African Journal of
Education and Practice
(AJEP)

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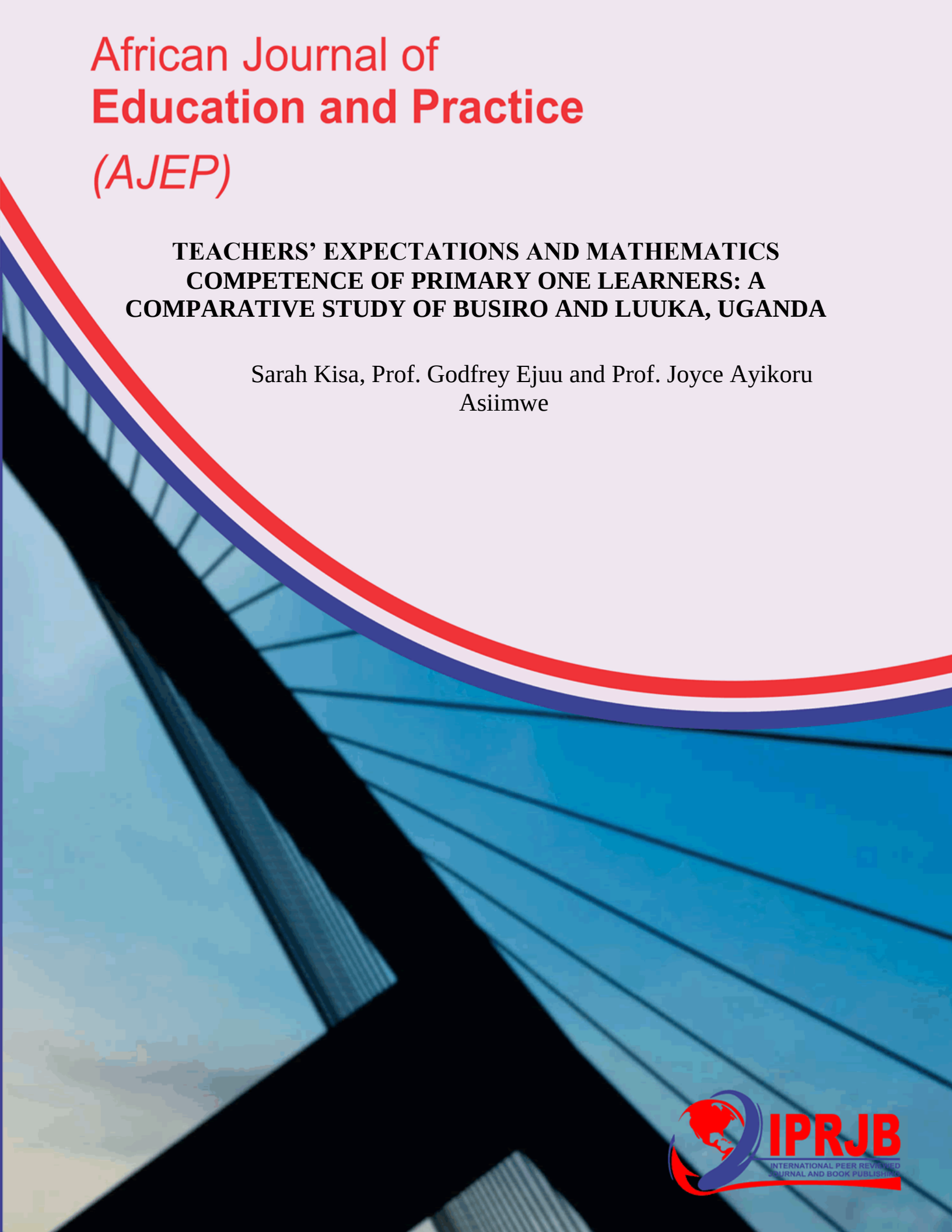

IPRJB
INTERNATIONAL PEER REVIEWED JOURNAL AND BOOK PUBLISHING

African Journal of Education and Practice
ISSN 2519-0296 (online)
Vol.6, Issue 5. No.1. pp 1 - 12, 2020

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TEACHERS' EXPECTATIONS AND MATHEMATICS COMPETENCE OF PRIMARY ONE LEARNERS: A COMPARATIVE STUDY OF BUSIRO AND LUUKA, UGANDA

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Abstract

Purpose: Teacher expectations of their learners' competence has been seen as a key contributor to children's level of performance in a given subject area. However, in the case where teachers already feel their learners do not have the competence, can the children have a chance of doing any better? This study explored the primary one teachers' expectations of their learners' mathematics competence to ascertain the linkage between those expectations and the learners' performance in the identified mathematics competences.

