

# LEARNERS' ATTAINMENT OF NUMERACY SKILLS, IS SUPERVISION RELEVANT? A CASE OF SELECTED DISTRICTS IN ACHOLI SUB-REGION UGANDA

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## ABSTRACT

*The study sought to analyse the monitoring and provision of support supervision on the learners' level of attainment of numeracy skills in Acholi Sub-region Uganda. The study adopted the casual comparative research design and both qualitative and quantitative methods were used. The sampling was done using purposive, simple random and convenience sampling methods. Data collection was done using Self-Administered Questionnaires, Interview Guide and pupils' Test Guide. Analysis of data collected was done using both descriptive and inferential statistics. The study found a significant difference between group means describing monitoring and supervision and learners' attainment of numeracy skills. There is need to build working relationships between the supervisors and the supervisees lest they stop looking at supervisors as people who come to find faults with them. In relation to helping learners attain numeracy skills teachers need to involve children learning by rightly applying pedagogy in teaching numeracy.*

**Keywords:** Supervision, Learners' attainment of numeracy skills

## 1. INTRODUCTION

This current study presents the relevancy of supervision in learners' attainment of numeracy skills in Uganda, using thematic curriculum in Acholi Sub-region in Uganda as a case study. The current developments of education systems require educational expansions and improvements in order to realize the world's development goals on education. While there is dire need for expansion of educational systems quantitatively in terms of institutions, teachers and students, the need for improvement in education systems in terms of supervision remains relevant (Kushyap, 2019). Support supervision covers the activities that contribute to the professional development of teacher trainers, and includes the pedagogical support and administrative supervision

(Ministry of Education and Sports, 2016). It targets expanding and deepening the knowledge, skills, attitudes and practices of lecturers for the benefits of their teaching and pedagogical roles in preparing qualified and able teachers. A study on the effect of instructional supervision by school authorities on the pedagogical practices of teachers in public secondary schools in Uganda established that school authorities were inadequately carrying out instructional supervision, thereby leaving teachers to employ ineffective pedagogical practices (Malunda, Onen, Musaazi, & Oonyu, 2016). This study shows that teachers' pedagogical practices are dependent on the manner in which they are supervised, other factors notwithstanding, an aspect that seems to be

undercooked particularly in Acholi sub region. At primary level, (Arinaitwe, 2013), noted that head teachers and inspectors of schools stubbornly refuse to carry out their role of monitoring and supervision of teachers, yet they are the teachers' immediate supervisors. The irregularity of monitoring and supervision causes some teachers to be redundant by failing to perform by assuming that nobody will be able to visit their schools for such an important exercise. The training, which teachers obtain while in Colleges and Universities is adequate to equip them for classroom effectiveness, supervisors, both internal and external are not adequately facilitated to carry out supervision of teachers in the field (Apolot, Otaala, Kamanyire, & Komakech, 2018). The in irregularity in monitoring and supervision has big impacts on teachers' effectiveness and learners' attainment of writing, reading and numeracy skills.

### 1.1. OBJECTIVE

To analyse the monitoring and provision of support supervision on the learners' level of attainment of numeracy skills

## 2. LITERATURE REVIEW

### 2.1. SUPERVISION

A study by (Dejaeghere, Rhiannon, & Kyeyune, 2009) indicated that Principals in Uganda have limited training opportunities and there is no official directive as to the skills most targeted for Principals and effective training in these skills of supervision. A related study on teacher supervision practices and characteristics of in-school supervisors in Uganda found supervisors' socio-cognitive characteristics to be mostly associated with the choice of supervisory practice (Kalule & Bouchamma, 2014). The aforementioned studies indicate the void of real supervision at institutional and classroom levels. The fact that those in charge of training teachers (Principals and tutors) exhibit a lack of supervision, it is obvious that their products (head teachers and teachers) lack more of it. Explaining the meaning and scope of supervision, (Kushyap, 2019) observes that while modern education systems are too instrumental to expand education quantitatively (educational

