significant difference in teachers' PCK of Kiswahili pre-readings skills in high and low performing schools under study. For qualitative data analysis, the transcripts were imported in the project folder created in NVivo version 12 for qualitative and non-structured data. Nodes were deductively created from research questions, the theoretical framework and the previous literature but the data were approached inductively. Coding was done and a list of nodes from each transcript was created. Moreover, framework matrices were run and so source materials were summarized along the established nodes. The findings were presented and interpreted in a simple and straightforward way with rich descriptions supported by representative verbatim quotations from the interviews.

Ethical issues and considerations

Ethical clearance was obtained from the University of Dar es Salaam where the two authors were attached. To reach to the selected schools, research permits from Mwanza and Mara Regional Administrative Secretaries (RAS) and Misungwi and Musoma District Administrative Secretaries (DAS) were obtained. Finally, the first author had to consult school authorities to obtain teachers' consent to include children in the study. Teachers provided children's consent to be included in the study because the law recognises them as children's secondary caregivers to parents. Confidentiality was observed by assigning pseudonyms to participants, and unauthorised person had no access to the collected data.

RESULTS

This segment presents the findings of the study, presented largely by looking at the research questions.

Kiswahili Pre-reading Skills Pedagogical Content Knowledge Components Possessed by Teachers in High and Low Performing Schools

Findings in Table 2 and Table 3 present descriptive scores of the components of teachers' pedagogical content knowledge associated with their children's acquisition of Kiswahili pre-reading skills in high and low performing rural public schools. Findings in Table 2 present scores of observed components of teachers' pedagogical content knowledge of Kiswahili pre-reading skills from high and low performing rural public pre-primary schools.

Table 2: Scores of Observed Components of Teachers' Pedagogical Content Knowledge of Kiswahili pre-reading skills (N=20)

Items	School Categories	Not evident at all		Not Evident		Neutral		Evident		Evident at high level	
		F	%	f	%	f	%	f	%	f	%
Teacher uses observation method during Kiswahili pre-reading skill lesson	HPS	10	11.1	10	11.1	10	11.1	50	55.6	10	11.1
	LPS	30	27.3	30	27.3	10	9.1	40	36.4		
Teacher uses examples to teach children Kiswahili pre-reading skills	HPS	10	11.1					50	55.6	30	33.3
	LPS	30	27.3	10	9.1	30	27.3	40	36.4		
Teacher uses songs to teach children pre-reading skills	HPS	10	11.1			10	11.1	60	66.7	10	11.1
	LPS	30	27.3			10	9.1	60	54.5	10	9.1
Teacher uses plays to teach children pre-reading skills	HPS	10	11.1	30	33.3			30	33.3	20	22.2
	LPS	30	27.3	30	27.3	20	18.2	30	27.3		
Teacher uses questions and answers in teaching children Kiswahili pre-reading skills	HPS	20	22.2					50	55.6	20	22.2
	LPS	10	9.1			20	18.2	70	63.6	10	9.1
Teacher assists children to pronounce sounds of alphabet letters	HPS	10	11.1					50	55.6	30	33.3
	LPS	40	36.4	30	27.3			40	36.4		
Teacher provides children time to name alphabet letters	HPS	20	22.2					60	66.7	10	11.1
	LPS	20	18.2	30	27.3			50	45.5	10	9.1
Teacher provides children time to name pictures	HPS	20	22.2	20	22.2	10	11.1	20	22.2	20	22.2
	LPS	40	36.4	40	36.4			30	27.3		
Teacher provides children time to sing alphabet songs	HPS	20	22.2	10	11.1	10	11.1	30	33.3	20	22.2
	LPS	40	36.4	20	18.2			40	36.4	10	9.1
Teacher explains pre-reading skills by giving examples	HPS		11.1	10				60	66.7	20	22.2
	LPS	40	36.4	30	27.3	20	18.2	20	18.2		
Teacher identifies pre-reading errors done by children	HPS	40	44.4	10	11.1	10	11.1	20	22.2	10	11.1
	LPS	50	45.5	30	27.3			20	18.2	10	9.1
Teacher immediately corrects pronunciation errors done by children	HPS	40	44.4	10	11.1			30	33.3	10	11.1
	LPS	40	36.4	30	27.3			40	36.4		

