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FAMILY CLASS AND PARENTS' LEVEL OF EDUCATION AS DETERMINANTS OF PUPILS' READINESS TO LEARN MATHEMATICS IN PRIMARY SCHOOLS IN KASARANI SUB-COUNTY, KENYA

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Abstract:
This study sought to establish pupils' readiness to learn mathematics at the start of primary school. The study explored the influence of family class and parents' level of education on standard one pupils' readiness to learn mathematics. The dependent variable was pupils' readiness to learn mathematics, while the independent variables were pupils' family economic class and parents' level of education. The target population was standard one pupils enrolled in primary schools in Kasarani sub-county. Purposive sampling was used to select the sub-county and standard one pupils. Stratified random sampling was used to select 15% (12) primary schools to be involved in the study. The sample consisted of 15% (123) class one pupils, 248 parents, and 12 class one teachers. Pupils' readiness to learn mathematics check-list and questionnaire for teachers and parents were used to collect data. Descriptive and inferential statistics were used to analyze data. Results from data analysis were presented using tables and text. The results showed that more than 25% of the pupils were not ready to learn mathematics and identified pupils' performance in specific tasks that were indicators of readiness to learn mathematics. Through Pearson chi square test, the study established a significant relationship between pupils' family economic class; and parents' level of education and pupils' readiness to learn mathematics was significant at 0.05 level. It was recommended that primary school teachers should assess children's readiness to learn mathematics and institute the appropriate intervention measures before children are introduced to the formal mathematical concepts in the syllabus.

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Keywords: family class; level of education; pupils; readiness to learn mathematics; primary schools

1. Introduction

School readiness has become a growing concern in many countries (UNICEF, 2012). School readiness may be defined as the child's attainment of a certain set of emotional, behavioral and cognitive skills needed to learn, work and function successfully in school (Raforth, Buchenquer, Crissman and Halko, 2004). According to Conn-powers and cross (2011), school readiness refers to children's acquisition of skills that facilitate achievement of later academic success. It is therefore, important to note that before children get ready to learn the subjects taught at school, they need to be ready for school. School readiness entails various dimensions of a child's development. To establish children's school readiness, it is important to carry out investigations on readiness for every subject that children are exposed to at school entrance.

According to Tatira, Mutambara and Chagwiza (2012), mathematics is one of the major elements that influence world's rapid technological changes. This suggests that competency in mathematics is paramount for economic development, in the contemporary society. However, Aduda (as cited in Mbugua, Kibet, Muthaa and Nkonke, 2012) claimed that the general performance (Duncan, Dowesett, Claessens & Magnuson, 2008) in summative mathematics examinations has been poor.

Jochi, Jilland Williams (2008) purport that readiness to learn mathematics in early childhood is critically important, since it is likely to determine children's later mathematics achievement as well as their disposition to the subject. Readiness to learn mathematics refers to the development of basic mathematics abilities or skills to help pupils to gain knowledge of the subject (Baroody & Wilkins, 1999). According to Tinajero and Loizollon, (2012), acquisition of early mathematics abilities is widely regarded as important for pupils' readiness to learn the subject. Further, the National Association for the Education of Young Children (NAEYC, 2009) claims that mathematics education in early childhood is the key to increasing all children's school readiness and educational achievement. According to NAEYC, within the mathematics field, preschoolers' knowledge of numbers and their sequence, predicts not only mathematics learning but also literacy skills.

A growing body of research also highlights the importance of readiness to learn at school-entry (Duncan, Dowesett, Claessens & Magnuson, 2008).The research argues that readiness to learn influences later academic achievement in both reading and mathematics. Dickerson (2012) says that the development of advanced mathematics skills requires knowledge of basic concepts such as addition, subtraction, multiplication and division. This is in agreement with Duncan, et.al (2008) and Jordan, Glutting and Ramineni (2010) who state that early numerical skills at kindergarten are predictive of mathematics achievement in later grades.

A major question in early childhood is whether children are ready to learn mathematics by the time they are introduced to subject at school (Jochi *et al*, 2008). To support children's understanding of mathematics, it is necessary to ascertain acquisition of mathematics readiness in the early years. This calls for investigations on children's readiness to learn mathematics at primary school entry.