institutions, teachers and students) as well as providing all sorts of facilities which are essential for proper progress of education, it will never yield returns if the qualitative perspective is ignored. The need for quantitative expansion as well as qualitative improvements at all levels of education, and the concept he used to determine quantitative improvement is 'supervision'. Borrowing the meaning from the dictionary of education, (Kushyap, 2019) defines supervision as all efforts designed by schools towards providing leadership to teachers and other educational workers in the improvement of instruction. The word is hereby used to mean leadership aimed at improving instructions. According to (Kilayko, 2019), supervision of any school ordinarily refers to the improvement of the total teaching-learning situation and the conditions that affect them. Both Kushyap and Kilayko view supervision in the context of an individual school. In a wider context, supervision, whether it is internal or external refers to a conscious effort directed towards finding ways of improving the outcome of each school or educational institutions (Odu, Akinloye, & Olaoye, 2014). Its success is viewed in terms of supervisors' ability to forge a cohesive working group among his subordinates. Most times, quality in education is looked at as the relationship between school inputs, such as quantitative surveys of textbooks and other physical school resources and student achievement, but studies focusing on these range from showing 'significant positive associations' (Barrett et al., 2007) to others which state that 'there are no clear and systematic relationships between key inputs and student performance' (Hanushek, 1995). Alternatively, other studies consider quality as encompassing the more complex pedagogical issue of the way resources are used in teaching and learning that affects students' achievement (Alexander, 2007; Barrett et al., 2007). The concern in the case of this study is to establish what could be happening in Uganda. Globally, education systems and international monitoring bodies, including the Global Monitoring Report (GMR), are increasingly using assessments or tests of cognitive achievement as proxies for learning outcomes and therefore quality of education. International surveys such as PIRLS, PISA and PASEC are widely used as measures of academic achievement, as well as local and national

examinations. Pre-PIRLs are being increasingly used in developing countries at primary levels, and with the plans for a single reference point for measuring learning in developing countries from UNESCO's Learning Metric Task Force after 2015 (UNESCO, 2013), such international indicators will have a far greater reach and influence within developing countries. Alexander (2008) argues however for 'national accounts of quality to have a distinctively national and indeed local slant'. He distinguishes indicators of quality from measures, recognizing that there are non-measurable indicators that may be culturally or contextually specific but difficult to gauge by objective measurements.

## 2.2. LEARNERS' ATTAINMENT OF NUMERACY SKILLS

From the viewpoint of the learning environment, effective supervision of learning calls for teachers to be conscious of the physical environment and be attuned to needs of individual children. A mere emphasis of the learning material is not adequate to develop children's numerical skills (Australian Children's Education and Care Quality Authority, 2017). Questions about whether the learning environment promotes learners' engagement and independent explorations must be addressed during supervision. Supervision should involve creating an environment that allows children to remain in close proximity to the educators. Monitoring and supporting supervision is essential in helping children learn and for building strong relationships. Supervisory activities have an impact on curriculum implementation. For example, supervision is key in identifying understaffed schools and thus recommends recruitments in those schools (Awino, 2014). Learning and writing numerals is a bit difficult. According to (Zetra, 2012), children find learning and writing numbers as a much more difficult task than reading them. Focusing on the largely unrealized importance of numeral and numeral sequences in early numeracy, (Wright, 2013) found that appropriate professional learning is the pathway to profoundly strengthen children's learning of basic arithmetic and that through strengthening pedagogy, all young children can achieve at significantly higher levels. According to (Geary, 2017), slow learning of number

concepts and basic arithmetic is sometimes associated to dyscalculia. Dyscalculia is a persistent difficulty in learning and understanding mathematics. Dyscalculia is not strongly related to intelligence or motivation but many of the children having difficulty keeping one thing in mind while doing something else have working memory deficits. Development of numeracy concepts and skills involves helping children know and use the concepts and skills in ways that relationships and connections are formed and then apply them meaningfully in their daily experiences. Thus, teachers should build on these prior experiences to design learning activities that enable them to make connections between what they already know and can do (Ministry of Education Republic of Singapore, 2013). In a study aimed at understanding how grade 1 to 3 children in South Africa learn early number concepts, (Cranfield, et al., 2005) found that majority of learners were unable to solve straight calculations, employed the strategy counting all an counting on, while none engaged in formal or innovative methods. There was no progression found in terms of mathematical development. Mathematics for doing is not the same as mathematics for teaching (Terezinha, Vergas, Lin, & Rathgeb-Schnierer, 2016). Teaching mathematics is necessary but not sufficient for learning how to teach mathematics. In this view, there are many teachers who know the algorithms for computing mathematical situations but cannot explain why the algorithms are different and so cannot explain them well. This study points to some fact that the challenges learners encounter in learning mathematics are at times teacher-oriented. Prek (2019) observed that every time a teacher names a number, such as noticing, children are sensitized to numbers and to connect number words to quantity. However, this requires consistency for children to think of the world in terms of and to consistently recognize numbers. When teachers have little knowledge about the children they teach, they are likely to conclude negatively about these children (Arthur, et al., 2017). Teachers do not have to assume that what they see children do or say is all. Skills do not develop at the same time or in the same order in all children who eventually reach total competence. The role of supervision and monitoring reduces learners' aversion to numeracy. Effective mathematics teaching involves 'meeting the learners where they are' and helping

them build on what they know. School heads are tasked to provide support to teachers so as to widely open up windows to see young children and their inherent delight and curiosity behind their mathematical reasoning (Douglas & Sarama, 2009).