Methodology: The comparative study was conducted in Busiro North and Luuka North Counties in Uganda among primary one learners and teachers. A cross-sectional survey was used to collect data from 74 purposively selected primary one teachers and 296 randomly selected learners from 37 schools in Busiro North and 37 schools in Luuka North Counties respectively. Data collection tools used were questionnaires, learners' mathematics competence test and artefacts of learners' written work. Data analysis was done using the Statistical Package for the Social Sciences (SPSS). The t-test for independent groups was used to compare the learners' test scores, while Pearson r was used to establish the relationship between teachers' expectations and learner performance.

Findings: Results showed significant relationships between teacher expectations and learners' performance for both Busiro and Luuka (r =0.711, r = 0.596). Teachers considered age of a learner; language used as medium of instruction; and having attended nursery school as important background factors that promote a P.1 learner's mathematics competence.

Unique contribution to theory, practice and policy: The findings indicate a need for primary school teacher education courses to inform pre-service teachers about teacher expectations and their associated influence on learner performance. All teachers are urged to use strategies that encourage learners to meet teacher expectations. Teachers in urban areas ought to include more practical approaches to teaching mathematics in order to develop lasting and applicable skills in the learners.

Keywords: *Teachers' Expectations, Learners' Competence, Mathematics*

1.0 INTRODUCTION

Mathematics is indispensable for transformation in developing and industrialised societies, accelerating advancements in science, technology and engineering (Ogan, 2015). Products of mathematical research are widespread and enjoyable, benefitting global social progress through multifunctional computers that enable the use of satellite and fibre-optic networks for information and communication technology via mobile telephones and internet communications; weather forecasting; efficient bank transactions; and state of the art medical imaging and diagnostics (Fatima, 2015). Mathematics is not only a very important and globally compulsory school subject but it also plays a fundamental role in an individual's daily life activities. It is useful at work for planning and managing job schedules; at home for planning and preparing meals; in commerce while selling or buying goods; in health to manage medicine dosages; and in each and every other human daily life activity as we navigate through this technologically fast developing world (Iyanda, 2017; Ogan, 2015; Uwadiae, 2017).

A good understanding of mathematical concepts at the onset of education facilitates children's learning of other school subjects like science, music and fine art (Frye, Baroody, Burchinal, Carver, Jordan & McDowell, 2013). Notably, industrialised countries like Germany and the United Kingdom have been able to develop because of the technical capabilities built over time through advancements in science driven by mathematics (Fatima, 2015). Thus, early development of mathematics skills in children like addition, subtraction and multiplication of numbers is of paramount importance. Elementary mathematics, which embeds competence in basic number operations, is also a very important building block for lifelong learning (Crouch & Montoya, 2017; Mallows & Litster, 2016; Windisch, 2015). As primary one teachers and learners interact during mathematics lessons, teachers form certain opinions and beliefs about the learners' mathematics abilities. These opinions and beliefs are referred to in this study as teachers' expectations. The teachers' expectations of the learners' competence play a primary role in fostering these foundational competences among learners (Domitrovich, Gest, Gill, Bierman, Welsh & Jones, 2009; Perkins, 2015). In the early years' mathematics lessons, teachers ought to exhibit very high expectations of all learners' competence, and employ intentional, very well executed and effective instructional practices that lead children to mastery of mathematical skills and augmented mathematics competence (Alber, 2014; Cairns, 2015).

Teachers should help learners to reason mathematically and use the mathematics concepts learnt to solve their daily life problems and avoid drilling them on mathematical facts and formulae. This approach has been exemplified in Singapore where 15-year olds rank among the best mathematics students internationally with schools and parents having pride in high but achievable expectations for all learners (Vasagar, 2016; Wei & Dzeng, 2014). Teachers can achieve this by employing specific strategies like cooperative learning, frequent assessment, intervening immediately, and involving parents and guardians to break cycles of low aspiration (Sharples, Slavin, Chambers & Sharp, 2011).

For Uganda, a citizenry competent in mathematics is important for scientific, industrial, technological and social progress. Unfortunately, the country has continued to experience declining performance in mathematics right from primary one (P.1). When compared to other countries in the region, the Southern and Eastern Africa Consortium for Monitoring Education

Quality (SACMEQ) 2010 project ranked Uganda eleventh out of 15 countries on the numeracy proficiency of primary six learners (Ministry of Education and Sports [MoES], 2014). At the local level, learner performance in mathematics varies from one district to another. In Busiro North County, Wakiso District for example, primary schools rank among the best performing in Primary Leaving Examinations (PLE) with some schools having up to 99 per cent of pupils passing in grade one in the years 2010 – 2019 (Ampurire, 2017; Businge, 2010; Mayanja, 2018; Ssebwami, 2020). On the other hand, in the same period of 2010 – 2019, Luuka North County in Luuka District was listed among the ten worst performing districts in the country (Yolisigira, 2014). On average only 2.2 % of learners have been passing at the first grade level (Kimbowa, 2015; Mubiru, 2020) and in 2011 the district had 32.9 % of PLE candidates failing (Makuma & Mukama, 2012). This creates a need to explore what the P.1 mathematics teachers in Busiro and Luuka North Counties who set the foundation in the cognitive and affective domains (Leader in Me, 2018) of the learners' mathematics competence do differently to warrant the remarkable difference in performance.

