



Teachers' Application of Individualized Educational Programme on Low Mathematics Academic Performing Learners Aged 6 to 8 Years, Loitokitok Sub-County, Kajiado, County, Kenya.

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. Abstract .

An Individualized Educational Programme (IEP) approach seeks to discourage teaching that is based on criteria of averages. Some learners will inevitably fall behind in class work. Teachers must always take into consideration the different abilities and needs of the learners. Therefore, curriculum must be adapted, differentiated, accommodated, and modified to meet the diverse needs of learners. Accessible and flexible curriculum is the key to creating classrooms that meet learner's diversity in learning. This study intended to determine the level of mathematics academic performance by exploring the alternative strategies teachers employ to mitigate low mathematics academic performance. The purpose of the study was to establish whether or not teacher's applied IEP on low mathematics academic performing learners aged 6 to 8 years among grade 1, 2, and 3. The study may provide new insight to low academic performance. Guided by Maslow's Theory of Motivation (1970) the study endeavored to establish how the application of an IEP can motivate the low academic performing learners to aspire for higher academic performance. The study employed an exploratory survey design in Kenya where teachers were implementing an IEP infused (integrated) opportunity school and after school remedial teaching strategies to mitigate low academic performance. Cronbach's coefficient alpha was used to test the degree of internal consistency and a correlation coefficient of 0.75 was satisfactory for this study. The target population was a total of 110 primary schools, 110 headteachers, 579 teachers, and 35,000 learners, while the study sample size was 10 primary schools, 10 headteachers, 33 teachers, 10 low mathematics academic performing learners in grade 1, 2, and 3 aged 6 to 8 years from 10 schools all purposively selected. Data were collected by using a pro-forma. The quantitative data was analyzed and presented using means, and percentages. The correlation coefficient of 0.75 was perfect for this study. The study found that learners' struggle in learning mathematics and literacy and teachers lack intervention skills.

Keywords

Opportunity schools; after school remedial teaching; mitigation; mathematics academic attainment

1.0 Introduction

Individualized Educational Programme (IEP) tailored to an individual learner's educational needs and abilities in mainstream classrooms may have positive mathematics academic attainment (Mahler & Schuchardt, 2016). Despite this eminent study grade one (1), two (2), and grade three (3) continue struggling in learning mathematics in Loitokitok Sub-County (Kenya National Examination Council (KNEC), 2010; Uwezo Kenya, 2011; 2012; 2013; 2014; 2015). In their recommendations these studies underscored the need for intervention. Thus, teachers were implementing IEP infused Uwezo Opportunity Schools Programme (Uwezo, 2014) and, After school remedial intervention programme. Therefore, against this background this study sought to establish whether or not teachers' appropriately applied the Individualized Educational programme (IEP) on low mathematics academic performing learners within their jurisdictions in order to improve their mathematics academic performance in Literacy and Mathematics

2.0 Strategies Employed by Teachers to Mitigate Low mathematics Academic Performance among grade one (1), two (2), and three (3) children aged six (6) to eight (8) years.

Among the strategies employed by teachers in Kenya to mitigate low academic performance in mathematics among grade 1, 2, and, 3 children the one that interested the researcher are Uwezo 2014, Opportunity Primary Schools and After School Remedial teaching intervention. However, similar initiative had been launched in Kenya by Education for marginalized children (2006), and

the Innovative learning approach (Aga Khan East Africa, 2013). Primary mathematics and reading (piper, 2010), East African Early Quality Learning (Aga Khan East Africa, 2013), and Literacy Boast Strategy, (2012) were also implemented did not improve mathematics attainment among grade 1,2, and 3 Loitokitok Sub-County, Kenya

2.1 Opportunity Schools Programme Strategy

The opportunity school Primary School strategy was informed by the need to improve the academic performances in classes one (1), two (2), and three (3) learners. The fact that 70% of these grades are learning below the national means score with only 15% of learners having acquired Mathematics competence as required (KNEC,2010; Uwezo Kenya,2011; 2012; 2013; 2014; 2015) is of great concern. Also some schools in Kenya have a very low transition rate among grade 1, 2 and, 3 to upper primary schools (KNEC,2010;Uwezo Kenya,2011; 2012; 2013; 2014).Under the auspice of the Uwezo Kenya Opportunity school strategy endeavors to meet the learners' educational needs in mathematics and literacy (Uwezo Kenya,2014). Opportunity school was expected to improve low academic performing learners among grade one (1), two (2), and three (3) aged six (6) to eight (8) years. According to Uwezo Kenya (2014) assessment of the learners' readiness for Opportunity school programme was done by evaluating the learners' baseline performance by pre-testing the learners in Mathematics before the introduction into the Opportunity School Primary Programme. The choice of these three subjects was informed by the fact that ability to do well in Mathematics would aid learners to learn other subject area effectively (KNEC, 2010). The programme runs for a period of three months academic duration, after which a post-test is undertaken by class teachers in mathematics.