In Kenya, the primary school curriculum spells out the need for equipping children with the basic numeracy skills (MOE, 2012). One of its core objectives is to develop children's interest towards the subject, and most importantly to furnish pupils from standard one with the basic essential math skills which can help them to learn more complex skills when it comes to the subsequent classes. However, we find that this objective has not been fully met because of the continued dismal performance in mathematics at the lower and upper primary classes. For instance, a national survey by Uwezo (2012) had revealed that more than two thirds of children at the lower primary classes do not have basic numeracy skills. The report had further shown that pupils at primary school are not acquiring the basic competencies during the early years as required by the national curricula. According to the Education for All (EFA) Global Monitoring Report, at least 250 million primary-school-age children are not able to read, write or count well enough to meet minimum learning standards (UNESCO, 2012). The low scores registered in mathematics since independence prompted critical concern (APHRC, 2010). Kimani and Mwita (2010) report that a large part of the general low performance in national examinations is attributed to poor performance in mathematics.

Uwezo (2013), an annual learning assessment survey conducted in East Africa, found that many children were in school but they had not acquired the basic competencies. Uwezo (2012) had earlier established that there were many children in Kenya going to school but their learning was questionable. The report further reveals that 20% of pupils in standard seven did not have standard two level numeracy competencies and two out of three pupils in standard three failed basic tests in numeracy for the standard two level. This poor performance could be attributed to the fact that the pupils may be starting school without basic mathematics competencies as expected in the national curriculum. To tackle this poor performance in mathematics, several studies have been conducted in Kenya. Such studies have attempted to establish factors related to pedagogical elements and attitudes. For example, Kananu (2011) in a study on factors contributing to pupils' poor performance in mathematics in Isiolo, found that inadequate teaching/learning resources and culture were some of the major causes. Another study (Aoko, 2012) that focused on teaching methods purported that teaching methods had an influence on pupils' performance in mathematics in Nairobi. A study by Gachau, (2013) found that learners had a negative attitude towards mathematics. Since learning is a spiraling process, numeracy competency at primary school level largely depends on the experiential part that promotes readiness to learn. All these arguments make studies on children's readiness to learn mathematics imperative.

Most of the studies on the poor performance in mathematics cited mainly focused on teaching methods, learning resources and attitudes towards the subject by learners. Studies on readiness to learn mathematics have not received much attention yet this could be the root cause of the problem. In attempt to address the poor performance in mathematics; there is need to carry out more research on readiness to learn mathematics at primary school-entry. Consequently, this study sought to establish children's readiness to learn mathematics at the beginning of primary school education.

2. Research Problem

Despite the critical role of competences in mathematics, concerns have been raised on poor performance in the subject especially after the elementary level. To address the issue, studies have mainly concentrated on teachers' and learners' attitudes towards the subject, teaching and learning resources, and teaching methods. These investigations cannot be complete without focusing the issue of children's readiness to learn mathematics at primary school entry. Readiness to learn mathematics influences children's later mathematics achievement as well as their disposition to the subject. Children that join standard one should have basic abilities to facilitate learning mathematics (Baroody & Wilkins, 1999; Tinajero & Loizollon, 2012). Readiness to learn mathematics helps children to grasp mathematics concepts they progress from one class to another not only in primary school but also the advanced levels. However, the aspect of readiness to learn mathematics has received little attention. Owing to the importance of readiness to learn the subject, investigations on readiness to learn mathematics are imperative. Consequently, this study sought to establish pupils' readiness to learn mathematics at the start of primary school.

2.1 Research Objectives

1. To establish the extent to which children were ready to learn mathematics at the start of primary school
2. To determine the relationship between pupils' family economic class and their readiness to learn mathematics;
3. To find out the relationship between pupils' readiness to learn mathematics and their parents' level of education.

3. Research Methodology

Correlation research design was used in the study. The dependent variable was pupils' readiness to learn mathematics. The independent variables were pupils' family class and parents' level of education. The target population was standard one pupils enrolled in primary schools in Kasarani sub-county. Purposive sampling was used to select Kasarani sub-county. Stratified random sampling was used to select 15% (12) primary schools from the wards in the sub-county. Through random sampling, 15% (123) of the class one pupils in the sampled schools were selected. All the parents (248) of the

selected children were included in the study. Pupils' readiness to learn mathematics check-list and questionnaire for parents were used to collect data. The researcher pre-tested the instruments in two primary schools (one public and one private), which were excluded in the final study. Item analysis was used to test the content validity of the instruments. Guttman split-half test was used to test the reliability of the instruments which was found to be 0.85. Descriptive statistics involving frequencies, percentages and means were calculated. The inferential statistics used were Chi-square and t-test. Results from data analysis were presented using tables.

4. Results and Discussions

The study sought to establish the extent to which pupils were ready to learn mathematics at Standard 1 entry.