Additionally, Busiro North County is in the central region of Uganda and is more urban compared to Luuka North County, which is in the eastern region of Uganda and is more rural. Research has shown that rural schools do not attract and retain qualified mathematics teachers as well as urban schools do (Atuhurra & Alinda, 2018; Echazzara & Radinger, 2019; Goodpaster, Adedokun & Weaver, 2012). This poses a challenge to the rural learners' mathematics competence. Furthermore, rural families have been reported to have fewer opportunities of accessing early childhood care and education (ECCE), yet ECCE has been shown to promote children's mathematics competence in the first year of primary school (Aunio et al., 2019). These disparities that are characteristic of Busiro and Luuka also warrant a comparative investigation of the teachers' expectations and their associated influence on the learners' mathematics competence.

1.1 Statement of the Problem

Learners in P.1 in Busiro and Luuka should gain competence in basic numeracy including 2-digit number operations (National Curriculum Development Center [NCDC], 2006). This is fundamental for their optimal mathematics competence in higher classes. However, Bold et al., (2017) found that 50 % of Uganda's Primary Three (P.3) learners were unable to arrange numbers from 0 to 999. Similarly, the National Assessment for Performance in Education [NAPE] (2015) reported that only 29.1% of P.3 learners applied addition and 26.7% applied subtraction in novel situations; while only 21% were able to do multiplication using tables. Thus, the learners' mathematics competence decreased with increasing task level. Likewise, observing no improvements in basic numeracy since 2010, Uwezo (2016) found that only 30 % of P.3 learners were proficient in P.2 numeracy. Hence, the majority of learners in Uganda are being promoted from P.1 to P.2 then from P.2 to P.3 without attaining the basic mathematics competences (Uwezo, 2015).

1.2 Purpose of the Study

The purpose of this study was to compare Primary One teachers' expectations of their learners' mathematics competence in Busiro North and Luuka North Counties and establish the influence expectations have on the learners' competence.

1.3 Objectives of the Study

1. To compare teachers' expectations of the mathematics competence of Primary One learners in Busiro North and Luuka North Counties
2. To evaluate how teacher expectations are influencing learner performance in mathematics in Busiro North and Luuka North Counties

2.0 METHODOLOGY

The study used a quantitative approach with a cross-sectional survey design to determine the teachers' expectations and learners' mathematics competence (Amin, 2005). A questionnaire survey was carried out on the teachers' expectations of the learners' mathematics competence. Analysis of scripts of the learners' mathematics assessment test and artefacts of their written work to establish their performance in identified competences was also used. The target population for the study included primary one learners and their teachers in 74 primary schools in Busiro North and Luuka North County. The study sample comprised of 296 randomly selected primary one learners, with four learners selected from each of 74 primary schools; 37 in Busiro North County and 37 in Luuka North County. A total of 74 teachers were purposively sampled, 37 from Busiro North County and 37 from Luuka North County to participate in the study.

A five point Likert scale questionnaire was used to collect data on teacher expectations of learner competence. The instrument had a Cronbach alpha reliability on a test-retest reliability of 0.8 and content validity index of 0.8. Learners' competence was determined using a researcher designed assessment tool with the help of two P.1 teachers and the in-charge of basic education at the National Curriculum Development Centre (NCDC). The test had a Cronbach alpha reliability on a test-retest reliability of 0.9 and content validity index of 0.9. Analysis of the data was done using the Statistical Package for Social Sciences (SPSS). The t-test for independent samples was used to compare the learners' performance on the identified mathematics competences. The relationship between teacher expectations and learner performance was determined using the Pearson correlation coefficient. Graphs have been used to summarize the raw data on teachers' expectations and the learners' test performance, while tables have been used to present the results of the data analysis.

3.0 RESULTS

3.1 Teachers' Expectations of Their Learners' Mathematics Competence

Primary one teachers in the two counties have expectations of the children who will be joining the class. Some of the expectations are as per government guidelines like age of entry to P.1 being 7 years, equal numbers of girls and boys joining P.1, all children to have had some form of pre-primary education and good mastery of the area local language. However, sometimes older or younger children enroll; some may not have attended any pre-primary education or even mastered the local language. The findings of this study showed that the majority of teachers, 33 (89.2%) in Busiro and 32 (86.5%) in Luuka considered age, mastery of the area local language and having had some form of pre-primary education as key factors for a P.1 learner's mathematics competence.