2.2.1 After School Remedial Teaching Strategy

After school remedial teaching is giving an extra after school coaxing of the learners who are struggling with learning (Eldha, 2005). The after school remedial teaching is meant to improve the educational outcome of the learners who are at risk of academic failure. In response to this serious challenge teachers are searching for ways to increase the academic competence of these learners. After school remedial teaching help the learner to plan for independent application of the strategy in the classroom (Deshler, & Schumaker, 2005). The continuation of the remedial teaching beyond school can only be possible where the parents are literate, well-informed about the learners' educational deficits and where there is a strong collaboration between teachers, parents and learners. According to the teachers, learners' abilities determine who will move on to the next level of learning activities. In addition, teachers use the individual learner's performance in especially mathematics to determine those who require after school remedial teaching on the premise that ability to do well in Mathematics aids learners to learn other subject areas. To determine those who require after school remedial teaching, teachers assess learners' level of academic achievements in Mathematics after which learners are recommended to join after school remedial teaching for a period of three (3) months. According to Melton (2010) before putting learners into a remedial coaxing teachers should first identify learners learning needs so that they can do an effective intervention.

2.2.2 Influence of After School remedial teaching

According to Bereiter (1985) after school remedial teaching provide a faster rate of academic interaction between the learner and the teacher which aid the learner to reach the level of their peers in the classroom. The goal of the after school remedial teaching is to provide low academic performing learners with coaxing that aid optimal classroom functioning to those learners

struggling in learning (Huang, 2010). To do this it is important for teachers to make effort to differentiate classroom learning activities to meet the learners' classroom learning needs. After school remedial teaching a personalized IEP are given in order to address each learner's individual learning deficit. Connell (2009) conducted a study with learners who had specific reading literacy difficulties. The study revealed that learners' were presented with reading delay of approximately two years before attending school. In contrary some learners made little progress. This study argues that after school remedial teaching should go hand in hand with the normal school activities and should not replace the school normal activities. In a similar vein Moses (1998) conducted a study on the effect of structured after school remedial drills and the study found that the most frequently occurring grammatical error in learners' written words was the error concerned with subject verb agreement. The findings suggested that after school remedial teaching should be structured so that the learning activities are systematically flowing and learners 'predictable for effective learning. Investigation Desai (2006) developed an after school remedial teaching programme to improve learning ability of learners. The study revealed that it had positive impact in improving learning. In another study, Abu (2011) examined the impact of after school remedial coaxing and the finding revealed an improved academic performance after school remedial coaxing

2.3 Methodology

Research methodology is the plan that executes research methods of data collection and analysis (Creswell, 2009). The choice of the research design for this study depended on the study objectives in order to help the researcher answer the research questions (Crotty, 1998; Orodho,

2009; 2012) and seek new insight. The study employed Quantitative statistical approach to analyze the pre-test and post-test data obtain from pro-forma provided by the classroom teachers in grade one (1) two (2) and three (3) aged six (6) to eight (8) years in Kenya. The study heavily relied on secondary data such as review of available pro-forma (Saunders, Lewis, & Thornhill, 2003). The quantitative data obtained from the grade one (1) two (2) and three (3) pro-forma was analyzed using quantitative statistics approach and presented using frequency distribution means percentages and standard deviation. Instrument international consistency was ensured through Cronbach's alpha coefficient statistical test. The alpha coefficient of 0.75 was perfect for this study.