4.1 Pupils' Readiness to Learn Mathematics

The study sought to establish the extent to which pupils were ready to learn mathematics at the start of primary school. To achieve this objective, the study first assessed the pupils' basic mathematics abilities. This was done by use of a readiness to learn mathematics check-list. The items on the checklist included ability to classify, rote counting, number recognition, number sequence and number value. Other aspects included simple number operations in addition as well as subtraction and recognition of the Kenyan currency. The researcher involved the pupils in ten basic mathematics readiness activities. The pupils' development of various mathematics abilities was accordingly observed and recorded. The results were as presented in Table1.

Table 1: Pupils Performance in Basic Mathematics Activities

	Those with various abilities		**Those without the abilities**	
Abilities (skills)	**Frequency**	**Percent**	**Frequency**	**Percent**
Put together objects	105	85.4	18	14.6
Group objects	103	83.7	20	16.2
Recognize number symbols	97	78.9	26	21.1
Rote count 1-50	92	74.8	31	25.2
match numerals	91	74	32	26
Take away	86	69.9	37	30.1
Say which number is bigger	85	69.1	38	30.9
Write numerals dictated	84	68.3	39	41.7
Recognize daily routine	71	57.7	52	42.3
Give names of Kenya currency	65	52.8	58	47.2

As presented in Table 1, majority of the pupils had acquired basic mathematics skills. The results revealed that the activity in which the highest number of pupils had acquired mastery was putting objects together (simple additions). This was followed by ability to group objects according to similarities then recognition of numerals. The

activity in which the smallest number of children demonstrated ability was recognition of the Kenyan currency. The second last was recognition of daily routine.

The current study findings are consistent with those reported by Powell, Fuchs, and Hobbs (2012) that purported that children had started school with varied mathematics skills. The study had also revealed that some children understood numbers, while others struggled with basic counting, number recognition, understanding of symbols, quantity discrimination, and concepts of addition and subtraction. The results also concur with those from a study conducted in USA by Jordan, *et al* (2009) which had claimed that some children at the onset of schooling came to school with an established set of early numerical competencies while others demonstrated much lower performance on early numerical tasks.

The findings of this study also agree with Aunio and Niemvirta (2010) results that purported that the acquisition of counting and relational skills was predictive of the acquisition of basic arithmetical skills. The current study findings also are similar with those reported by Dowker (2008). The study investigated individual differences in different aspects of early number concepts in preschoolers and found that there were marked individual differences for most tasks and most children were reasonably proficient in counting.

The current study findings are inconsistent with those reported by Clark, Pritchard, and Woodward (2010), in the study that sought to investigate children's preschool executive functioning abilities that predict early mathematics achievement. The results had shown that early measures of executive functioning were useful in identifying children who may experience difficulties learning mathematics skills and concepts. The current study findings are also inconsistent with the results from Lefvere, Clarke and Stinger (2002) who conducted a study on the influence of language and parental involvement on the development of counting skills among the French and English speaking Canadian children. Results had shown that French speaking pre-schoolers performed more poorly on the rote counting and number recognition tasks than English speaking pre-schoolars. Results had also revealed that both groups did not differ on counting objects. The reasons for this inconsistency could be attributed to the fact that the study was conducted in a different setting with varied languages.

After assessment of pupils' mathematics abilities, the researcher proceeded to determine the number of pupils' ready to learn mathematics. This was achieved in two stages; in the first stage, pupils' readiness to learn mathematics was measured through counting the number of activities each child performed correctly. In stage two, those who had scored six points or more out of ten on the readiness to learn checklist were considered ready to learn mathematics. Results have been presented in Table 2.

Table 2: Number of Pupils Ready to Learn Mathematics

	Frequency	**Percentage**
Ready to Learn mathematics	89	72.4
Not ready to learn mathematics	34	27.6
Total	123	100

As shown on Table 2 more than 25% of the pupils were not ready to learn mathematics as they entered standard one. This study finding confirms results from other studies such as the Uwezo (2013) learning assessment survey which had found that many children in East Africa though they are in school, were not acquiring the foundational skills of literacy and numeracy. The survey had further found that less than a third of the children enrolled in grade three had basic grade two level numeracy skills.

The current study findings are also consistent with another study (Uwezo, 2012) in Kenya. In the study, Uwezo found that eleven out of a hundred children in standard eight were not able to do simple class two mathematics. From the Uwezo results, it can be concluded that lower levels of readiness to learn mathematics at school entry, could be one of the factors contributing to pupils poor performance in the subsequent classes. The existing literature further supports this whereby general mathematics achievement measured around kindergarten has been found to be highly predictive of subsequent mathematics achievement around third grade and eight grade (Duncan, 2007 & Jordan, 2009).