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A comparison of the findings on the teachers' expectations showed that for both Busiro and Luuka, the teachers had very high expectations of their learners' mathematics competence. Figure 1 shows the teachers' expectations of their learners' performance in the different curriculum content areas. The learners' competence to recognize, count and match symbols and objects representing the numbers 0 to 9; competence to recognise the numbers10 to 99; ability to subtract 1-digit numbers; ability to apply addition or subtraction to familiar social contexts; and competence in multiplying 1-digit numbers by 2 were content areas in which at least 89% of the teachers from either Busiro or Luuka expressed high expectations (Figure 1). In particular, all 37 (100%) teachers in Busiro expected learners to be able to recognize, count and match symbols and objects representing the numbers 0 to 9. This was also the case for Luuka. The majority of teachers, that is 36 (97.3%) in Busiro and all 37 (100%) in Luuka considered their learners able to recognise the numbers10 to 99, and to add two digit numbers. Most teachers, 31 (83.8%) in Busiro and 30 (81.1%) in Luuka expected learners to be able to multiply by ten.

A small number of six (16.2%) teachers in Busiro and seven (18.9%) in Luuka had low expectations of the learners' ability to add one digit numbers. The only notable difference in the teachers' expectations was reported in the content area of multiplication of 1-digit numbers by three in which 32 (86.5%) teachers in Busiro and only 26 (70.3%) in Luuka had high expectations of their learners' competence. On a scale of 1 to 5 (1= very low expectations, 5 = very high expectations), teachers in Busiro had an average expectation of their learners performance on the identified competences of 4.16. This was higher than that of 4.06 for teachers in Luuka.

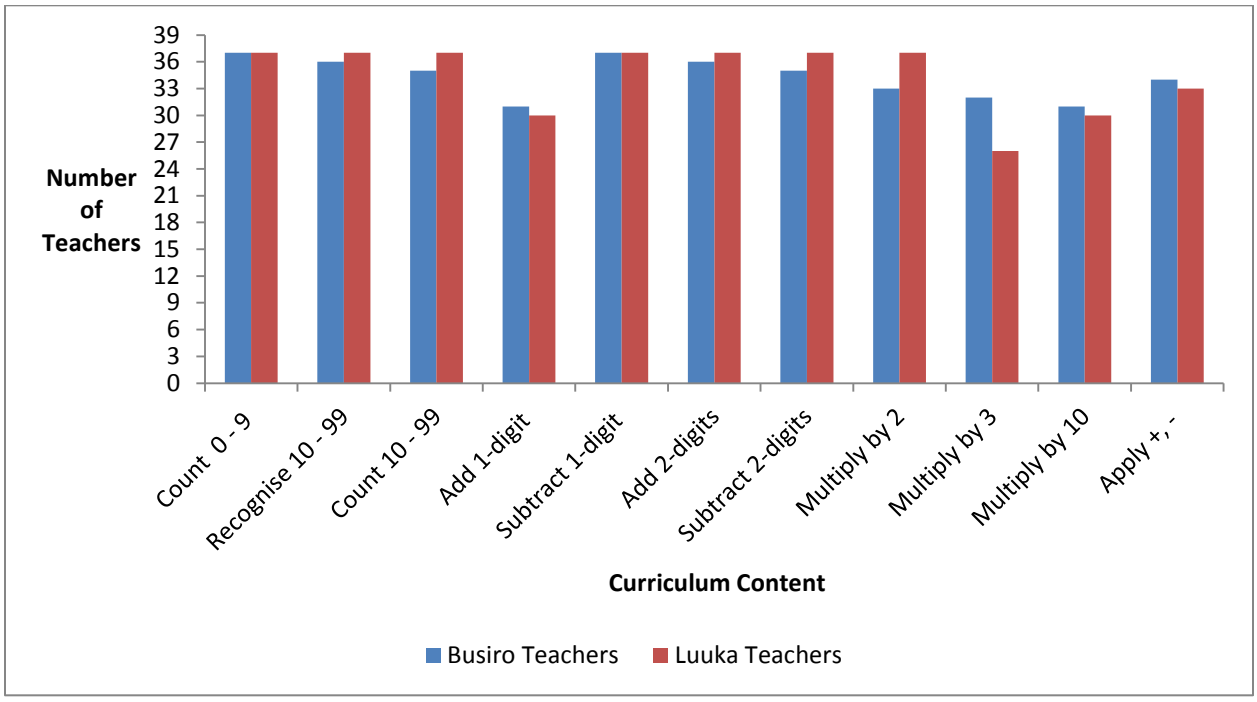

Figure 1: Teachers' Expectations of Learners' Competence in Relation to Curriculum Content

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3.2 Learners' Mathematics Competence

The learners who took part in the study were aged between 5 and 13 years. The majority of the learners were male as shown in Table 1.