2.4 Data Interpretations and Discussions

The opportunity school strategy is informed by the need to improve the academic performances in Mathematics among grade one (1), two (2), and three (3) in Loitokitok Sub-County Kenya. Data is analyzed using the quantitative statistical approach

2.4.1 Standard I Performance in Mathematics before and after Introduction of Opportunity School Programme Strategy

The study shows that there was no improvement of the performance in mathematics performance. In fact the attainment was -22.5% after introduction of Opportunity school strategy. The study indicates that opportunity school strategy did not have much effect on the performance of the learners' mathematics attainment and hence classroom-based Individualized Educational Programme (IEP) should be employed appropriately to ascertain whether the learners' mathematics performance would improve. If appropriately employed IEP would make the Opportunity school strategy involve the learner as an individual to cater for learner's

educational needs according to their educational ability and intellectual adequacy (Mahler & Schuchardt, 2016)

Table 2.4.1.1 : Standard 1 Performance in Mathematics

Subjects	Baseline	Pre-test	Post- test	Change	% change
Mathematics	29.98	71.12	55.06	-16.06	-22.5%

2.4.2 Standard 2 Performance in Mathematics Before and After Introduction of Opportunity School Strategy

It was observed that there was no improvement on performance in mathematics by -19.0% after the introduction of opportunity school strategy. This means that opportunity school strategy should be made more learners individualized to ensure that each learner educational needs are met appropriately, effectively, and adequately. In addition, teachers need to be trained in other more effective remedial teaching methods like the individualized educational programme (IEP).

2.4.2.2: Standard 2 Performance in Mathematics

Subjects	Baseline	Pre-test	Post- test	Change	% change
Mathematics	29.00	70.12	57.36	-12.8	-19.0%

2.4.3 : Standard 3 Performance in Mathematics before and after introduction of Opportunity School Strategy

Mathematics shows a drop in performance by -18.1% after the introduction of Opportunity programme strategy. The study revealed that the programme needs to be made more learner individualized to ensure improvement of mathematics academic performance. Found to be missing was the experimental control group in Opportunity schools intervention strategy.

Table 2.4. 4. 3 : Standard 3 Performance in Mathematics

Subjects	Baseline	Pre-test	Post- test	Change	% change
Mathematics	26.8	64.9	53.2	-11.7	-18.1%

2.5 After School Remedial Teaching Strategy

After school remedial teaching is giving an extra after school coaxing to the learners who are struggling in learning. After school remedial teaching help the learners' to plan for independent application of the strategy in their classroom (Deshler, & Schumaker, 2005). To determine those who require after school remedial teaching, teachers assess learners' level of academic achievements in Mathematics, after which learners are recommended to join after school remedial teaching for a period of three (3) months.

2.5.1 Standard 1 Performance in Mathematics Before and After School Remedial Teaching

The study shows that there was a drop in the learners' mathematics performance by -7.7% with no significance improvement in mathematics. The After school remedial teaching should have been one on one both in context and learner teacher interactions for it to be effective.

Table 2.5.1.1 Standard 1 Performance in Mathematics after School remedial teaching

Subjects	Pre-test	Post- test	Change	%change
Mathematics	35.54	32.81	-2.73	-7.7

2.5.2 Standard 2 Performance in Mathematics After School Remedial Teaching

The study revealed that there was a drop in mathematics performance by -0.3%. This was a very small percentage change in improvement The After School remedial teaching needs to be made more learners individualized both in context and instructions to make it more effective.

Table 2.5.2,2: Standard 2 Performance in Mathematics Performance After School Remedial Teaching

Subjects	Pre-test	Post- test	Change	%change
Mathematics	34.9	34.8	-0.1	-0.3%

2.5.3 Standard 3 Performance in Mathematics, After School Remedial Teaching

The study revealed that there was an improvement in mathematics performance among grade three (3) learners after school remedial teaching in Mathematics by 3.6%. The improvement is impressive but it is a very small percentage change. Therefore, the After school remedial teaching need to be appropriately infused with IEP intervention strategy such as appropriate identification of learners educational needs and abilities for effective instructions.

Table 2. 5. 3 .3 : Standard 3 Mathematics after School Remedial teaching

Subjects	Pre-test	Post- test	Change	%change
Mathematics	34.9	36.1	1.24	3.6%

Conclusion and recommendations

The Opportunity school programme and After school remedial teaching programme have made very small percentage change in mathematics academic improvement. The main key insight across both programmes is the need for learners' individualized educational programme (IEP) that is appropriate in establishing learners' actual level of learning preparedness. On the other hand teachers should be committed to the idea that some learners will inevitably be behind others in the classroom because of the learners' diverse individual mathematics learning differences. The study done globally regionally, and locally clearly shows that individualized educational programme would improve learners' academic performance. Found to be missing was the experimental control group in both programmes and base line assessment in both Opportunity

Primary School and After school remedial teaching. However, these are good initiatives and therefore, they can bridge the gap arising from the lack of IEP inclusive classrooms in Loitokitok and beyond.

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