This study finding is similar to a study (Donna, 1999) that focused on the effects of pre-kindergarten and kindergarten readiness and achievement in mathematics. The intent of the study was to determine if attendance of pre-kindergarten had a positive effect on kindergarten mathematics readiness skills. Results had shown that attending pre-school had a positive effect on kindergarten mathematics readiness skills.

The current study findings also correspond with those of a study done in Bangladesh, by Aboud and Hassan (2011). The study revealed that pre-primary school graduates in Grade 1 and 2 outperformed their peers who had not attended pre-primary in speaking, writing and numeracy skills. The current study similarly found that children who had attended pre-primary did better in the mathematics readiness activities.

Zhang (2013) conducted a study on pre-school experience and academic achievement in china. The study examined the influence of pre-school learning experiences on children's school readiness and academic achievement. Participants were 190 children from southwest China and their teachers. Results indicated that children with some form of pre-school experience outperformed those with none thus, agreeing with this current study findings.

The current research findings concur with those of Kashkary & Robinson (2003) who conducted a study to determine how kindergarten attendance affects pupils' mathematics achievement of primary school in Makah, Saudi Arabia. The result of the study indicated that pupils who had attended kindergarten significantly out-performed their peers who had not attended kindergarten and was a strong indication that attending kindergarten has been shown to be effective in supporting the mathematical education of primary age children.

Results from this study are inconsistent with those of Jochi (2008) that had purported that children without pre-kindergarten experience outperformed their peers

with kindergarten experiences. This could be attributed to home factors such as exposure.

5.2 Family Economic Class and Pupils' Readiness to Learn Mathematics

In the second objective, the researcher sought to establish whether family economic class influenced pupils' readiness to learn mathematics. The objective was stated as: "t*o explore the relationship between pupils' family Economic class and pupils' readiness to learn mathematics."*

To achieve the objective, pupils' family economic class was determined through the parents' monthly house expenditure estimates. According to Kenya Bureau of Statistics (2013), a family in the low economic class had a monthly expenditure ranging between Kenya Shillings (KShs) 23, 669 and below; A family in the middle economic class had a monthly expenditure of between KShs. 23, 670 and 199, 999; while upper economic class family monthly expenditure was estimated at Kshs. 200, 000 and above. To achieve the objective parents were required to indicate their approximate family monthly expenditure range. Table 4 presents the results.

Table 4: Pupils' Family Economic Class

Monthly House Expenditure	**Frequency**	**%**
Low economic Class (Monthly expenditure Kshs. 23, 669 and below)	75	61
Middle economic Class (Monthly expenditure Kshs. 23, 670 -199,999)	47	38.2
Upper Class (Monthly expenditure more than 200, 000).	1	0.8

The results show that out of 123 pupils who participated in the study, more than half were from low economic class families. Those from middle economic class were slightly below Half and only one pupil was from upper economic class family.

To establish how pupils' family economic class influenced their readiness to learn mathematics, the number of pupils ready to learn mathematics in each of the categories was established and the results were as presented in Table 5.

Table 5: Pupils' Readiness to Learn Mathematics by Family Economic Class

			Readiness to learn mathematics		
			Ready	**Not ready**	**Total**
Pupils family economic class	Low	Count	48	27	75
		Percent	64.0%	36.0%	100%
	Middle	Count	40	7	47
		Percent	85.0%	15.0%	100%
	Upper	Count	1	0	1
		Percent	100.0%	.0%	100%
Total		Count	89	34	123
		Percent	73.0%	27.0%	100%

The results showed that more than a third of the pupils from both low and middle class families were not ready to learn mathematics. The results further revealed that the higher the family economic class, the more ready to learn mathematics the pupils were.

To determine whether there was a significant relationship between family economic class and pupils' readiness to learn mathematics the following null hypothesis was generated and tested.

HO_1: There is no significant relationship between pupils' family class and pupils' readiness to learn mathematics

Pearson Chi-square was employed to test this hypothesis at an alpha level of 0.05. The results were as presented in Table 6.

Table 6: Relationship between Pupils' Family Class and Readiness to Learn Mathematics

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	7.989[a]	2	.018
N of Valid Cases	123		

Significance at $p<0.05$

Table 6 shows that $X^2(2\ N=123) = 7.99$ $p = .018$. The results imply that the relationship between pupils' family class and pupils' readiness to learn mathematics was significant at 0.05 level and thus the null hypothesis was rejected.