Table 1: Number of Participant Learners by Gender

Gender	Number	Percentage
Male	163	55 %
Female	133	45 %
Total	**296**	**100 %**

The learners' performance in a mathematics assessment test given by the average score in the identified competences and according to county is shown in Figure 2.

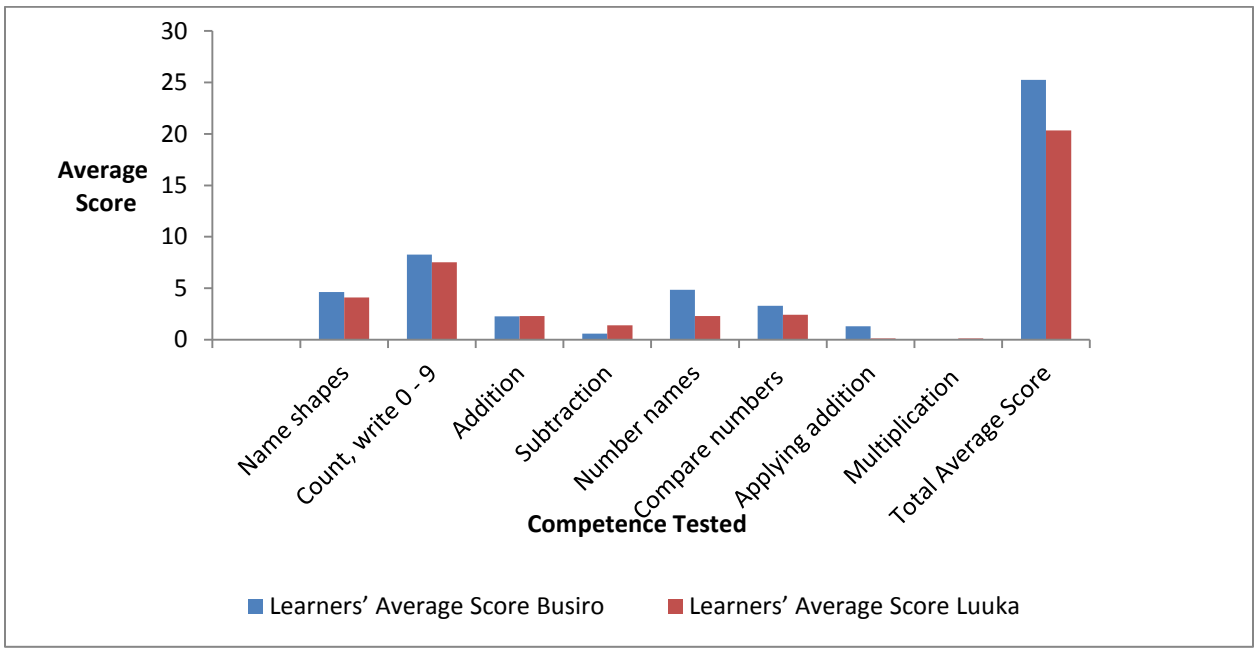

Figure 2: Learners' Performance on Identified Competences

The learners were most competent in counting and matching objects symbolising the numbers from 0 to 9 with 132 (89.2 %) from Busiro and 122 (82.4%) from Luuka scoring at least 7 out of 10. This was followed by naming of shapes where 102 (68.9%) of the learners from Busiro and 86 (58.1%) from Luuka scored at least 5 out of 6. Whereas 101 (68.2%) of the learners in Busiro were able to answer correctly at least one of three parts of the question that required applying addition to a familiar social context, only 9 (6.1%) in Luuka were able to do so. Learners in Busiro performed better in the identified competences than those in Luuka, except for addition in which performance was the same and subtraction in which learners from Luuka performed better (Figure 2). Findings in Table 2 show a statistically significant difference ($p = 0.05$) in the

mathematics performance of learners from Busiro North (mean M = 25.24) and Luuka North (M = 20.35).

Table 2: Comparison of Busiro and Luuka Learners' Mathematics Performance

County	N	M	SD	t –test value	P
Busiro	148	25.2432	6.21674	5.182	.05
Luuka	148	20.3514	9.65730		

The learners in Busiro had a higher average score and a smaller variation (SD) about their average score than those in Luuka. Learners in Luuka did not only have a lower average score but also had a bigger variation about the average. The bigger variation for Luuka implies that the learners there obtained more low scores as compared to the learners in Busiro.