### 3. METHODOLOGY

The study adopted the casual comparative research design and both qualitative and quantitative methods were used. The population of this study included District Education Officers in the seven districts in Acholi sub-region, the primary school head teachers, teachers teaching Primary1 – Primary3 in both government and privately owned urban and rural primary schools, selected members of School Management Committees (SMC) and Parent-Teachers' Associations (PTAs), proprietors of private primary schools, staff from the National Curriculum Development Centre (NCDC), Uganda National Examinations Board (UNEB) and the Directorate of Education Standards (DES) located in Gulu District. The sample size of the study was 397 obtained using the Sloven formula. The sampling was done using

purposive, simple random and convenience sampling methods. Data collection was done using Self-Administered Questionnaires, Interview Guide and pupils' Test Guide. Analysis of data collected was done using both descriptive and inferential statistics for the objective done in order to analyse the monitoring and provision of support supervision on the learners' level of attainment of numeracy skills in Uganda

### 4. RESULTS

The current study adopted a multivariate model of analysis to explain the contribution of monitoring and provision of support to supervision on learners' attainment of numeracy skills. The General Linear Model Multivariate procedureThe GLM Multivariate procedure allows you to model the values of multiple dependent scale variables, based on their relationships to categorical and scale predictors. In the current study, the researcher sought to analyse the contribution of monitoring and provision of support supervision on the learners' level of attainment of numeracy skills.

**Table 1: Multivariate Tests**

| Effect      |                       | Value    | F            | Hypothesis<br>df | Error df | Sig. | Partial Eta<br>Squared |
|-------------|-----------------------|----------|--------------|------------------|----------|------|------------------------|
| Intercept   | Pillai's Trace        | .999     | 68113.622(a) | 2.000            | 74.000   | .000 | .999                   |
|             | Wilks' Lambda         | .001     | 68113.622(a) | 2.000            | 74.000   | .000 | .999                   |
|             | Hotelling's<br>Trace  | 1840.909 | 68113.622(a) | 2.000            | 74.000   | .000 | .999                   |
|             | Roy's Largest<br>Root | 1840.909 | 68113.622(a) | 2.000            | 74.000   | .000 | .999                   |
| MON_S<br>UP | Pillai's Trace        | 1.482    | 26.819       | 16.000           | 150.000  | .000 | .741                   |
|             | Wilks' Lambda         | .005     | 121.209(a)   | 16.000           | 148.000  | .000 | .929                   |
|             | Hotelling's<br>Trace  | 101.046  | 461.024      | 16.000           | 146.000  | .000 | .981                   |
|             | Roy's Largest<br>Root | 100.078  | 938.235(b)   | 8.000            | 75.000   | .000 | .990                   |

a Exact statistic

b The statistic is an upper bound on F that yields a lower bound on the significance level.

c Design: Intercept + MON\_SUP

The current study had a number of independent predictors that were tested for significance on the

many dependent variables. This particular study used Wilk's Lambda statistics to establish the level of

contribution and significance of monitoring and provision of support supervision on learners' attainment of numeracy skills. Accordingly, (Wilk's Lambda =.005) is very small and close to zero, which suggests that the group means (monitoring and provision of support supervision, and of learners' attainment of numeracy skills) are different. Monitoring and provision of support supervision has a significant contribution on learners' attainment of numeracy skills (Sig. =.000 <.05). Partial Eta Squared reports the practical significance of each term in the model. According to (Partial Eta Squared =.929), monitoring and provision of support to supervision is numerically large and close to 1. This suggests that monitoring and provision of support to supervision accounts for a greater amount of variation in learners' attainment of numeracy skills. From all the tests made, it can be concluded that monitoring and provision of support to supervision significantly contributes to learners' attainment of numeracy skills. In practical terms, the role of the Head teacher in schools is very essential in as far as learners' attainment of any skills is concerned. Teachers, like all employees tend to relax in performance whenever there is no supervision. It is even worse when it comes to numerical skills, which require close monitoring on how both teachers and learners get along. Numerical subjects require regular monitoring and supervision. It is only when the concerned parties are vigilant in monitoring and supervision can learners attain their best.