Items	School Categories	Responses									
		Not evident at all		Not Evident		Neutral		Evident		Evident at high level	
		F	%	f	%	f	%	f	%	f	%
Teacher immediately corrects letter naming errors done by children	HPS	50	55.6	20	22.2			20	22.2		
	LPS	40	36.4	20	18.2			50	45.5		
Teacher helps children facing sound pronunciation difficulties in pre-reading lesson	HPS	40	44.4	10	11.1			40	44.4		
	LPS	60	54.5	20	18.2			30	27.3		
Teacher helps children facing letter naming difficulties	HPS	50	55.6	10	11.1	30	33.3				
	LPS	50	45.5	20	18.2			30	27.3	10	9.1
Teacher helps children facing picture naming difficulties	HPS	20	22.2	10	11.1			50	55.6	10	11.1
	LPS	70	63.6	20	18.2			10	9.1	10	9.1
Teacher gives feedback to children during pre-reading lesson	HPS	30	33.3	30	33.3	30	33.3				
	LPS	70	63.6	30	27.3			10	9.1		

Findings in Table 2 signal that teachers from high and low performing schools did not differ much in terms of teachers' knowledge of Kiswahili pre-reading skills pedagogical knowledge. The teachers used observation methods, examples, questions and answers to help children pronounce and name alphabet sounds and letters, giving children time to sing alphabet songs and be able to teach by examples almost in similar number. For example, only 50(55.6%) teachers from high performing schools unlike 70(63.6) teachers from low performing were able to use questions and answers teaching methods while teaching Kiswahili pre-reading skills to children. In other words, most of the teachers from high performing schools had low knowledge of employing the questions and answers teaching methods related to Kiswahili pre-reading skills than their counterparts. Similarly, more than 50 percent of the teachers in both school categories lacked knowledge of children's thinking pertaining to Kiswahili pre-reading skills. As a result, they failed to *identify pre-reading errors and difficulties which children faced while learning Kiswahili pre-reading skills* and they did not *correct or help children when they faced pre-reading difficulties*. It means that many teachers in both school categories were unable to help children facing sound, letter, and picture naming difficulties as they were observed during the Kiswahili pre-reading skills lessons.

Findings in Table 3 present scores of reported components of teachers' pedagogical content knowledge of Kiswahili pre-reading skills from high and low performing rural public pre-primary schools.

Table 3: Scores of Reported Components of Teachers' Pedagogical Content Knowledge of Kiswahili Pre-reading Skills (N=20)

Items	School Categories	Not Knowledgeable		Moderately Knowledgeable		Knowledgeable		Highly Knowledgeable	
		f	%	f	%	f	%	f	%
I know all major pre-reading topics	HPS			20	22.2	50	55.6		
	LPS	2	1.8	29	26.4	79	71.8	20	22.2
I know how pre-reading concepts are related	HPS			30	33.3	50	55.6	10	11.1
	LPS	10	9.1	20	18.2	80	72.7		
I know teaching and learning materials appropriate for pre-reading lessons	HPS					70	77.8	20	22.2
	LPS			30	27.3	60	54.5	20	18.2
I know how to assess children's pre-reading performance in classroom in terms of sound pronunciations, letter, and picture naming	HPS					50	55.6	40	44.4
	LPS			30	27.3	60	54.5	20	18.2
I can explain PRS while teaching to increase children's understanding of the concepts	HPS					70	77.8	20	22.2
	LPS	10	9.1	20	18.2	70	63.6	10	9.1
I can begin pre-reading lesson with different activities to motivate children during PRS lessons	HPS			10	11.1	50	55.6	30	33.3
	LPS	10	9.1	10	9.1	60	54.5	30	27.3
I can select and use appropriate PRS teaching and learning methods	HPS					40	44.4	50	55.6
	LPS			10	9.1	90	81.8	10	9.1
I prepare lessons plans by considering the important points of pre-reading topics	HPS			10	11.1	70	77.8	10	11.1
	LPS			20	18.2	70	63.6	20	18.2
I can effectively use reinforcers and punishments during pre-reading lessons	HPS	10	11.1	20	22.2	40	44.4	20	22.2
	LPS			70	63.6	30	27.3	10	9.1
I know possible difficulties or misconceptions that children might have in PRS lessons	HPS			10	11.1	50	55.6	30	33.3
	LPS			30	27.3	50	45.5	30	27.3
I know how to diagnose or notice children's pre-reading difficulties and misconceptions while teaching a new pre-reading topic	HPS			10	11.1	40	44.4	40	44.4
	LPS			30	27.3	70	63.6	10	9.1
I can eliminate or meet children's pre-reading difficulties and misconceptions during the teaching of pre-reading topics	HPS					60	66.7	30	33.3
	LPS			10	9.1	80	72.7	20	18.2