3.2 Influence of Teachers' Expectations on Learners' Performance in Mathematics

The association between the teachers' expectations and their learners' performance was computed using the Pearson correlation coefficient and the results are summarized in Table 3.

Table 3: Influence of Teachers' Expectations on Learners' Performance

		Luuka Teachers	Busiro Teachers
Luuka Learners	Pearson Correlation	.596**	.267
	Sig. (2-tailed)	.000	.110
	N	37	37
Busiro Learners	Pearson Correlation	.087	.711**
	Sig. (2-tailed)	.607	.000
	N	37	37

**p < 0.01, two tailed

Table 3 shows a higher relationship between the teachers' expectations and learners' performance for Busiro (r = 0.711) than for Luuka (r = 0.596). This means that the Busiro teachers' expectations gave a better prediction of their learners' mathematics performance.

3.0 DISCUSSION

Teachers' expectation of learners who join P.1 in all schools in Uganda is driven by the learner competences prescribed in the curriculum and mandatory guidelines in terms of age (Wilson, 2009). For both Busiro and Luuka counties, teachers are expected to have the same expectations for learner competences that include addition; subtraction; multiplication by 2, 3 and 10; telling time using nonstandard units and drawing shapes (National Curriculum Development Centre [NCDC], 2006).

Comparing teacher expectations in the counties, this study found that teachers from Busiro had higher expectations of their learners as compared to those of Luuka. The possible explanations for this may be the differences in socio-economic status and other contextual factors that interact with the educational process and its outcomes, and location of the counties that seem to put more demands on teachers in urban areas like Busiro to do more with their children compared to rural

areas like Luuka. This finding is in line with that of Atuhurra and Alinda (2018) that points out that teachers in lower primary in urban classes put much more effort in trying to make their learners become more proficient in given number concepts and emphasize that learners demonstrate understanding while their counterparts in the rural areas emphasize performing procedures and recall.

In terms of performance in the identified competences, on average, learners in Busiro performed better than those in Luuka. The possible reason for this difference in performance could be that learners in Busiro are exposed to more challenging learning opportunities since their teachers have higher expectations of them than those in Luuka. This finding is in line with that of Adams (2019) who suggests that learners' performance increases with high teacher expectations, and assurance to all learners that practice and hard work lead to success in mathematics.

It is important to note that whereas learners from Busiro did better in many areas, those in Luuka were better in the area of subtraction. One possible explanation for this could be that children from Luuka do a lot of petty trade to support their families including some of them selling snacks at school during break time. Another possible reason could be that parents in rural areas send children frequently to purchase merchandise for family use. These transactions involve subtraction which could make the children do better in it in class. This finding tallies with that of Chowdhury (2017) who found that 90% of children working in markets got calculations of their transactions right without much effort.

Learners from Busiro performed better in counting numbers 0 to 9, writing number names and applying addition as compared to those in Luuka. This result may be explained by the likelihood that learners in Busiro not only benefit from early exposure to the language of numbers from their parents from as early as 14 – 30 months of age, but also from attending pre-primary education. This finding matches that of Levine, Suriyakhan, Rowe, Huttenlocher and Gunderson (2010) who argue that variations in children's mathematical knowledge which occur even before they begin pre-school and continue in elementary school may be related to "parent number talk". Also in agreement with the finding are Aunio, Korhonen, Ragpot, Tormanen, Mononen and Henning (2019) who found that kindergarten attendance greatly enhanced the numeracy performance of first graders.

This study was based on the premise that higher teacher expectation results in higher or better learner performance. This means that a strong positive correlation was expected. Findings in the study reflect the observed strong correlation for Busiro, but a moderate positive relationship for Luuka. This finding is in line with that of Rubie-Davies (2010) who observed that teachers make a big difference in learners' performance depending on their expectations, and Timmermans, Rubie-Davies and Rjosk (2018)'s observation that teachers are relatively accurate in their expectations. There were areas that teachers had expressed low expectations. However, instead of learners performing poorly in those areas, children did better in some of them, dispelling the earlier view that learner performance is strictly guided by the level of teacher motivation. This tendency may be explained by the fact that sometimes teachers give simpler learning activities that are below the level of children if they have lower expectations from the children and vice versa (Timmermans et al., 2018).