## 5. DISCUSSION

The study sought to analyse the monitoring and provision of support supervision on the learners' level of attainment of numeracy skills in Acholi sub region. The study found a significant difference between group means describing monitoring and supervision and learners' attainment of numeracy skills. The findings agree with (Kushyap, 2019) who observed the need for expansion but also improvement of the education systems through supervision. Many public and private institutions in Uganda are well placed in terms of institutional facilities such as buildings, teachers and students but fall short in terms of education output. Learners' achievements, when measured against the expected outcomes are really low due to the absence of supervision by those who should

provide it. The findings also agree with (Barret et al., 2007) who showed significant associations between physical school resources and students' achievement. School, which are endowed with facilities are expected to provide a unique brand of academic performance among learners. But the extent to which such schools can produce desired grades is often limited by the mode of supervision. In Uganda, there are many schools which have nice looking facilities yet they cannot even produce a single first grade in national examinations. The findings further support (Awino, 2014) who showed that monitoring and support to supervision is essential in helping children learn and build strong relationships. The essence in this view is that as the supervisor monitors how the teacher interacts with his learners, there is a bond established between the supervisor and the teacher, between the teacher and the learners and amongst learners. Such bonds impact learners' attainment of skills. Similarly, if the learning is conducted professionally, through strengthening pedagogy, all children can achieve at significantly higher levels (Wright, 2013). This view supports the aspect of supervision, which checks on teachers' implementation of the curriculum through his/her application of pedagogical skills in the classroom. Many learners have been registered among the weak ones for failure by teachers to rightly interpret and implement the curriculum. This is far common when it comes to numerical areas. The findings agree with (Australian Children's Education and Care Quality Authority, 2017), which reported that mere emphasis of learning materials is not adequate to develop learners' numeracy skills. While the teachers get involved and preoccupied with classroom activities, the head teachers and school inspectors need to ensure that the content being given to learners is adequate for development of numerical skills. Teachers need to be supervised regularly to ensure that the curriculum is rightly followed and that learners' cognitive, affective and psychomotor domains are visibly improving. The findings of the study however, disagree with (Zetra, 2012) who showed that learning and writing numerals is a bit difficult. Children find it difficult to relate the number words to the quantity they represent. Even when they write the number words, applying these numbers to real life problems is sometimes challenging. This experience is regardless of the mode



of supervision of the head teacher on the teachers. The slow attainment of numeracy skills by learners could be explained by factors surrounding the learners. Sometimes, slow learning of number concepts and basic arithmetic is associated to dyscalculia (Geary, 2017). Am certain many teachers do not even know that such a complication exists among their learners. Development of numeracy concepts will require the teachers to know these learners so as to help them know and use these concepts.

## 6. CONCLUSION

The study has plainly vindicated beyond that supervision is very essential in learners' attainment of numeracy skills in Acholi sub region. All the statistical tests used do provide concrete grounds to this conclusion. Borrowing from (Kushyap, 2019), expansion of the education system without improving it does not contribute to the attainment of the long-term goals of education in any country. Supervision enhances building of relationships in schools and supporting teachers to implement curriculum, which impacts learners' attainment of skills. In Uganda however, supervision, both internal and external is weak associated partly to logistical issues and partly to personal characteristics of the supervisor and the supervisee. While effective supervision counts much on learners' attainment of skills, numeracy skills are generally difficult to attain. Learners generally find hardship relating number words to quantities and relating classroom number concepts to real life. Some learners have persistent difficulties in learning and understanding mathematics, an aspect that affects their attainment of numeracy skills. However, the character of teachers who teach numeracy is a handicap to attainment of numeracy skills. Some teachers simply know the different algorithms of solving numerical problems without understanding why and when such algorithms are used. Thus, the learners' difficulty in attainment of the required skills are teacher oriented than learner-oriented. This paper contributes to the need for focusing attention on the qualitative dimensions of education in Uganda.

## 7. RECOMMENDATIONS

It is time to rejuvenate the theory and practices of supervision as enshrined in the College and University

curricula for teacher training in Uganda. There is need to build working relationships between the supervisors and the supervisees lest they stop looking at supervisors as people who come to find faults with them. In relation to helping learners attain numeracy skills teachers need to involve children learning by rightly applying pedagogy in teaching numeracy.

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