The current study findings are consistent with those by Jochi, Murray, Jill and Williams (2008) who conducted a study to investigate children's mathematics readiness in Texas, USA. The study findings had shown that children from higher income families scored higher in mathematics readiness assessment tests than those from low income families. The current study findings also concur with those reported by Uwezo (2012), which had found that children from socio-economically disadvantaged families performed poorly in numeracy tests.

The study findings also agree with those from a study conducted in USA (Jordan, Kaplan and Ramineni, 2009). The study established that low family income contributed to differences in early numerical competencies. The results had further indicated that students from lower income families demonstrated significantly lower early numerical scores than middle income peers. Brooks-Gunn, Duncan and Maritato (1997) also reveal that economically disadvantaged families are more likely to provide children with limited educational resources, less stimulation and less optimal learning environments.

Research further indicates that children from low-income families usually attend programmes that are of low quality (Huston and Bentley, 2010). Consequently, the children from such families are not likely to be equipped with school readiness skills as compared to those from high-income families. UNESCO (2006) further reveals that children living in poverty have fewer opportunities of attending pre-school programmes hence may lack the necessary skills to learn mathematics.

The study findings are consistent with those reported by Blanden and Gregg (2004) who carried out a study in UK. Blanden and Gregg found that income had a causal relationship with educational attainment. The study finding also confirms that of Bicer, Capraro and Robert (2012) who conducted a study to find out the effects of

parents' social economic status and education level on students' mathematics achievement. Bicer *et al* found that parents' income and education were related to pupils' mathematics achievement. Similar findings were also reported by Jordan *et al* (2009) whose results had shown that children from low income families performed poorer than their middle counterparts in mathematics and progressed at a slower pace. The results are also consisted with those reported by Matage and Begi (2014) which had found that parents socioeconomic status influenced pupils' academic performance and caused pupils to be absent from school.

5.3 Parents' Level of Education and Pupils' Readiness to Learn Mathematics

The also sought to determine the relationship between parents' level of education and pupils' readiness to learn mathematics. The related objective was stated as: "*To find out the relationship between pupils' readiness to learn mathematics and their parents' level of education.*"

To achieve the objective, the researcher first established the highest level of education attained by mothers and fathers. The results are presented in Table 7 and Table 8.

Table 7: Highest Level of Education of Mothers and Pupils' Readiness to Learn Mathematics

			Readiness To Learn Mathematics		
			Ready	**Not ready**	**Total**
Highest level of education of mother	No primary education certificate	Count	1	3	4
		Percent	25.0%	75.0%	100%
	Primary education certificate	Count	18	17	35
		Percent	51.4%	48.6%	100%
	Secondary education certificate	Count	22	8	30
		Percent	73.3%	26.7%	100%
	Diploma	Count	25	5	30
		Percent	83.3%	16.7%	100%
	Undergraduate Degree	Count	20	1	21
		Percent	95.2%	4.8%	100%
	Masters Degree	Count	2	0	2
		Percent	100%	.0%	100%
Total		Count	89	33	122
		Percent	73%	27%	100%

Table 7 shows that the higher the level of mothers' education, the higher the percentage of pupils who were ready to learn mathematics. The results further reveal that majority of the pupils' whose mothers' did not have primary education were not ready to learn mathematics.

The results on fathers' highest level of education and pupils' readiness to learn mathematics have been presented in Table 8.

Table 8: Highest Level of Education of Fathers and Pupils' Readiness to Learn Mathematics

			Readiness to Learn Mathematics		
			Ready	Not ready	Total
Highest level of education of father	Primary education certificate	Count	5	13	18
		Percent	27.8%	72.2%	100%
	Secondary education certificate	Count	28	13	41
		Percent	68.3%	31.7%	100%
	Diploma	Count	17	2	19
		Percent	89.5%	10.5%	100%
	Undergraduate Degree	Count	28	4	32
		Percent	87.5%	12.5%	100%
	Masters Degree	Count	8	1	9
		Percent	88.9%	11.1%	100%
Total		Count	86	33	119
		Percent	72.3%	27.7%	100%

The results illustrate that pupils whose fathers had higher levels of education were more ready to learn mathematics compared to those of fathers with low levels of education. The results further disclose that majority of pupils whose fathers' highest education level was primary education certificate were not ready to learn mathematics.

To determine the relationship between parents' level of education and pupils' readiness to learn mathematics, the following null hypothesis was generated and tested.