4.0 CONCLUSIONS AND RECOMMENDATIONS

Conclusions

Basing on the findings of this study, it is concluded that teacher expectations may have an influence on the level of learner performance. This could be guided by the fact that teachers would decide the learning activities that are either of lower or higher level depending on their perception of the learners. It is also concluded that sometimes teacher expectations may not necessarily guide the level of learner performance; as such perceptions are prone to misjudging of learners' abilities before they come to school. Another conclusion is that teachers, using their pre-conceived ideas about the incoming learners either put more demand or completely ignore the learners believing they are either unable or are competent. This could explain why some teachers in urban areas overburden children with work that is not for that class level in order to satisfy their ill perceived expectations. It is further concluded that learners from Busiro performed better than their counterparts from Luuka. This could possibly be because learners in urban Busiro benefit from early exposure to the language of numbers from their parents and also from pre-school attendance.

Recommendations

Based on the findings, this study recommends the following: This study established that children from rural areas were able to outcompete their urban counterparts in practical mathematics. It is recommended that teachers in urban areas include more practical approaches to teaching mathematics to develop lasting and applicable life skills in children. It was discovered that some teachers were putting more pressure than needed on children to meet their expectations. It is recommended that centre coordinating tutors work with head teachers and teachers to guide on appropriate teaching strategies that encourage learners to meet achievable teacher expectations. It was also found that when teachers have higher expectations of their learners, they encourage learners to achieve those expectations. It is recommended that teachers without bias moderate their expectations and help learners to achieve these expectations through practical activities.

REFERENCES

Alber, R. (2014, January 24). 6 Scaffolding strategies to use with your students [Blog post]. Retrieved from https://www.edutopia.org

Adams, C. (2019). 11 Essential strategies in teaching math. [Blog post]. Retrieved from https://www.weareteachers.com

Amin, M. E. (2005). *Social science research: Conception, methodology and analysis*. Kampala, Uganda: Makerere University.

Ampurire, P. (2017, January 12). *UNEB releases 2016 PLE results, citing high female completion.* Retrieved from http://chimpreports.com

Aunio, P., Korhonen, J., Ragpot, L., Tormanen, M., Mononen, R., & Henning, E. (2019). Multi-factorial approach to early numeracy – The effects of cognitive skills, language factors and kindergarten attendance on early numeracy performance of South African first

graders. *International Journal of Educational Research*. Vol. 97 (2019). pp 65 – 67. https://doi.org/10.1016/j.ijer.2019.06.011

Atuhurra, J., & Alinda, V. (2018). *Basic education curriculum effectiveness in East Africa: A descriptive analysis of primary mathematics in Uganda using the 'Surveys of Enacted Curriculum'*. Retrieved from https://mrpa.ub.uni-muenchen.de/87583/1/MPRA_paper_87583.pdf

Bold, T., Filmer, D., Martin, G., Molina, E., Stacy, B., Rockmore, C., Svensson, J. & Wane, W. (2017). Enrollment without learning: teacher effort, knowledge and skill in primary schools in Africa. *The Journal of Economic Perspectives, 31* (4), 185-204. Retrieved from www.sagepublications.com

Businge, C. (2010, January 20). *Best schools in Kampala, Wakiso*. Retrieved from https://www.newvision.co.ug

Cairns, E. (2015). *Every child is capable of learning maths*. Retrieved from https://www.britishcouncil.org/voice-magazine

Chowdhury, S. R. (2017). *Why children do well in street maths but not in the classroom: Researchers fault teaching methods*. Retrieved from https://www.scroll.in

Crouch, L., & Montoya, S. (2017, January 12). Measuring functional literacy and numeracy for lifelong learning [Blog post]. Retrieved from www.globalpartnership.org

Domitrovich, C. E., Gest, S. D., Gill, S., Bierman, K. L., Welsh, J. A., & Jones, D. (2009). Fostering high-quality teaching with an enriched curriculum and professional development support: The Head Start REDI Program. *American Educational Research Journal*. Vol. 46. Issue 2. pp 567 – 597. Retrieved from www.ncbi.nlm.nih.gov

Echazzara, A. & Radinger, T. (2019). *Learning in rural schools: Insights from PISA, TALIS and the literature.* Retrieved from https://www.oecd.org/edu/workingpapers

Fatima, R. (2015). *Role of mathematics in the development of society*. Retrieved from www.ncert.nic.in.pdf_files

Frye, D., Baroody, A. J., Burchinal, M., Carver, S. M., Jordan, N. C., & McDowell, J. (2013). *Teaching math to young children: A practice guide (NCEE 2011-4005).* Washington, DC: National Center for Education Evaluation and Regional Assistance. Retrieved from http://whatworks.ed.gov

Goodpaster, K. P. S., Adedokun, O., & Weaver, G, C. (2012). Teachers' perception of rural STEM teaching: Implications for rural teacher retention. *The Rural Educator, 33* (3), 9 - 22. DOI: 10.35608/ruraled.v33i3.408.