Findings in Table 3 shows more than 40 percent of teachers from high and low performing schools had knowledge of Kiswahili pre-reading skills around its content, pedagogy, and children's thinking. It means that above 40 percent of the teachers studied from both school categories rated themselves that they were *Knowledgeable,* meaning that they had pedagogical content knowledge of Kiswahili pre-reading skills. It implies that more than half of the teachers studied in both school categories had pedagogical content knowledge of Kiswahili pre-reading skills. It means that teachers from both school categories were neither *Highly Knowledgeable* nor *Not Knowledgeable*, instead they were *Knowledgeable* of Kiswahili pre-reading skills. This suggests that there were teachers from both school categories who possessed low to moderate pedagogical content knowledge of Kiswahili pre-reading skills.
An independent sample t-test confirmed that there was no statistically significant difference for teachers from high performing schools ($M= 106.67$, $SD = 20.12$), and teachers from low performing schools ($M= 92.45$, $SD = 19.07$); t (19) = 1.618, $p< .05$ (two tailed) in teacher performance in pedagogical content knowledge of Kiswahili pre-reading skills. It means that teacher performance in pedagogical content knowledge of Kiswahili pre-reading skills had no significant association with children's acquisition of Kiswahili pre-reading skills in both school categories.

Table 4 presents the findings of pedagogical content knowledge elements along their sub-elements possessed by the teachers. Each of the components of teachers' pedagogical content knowledge of Kiswahili pre-reading skills is elaborated further below the table.

Table 4: Components of Teachers' Pedagogical Content Knowledge of Kiswahili Pre-reading Skills Associated with Children's Acquisition of Kiswahili Pre-reading Skills (N=20)

Components of teachers' pedagogical content knowledge	Sub-components of teachers' pedagogical content knowledge	Level of possession
Content knowledge	Topics	High
	Topic relationships	High
Pedagogical knowledge	Teaching and learning methods	Moderate
	Teaching and learning materials	Moderate
	Assessment knowledge and techniques	Moderate
Knowledge of children's thinking	Errors and difficulties	Low
	Ways of eliminating errors and difficulties	Low

Teachers' Content Knowledge of Kiswahili Pre-reading Skills

The findings revealed that teachers had high knowledge of Kiswahili pre-reading skills content in terms of the topics constituting Kiswahili pre-reading skills such as phonemic awareness, letter and vocabulary knowledge and knowledge of the way the topics are related.

Knowledge of Kiswahili pre-reading skills topics: Teachers in both school categories were able to mention the content forming Kiswahili pre-reading skills such as vowels, consonants, words and names of pictures. Teachers' ability to outline the content of Kiswahili pre-reading skills indicated that they possessed the knowledge of the subject matter. During interviews, one of the teachers said:

> Children should be taught letter names, how to identify various words and pronounce them, how to create words by looking at pictures as well as creating words from letter figures and be able to write them. Also, they should be taught how to identify an object and name it (Interview, Teacher MR, High performing school).

Knowledge of the relationships among Kiswahili pre-reading skills: More than 55 percent of the teachers from high performing schools and more than 70 percent of teachers from low performing schools were able to explain relationships existing among the components of Kiswahili pre-reading skills. There were teachers in both school categories who said that the components of Kiswahili pre-reading skills such as pronunciation of letter sounds, naming of alphabet letters and naming of various pictures are related because they are the basic components of any reading skills. However, there were less than 10 percent of teachers from low performing schools who were unable to describe the relationship existing among Kiswahili pre-reading skills. One teacher said: "Vowel sounds are related with consonants because they are the ones which help a child to form syllables. "Vowel sounds are the main sounds, so children must understand them first then consonants to form words." (Interview, Teacher CH, Low performing school).

Teachers' Pedagogical Knowledge of Kiswahili Pre-reading Skills

The findings revealed that teachers' pedagogical knowledge varied along pedagogical aspects such as teaching and learning methods, materials and assessment knowledge and techniques.

Teachers' knowledge of Kiswahili pre-reading skills teaching and learning methods: More that 50% of teachers in the studies schools used

questions and answers teaching methods besides songs, plays and role plays. They were unable to use the other methods consistently due to lack of training related to teaching in pre-primary schools. Teachers lacked knowledge of Kiswahili pre-reading skills teaching and learning methods, materials and assessment techniques. A few teachers from both school categories admitted that they had employed songs while teaching the skills to children. Also, less than 30% of teachers admitted that they used plays while teaching children to read. Some teachers were able to tell the importance of each method. One of the teachers said:

> …when teaching this class, I use songs because when they sing, they remember. Singing keeps memory. I just use the pictures of letters and some cards as you can see. In fact, I use cards and pictures. Also, I assess one by one to identify those who understand and those who do not by asking them some questions. (Interview, Teacher MC, High performing school).