$H0_2$: There is no significant relationship between parents' level of education and their pupils' readiness to learn mathematics.

To establish the significance of the relationship chi-square test was administered and the results were as presented in Table 9.

Table 9: Chi square on Parents' Education Level and Pupils' Readiness to Learn Mathematics

	Mothers level of education			Fathers level of education		
	value	df	Asymp.sig. 2-sided	value		Asymp.Sig 2-sided
Pearson Chi-square	18.220	5	.003	25.853	4	.000
N of valid cases	123			119		

Significance at $p<0.05$

With regard to mothers' education level and pupils' readiness to learn mathematics $X^2(5$ $N=123) = 18.22$ $p= .0003$ the chi-square value for mothers' level of education. Similarly on fathers' level of education and pupils' readiness to learn mathematics $X^2(4N=119) = 25.85$ $p= .0001$. These results were significant at $p<5$ and therefore reveal that the regardless of gender, the relationship between parents' level of education and pupils' readiness to learn mathematics was highly significant. The null hypothesis was thus rejected.

This study finding is similar with that of Uwezo (2010) report which was carried out in 70 districts, 2,160 schools with 74,861 children in Kenya. The study had revealed that in all districts, children's literacy and numeracy competence increased with their mothers' level of education.

The findings of the study concurs with those reported by Halle, Brook-Gunn, and Klebanov, (1997) who had found that children's mathematics success was related to parents' educational level. According to Halle *et al*, this relationship was attributed to the fact that highly educated parents held more positive attitudes towards mathematics and set higher success expectations from school than less educated parents. The study findings also concur with those from a study which carried out in Uganda (Onzima, 2010). The results had shown that there was a positive correlation between parents' level of education and pupils' educational performance. The findings are also similar to those reported by Kaminju and Begi (2017) from a study carried out in Makadara Sub-county and had found that parents who had higher level of education were more satisfied with services provided to their children than those with low level of education because they enrolled their children better school.

Similarly, Davis-Kean (2005) conducted a study to examine the process of how social economic status, specifically, parents education and income relates to children's academic achievement. The results had shown that social economic factors (parents' education, and family income) were related to children's academic achievement. The results are also supported by those reported by Kaminju and Begi (2017) which had shown that the relationship between level of education of parents and their satisfaction with the quality of services of provided in schools was significant.

6. Conclusion

This study came up with three conclusions. First, some Class 1 pupils had not acquired skills that indicate readiness to learn mathematics. Some of the abilities that many children were poor at included recognizing daily routine, writing numerals dictated, subtraction and recognition of Kenyan currency.

Second, the study found that children from families in the low economic class performed more poorly in mathematics learning readiness skills as compared to their counterparts from higher economic class families. This showed that the family economic class influenced children's acquisition of readiness to learn mathematics.

Third, the study established that pupils' of parents with higher levels of education were more ready to learn mathematics as compared to those of parents with low levels of education. Hence, the study concluded that parents' level of education influenced pupils' readiness to learn mathematics at Class 1 entry.

7. Recommendations

Based on the study findings and conclusions, recommendations were made for policy, practice and further research. The recommendations for the different stakeholders are as follows:

(i) Quality Assurance Officers

It is necessary to ascertain the quality of experiences that children are exposed to in all preschools. There should be a tool of measuring how well preschool children were being prepared to be ready to learn mathematics.

(ii) Kenya Institute of Curriculum Development (KICD)

The KICD should develop and validate a standard tool to be used by primary school teachers to assess children's readiness to learn mathematics at Class 1 entry. This may help in providing intervention measures for pupils with mathematics difficulties early enough.

(iii) Primary School Teachers

Since acquisition of readiness to learn mathematics may be prompted by lack of appropriate experiences prior to Class 1 entry, teachers should provide children with opportunities to engage in activities that lead to readiness to learn mathematics. Readiness to learn mathematics should be nurtured before introduction of formal mathematics concepts.

8. Recommendations for Further Research

This study focused on pupils' readiness to learn mathematics and the factors influencing it; there is need to conduct a study to investigate pupils' readiness to learn mathematics and pupils' academic achievement. The study was conducted in Nairobi County and its findings cannot be generalized to the divergent regions in Kenya, thus a national survey should be done to find out pupils readiness to learn mathematics at Class 1 entry in Kenya. This may help to create a standard readiness test to evaluate pupils' readiness to learn mathematics at school entry, which may also help in providing intervention measures for pupils with mathematics difficulties early enough.

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