Iyanda, T. (2017). *Importance of mathematics in national development*. Retrieved from www.afripaf.com

Kimbowa, J. (2015, January 18). *PLE: How newest districts stumbled*. Retrieved from https://observer.ug

Leader in Me. (2018, December 6). *Learning theories: Understanding 4 major ones for the classroom*. Retrieved from www.leaderinme.org

Levine, S. C., Suriyakhan, L. W., Rowe, M. L., Huttenlochen, J., & Gunderson, E. A. (2010). What counts in the development of young children's number knowledge? *Developmental Psychology. Vol. 46.* Issue 5. pp 1309 – 1319. https://doi.org/10.1037/a0019671

Makuma, R., & Mukama, R. (2012, February 10). *Born to fail PLE*. Retrieved from www.independent.co.ug

Mallows, D., & Litster, J. (2016). *How can we motivate adults to engage in literacy and numeracy learning?* Retrieved from dera.ioe.ac.uk

Mayanja, R. (2018, January 13). *Kampala, Wakiso shine as rural schools post dismal performance*. Retrieved from htttps://www.pmldaily.com/categort/investigations/special-reports.

Ministry of Education and Sports. (2014). *Teacher initiative in Sub-Saharan Africa (TISSA) Uganda: Teacher issues in Uganda – A shared vision for an effective teachers' policy*. Dakar, Senegal: UNESCO

Mubiru, I. (2020, January 18). *Ranking: Best, Worst districts in 2019 PLE results*. Retrieved from www.watchdoguganda.com

National Assessment of Performance in Education. (2015). *The achievement of primary school pupils and teachers in Uganda in numeracy and literacy in English: A summary of 2015 NAPE report*. Kampala, Uganda: Uganda National Examinations Board. Retrieved from https://uneb.ac.ug.

National Curriculum Development Centre. (2006). *The national primary school curriculum for Uganda: Teacher's guide primary one*. Kampala, Uganda: Author.

Ogan, G. C. (2015). Mathematics as a tool for achieving the Vision 2020 goal of national transformation. *International Journal of Education, Learning and Development.* Vol. 3. Issue 8. pp 57-61. Retrieved from www.eajournals.org

Perkins, K. A. (2015). *Middle school teachers' perceptions of students' ability as predictors of high school honors course enrolment among African American youth* (Master's thesis). University of North Carolina, USA. Retrieved from https://.cdr.lib.unc.edu

Rubie-Davies, C. M. (2010). Teacher expectations and perceptions of student attributes: Is there a relationship? *British Journal of Educational Psychology*. Vol. 2010 (80). pp 121 – 135. DOI: 10.1348/000709909X466334.

Sharples, J., Slavin, R., Chambers, B., & Sharp, C. (2011). *Effective classroom strategies for closing the gap in educational attainment for children and young people living in poverty, including white working-class boys*. London, Great Britain: Centre for Excellence and Outcomes in Children and Young People's Services. Retrieved from www.bestevidence.org.uk

Ssebwami, J. (2020, January 18). *PLE 2019 results: Best, Worst performing districts*. Retrieved from www.pmldaily.com

Timmermans, A. C., Rubie-Davies, C. M., & Rjosk, C. (2018). Pygmalion's 50th anniversary: the state of the art in teacher expectation research. *Educational Research and Evaluation*. Vol. 24. Issue (3-5). pp 91-98. DOI: 10.1080/13803611.2018.1548785.

Uwadiae, I. (2017). *Mathematics remains indispensable to national development*. Retrieved from www.thechronicleofeducation.com

Uwezo. (2015). *Are our children learning*? : *Five stories on the state of education in Uganda in 2015 and beyond*. Kampala, Uganda: Twaweza East Africa. Retrieved from http://www.twaweza.org/go/uwezo-reports

Uwezo. (2016). Are our children learning? : *Uwezo Uganda sixth learning assessment report*. Kampala, Uganda: Twaweza East Africa. Retrieved from http://www.twaweza.org/go/uwezo-reports

Vasagar, J. (2016). *Why Singapore children are so good at maths*. Retrieved from Retrieved from https://www.ft.com

Wei, M. H., & Dzeng, H. (2014). A comparison study of math education and math performance between Asian countries and the US. *Journal of Socialomics*. Vol.3. Issue 2. pp 2167-0358. DOI: 10.4172/2167-0358.1000111.

Wilson, W. S. (2009). *Elementary School Mathematics Priorities*. Retrieved from www.math.jhu.edu

Windisch, H. C. (2015). *Adults with low literacy and numeracy skills: A literature review on policy intervention – OECD iLibrary*. Retrieved from https://www.oecd-ilibrary.org

Yolisigira, Y. (2014, November 12). Luuka education sector in sorry state. *The Monitor*. Retrieved from www.monitor.co.ug