Although teachers knew the methods, they minimally used them while teaching children to learn to read Kiswahili pre-reading skills. Teachers' limited application of this knowledge was reflected in children's low acquisition of the skills.

Teachers' knowledge of Kiswahili pre-reading skills teaching and learning materials: the findings indicate that more that 50% of teachers possessed this knowledge. They knew the materials relevant for teaching and learning of Kiswahili pre-reading skills, yet, majority of these teachers were not using the materials. They did not used the materials because in majority of the schools, the materials were not available. Some schools had insufficient number of the materials to accommodate the number of children enrolled in such schools. Similarly, many schools had no sufficient fund that would enable the teachers to buy some materials. Moreover, majority of the schools had no specific pre-primary classrooms to keep the materials for future use. Teachers mentioned further that they real knew that they were supposed to prepare the materials and use them. However, they had limited knowledge of preparing relevant Kiswahili pre-reading materials. Teachers' lack of such knowledge was attributed to irrelevant training concerning with teaching in pre-primary classes. Teachers admitted that they rarely participated in seminars that would equip them with some knowledge of preparing and using the materials making these children acquire the skills. One of the teachers said:

I think charts, pictures, real objects, and charts of alphabets are some of the materials that should be available and be used to make children learn Kiswahili PRS. In my school, materials such as cards and charts are available and they appropriate as you can see the cards and charts of alphabet letters, they are hanged on walls, and I do use them in learning corners. However, the materials are not sufficient because we do not have fund, specifically allocated for buying such materials (Interview, Teacher LN, High performing school).

Teachers' Kiswahili pre-reading skills assessment knowledge and techniques: Assessment of Kiswahili pre-reading skills done by the teachers was mainly formative using questions and answers. It was also general that individualized. The teachers did not use individual assessment due to presence of large classes and lack of assessment knowledge of pre-primary class. This condition lowered their teaching morale as well. On the other hand, teachers employed various assessment techniques such as questions and answers, assessment forms and observation. Despite the teacher's knowledge of assessment techniques, they had limited application of the knowledge to enable children acquire Kiswahili pre-reading skills. Teachers' lack of assessment knowledge was attributed to lack of professional development training. Lack of the training made teachers less competent in assessing children's learning of Kiswahili pre-reading skills.

Teachers' knowledge of children's thinking around Kiswahili pre-reading skills
Teachers' knowledge of children's thinking was explored along their knowledge of pre-reading errors made by children's while learning to read Kiswahili phonemes, letters and pictures and knowledge of difficulties they experienced while learning such skills. It means that, teachers' knowledge of identifying and correcting such errors and difficulties was explored.

Teachers' knowledge of Kiswahili pre-reading skills errors and difficulties: The observed teachers were generally unable to identify and correct children who experienced letter and picture naming difficulties. As a result, majority of the children taught by the teachers were not corrected and helped with the preconceived ideas and difficulties in the lessons. For example, when children named letters d as b, or o as zero (0), most of the observed teachers proceeded by selecting another child to give an answer to the same question. Likewise, some children failed to

name correctly sounds such as / l/ pronounced as /r/, /g/ pronounced as /e/, and /e/ was pronounced as number 6. However, the teacher accused children of not being aware of the sounds despite having taught them several times. The observed teachers' inability may be associated with their lack of knowledge of the sources of children's learning errors and difficulties or lack of knowledge of the methods of correcting them.

Teachers' knowledge of ways of eliminating Kiswahili pre-reading skills errors and difficulties: More than 40 percent of the teachers from both school categories were unable to explain how they could identify and correct pre-reading difficulties. The teachers were unable to explain why the children learning to read failed to pronounce initial sounds for some Kiswahili words such as */p/* in *pipa* for *drum*, */l/* in *lala* for *sleep,* and name letters like *g, b, d,* and *h.* However, the teachers attributed children's reading difficulties to children's poor school attendance and the effects of mother-tongue interference. One of the teachers said:

> Children face difficulties in pronouncing and identifying almost all the vowel sounds. They mix or confuse them, for example, a—e, u—a. Only o, is easily identified and pronounced by the children. Another difficult they face is to identity or differentiate some letters…. For instance, many children face difficulties in differentiating letters b and p, m and w, d and b. I try my best to help them… but they fail because they do not come to school regularly (Interview, Teacher LC, High performing school).

DISCUSSIONS

This segment discusses the study's findings in accordance with the study questions. Majority of the teachers were knowledgeable of most components of pedagogical content knowledge of Kiswahili pre-reading skills. However, some teachers in both school categories had mixed views about the Kiswahili pre-reading skills subject matter showing that not all the teachers had high knowledge of Kiswahili pre-reading content. The teachers experienced limited professional development training. As a result, some teachers had limited knowledge of the relationships existing among the components of Kiswahili pre-reading skills. Arrow et al. (2015) argues that one of the causes of low knowledge among teachers is poor professional development. It means that, the learner can learn some skills better if he or she is guided by a knowledgeable person (Vygotsky, 1978). These findings are critical because children's learning is largely dependent on the knowledge of the teacher around the subject matter. However, if the teachers possess limited knowledge of the subject matter,

children taught by such teacher are less likely to acquire these requisite basic and essential skills.

Teachers were unable to plan and use methods frequently and appropriately. Teachers' limited knowledge of instructional methods was due to limited specialised training in pre-primary education issues. Shukia (2014) supports the current findings that teachers' lack of pedagogical knowledge limits their ability to engage children learning to read Kiswahili in playful reading activities. Oh and Kim (2013) support that teachers may fail to employ appropriate teaching methods to enhance students' learning due to lack of pedagogical content knowledge.

Many teachers did not use relevant materials while teaching children Kiswahili pre-reading skills resulting to children's low acquisition of the skills. Teachers' inability to prepare and use the materials was due to lack of training. In contrast, Zhang (2015) argues that if teachers are knowledgeable in the best teaching strategies and materials can work best to promote higher-level thinking regarding specific learners' needs and subject content. There was lack of the teaching materials in schools as a result teachers did not manage to use them while teaching. Anney and Mmasa (2016) support that inadequate teaching resources in pre-primary school streams found in rural contexts hinders children's learning of various literacy skills. This implies that, teachers can effectively teach children pre-reading skills when they are knowledgeable of preparing and using appropriate teaching and learning materials.

Most of the teachers in both school categories did not plan and use assessment techniques as stipulated in pre-primary school syllabus. Teachers had limited application of assessment knowledge due to lack of comprehensive pre-service training and effective professional development trainings. As a result, the teachers faced low knowledge of assessing large classes of children learning to read Kiswahili pre-reading skills. Chapoo et al. (2014) support the current findings that lack of teachers' pedagogical content knowledge leads to teachers' inability to design appropriate instructional and assessment activities that has a significant impact on their instructional practices and children's learning. On the other hand, Peng (2013) argues that teachers should possess knowledge of instructional strategies, which refer to knowledge of evaluation, judging, and deciding on the instructional strategies applicable for pre-reading teaching for them to support children's learning outcomes.

Teachers in both school categories were unable to explain how they could identify and correct pre-reading difficulties encountered by children while teaching Kiswahili pre-reading skills. Children's learning level may be lowered by lack of teachers' scaffolding, positive feedback in particular (Vygotsky, 1978). However, when teachers understand young children's prior knowledge, it serves as a starting point for lesson planning and scaffolding (Zhang, 2015). The findings inform that, if teachers possess inadequate knowledge of children's prior knowledge, they can hardly identify and correct such errors and so making children to learn the skills easily.

CONCLUSIONS AND RECOMMENDATIONS

The components of teachers' pedagogical content knowledge of Kiswahili pre-reading skills in both school categories ranged from high, moderate to low levels. A few teachers had high knowledge of the content of Kiswahili pre-reading skills. Some teachers had moderate pedagogical knowledge of Kiswahili pre-reading skills. Majority of teachers had low knowledge of children's thinking around Kiswahili pre-reading skills. Teachers' lack of training in pre-primary education issues was one of the main limiting factors. Thus, teachers' lack of pedagogical content knowledge of Kiswahili pre-reading skills was associated with children's low acquisition of Kiswahili pre-reading skills in both school categories under study. The study recommends that the Ministry of Education Science and Technology [MoEST] should develop a comprehensive policy on pre-primary education. The policy should define among others the qualifications of a pre-primary school teacher to facilitate employment of teachers with relevant pre-primary education qualifications. The ministry should ensure on-going professional development courses for pre-primary school teachers. Teachers' training should help in equipping them with relevant pedagogical content knowledge of Kiswahili pre-reading skills. Also, it should strengthen monitoring mechanisms to ensure that teachers who are teaching the skills possess relevant knowledge of Kiswahili pre-reading skills among other. Presence of teachers' monitoring mechanisms will help improve children's learning outcomes in pre-primary classes.

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CONFLICT OF INTEREST

The authors declare that there is no any conflict of interest related to this article.