



Assessing High Order Thinking Skills In Secondary Schools

A CASE OF UGANDA CERTIFICATE OF EDUCATION EXAMINATIONS

Introduction

Recent studies (Allen, Elks, Outhred, & Varly, 2016; Mitana, Muwagga, & Ssempala, 2018) highlighted how Uganda's education system is skewed towards the passing of the final Uganda National Examinations Board (UNEB) examinations at Primary and Secondary Level, setting the stage for a raging debate whether the system facilitates productive learning or is a mere passage of formality for students to go through the 'motions' of education to the point of adulthood or joining the employment sector.

This scenario is further evidenced in the nature of the national examinations, whereby a large majority of the set questions hardly require the learners to apply Higher Order Thinking (HOT) skills, such as analysis skills, evaluation skills or imagination skills to answer the set questions. Majority of the set questions required students to use their Lower Order Thinking (LOT) skills such as recalling of concepts, which are entrenched in the teaching process in form of lecture-style teaching, cram work, rote learning and memorisation of facts with little attention given to practical understanding of key concepts and their application.

Although debatable, this phenomenon is today thought to undermine the development of HOTs in adulthood, resulting in an emerging labour force that is devoid of the highly sought-after skills for today's highly competitive world such as analytical reflection, problem solving, logical reasoning and decision making.

The aim of the summary review

This executive summary aims at providing relevant stakeholders with highlights of the study conducted. The

major focus of the study is on the assessment of the level of prevalence and the application of HOT skills among Uganda's Secondary School students in the context of the learning and teaching processes and how this is reflected in the performance at the national level examinations.

A brief summary of the study conducted

The study intended to: analyse students' performance by selected characteristics in specific subjects; establish the proportion of higher order thinking (HOT) and lower order thinking (LOT) skills questions; establish the items' difficulty and discrimination parameters; and establish the proportion of students who answered HOT and LOT skills questions correctly, disaggregated by: student's sex, school ownership and school open access in terms of their Universal Secondary Education (USE) status.

Study methodology:

- The study was cross-sectional in design, using both qualitative and quantitative approaches.
- A total sample size of 1,720 students was used. All were Senior Four (4) students who were sitting for the Uganda Certificate of Education (UCE) Examinations in 2017.
- The sample students were drawn from all the four geographic (4) regions of Uganda – Central, Eastern, Western and Northern.
- The sampled examinable subjects were English, Mathematics, Biology, Chemistry and Physics.
- The study also included the UCE examiners and teachers.



The main findings of the study

- For most of the papers studied, the average proportion of students who scored full marks was significantly different by: sex (in favour of males), Universal Secondary Education (USE) status of the school (in favour of Non-USE schools) and ownership of the school (in favour of government schools). In some cases, the performance also varied based on region, location and boarding type.
- The students' performance in the UCE examinations varied from average (an example is English paper one with an average mark of 21 out of 40) to poor (an example is Chemistry paper two with an average mark of 16.2 out of 80) with no single subject being performed well.
- Most of the examination papers studied exhibited items that do not span the entire range of the students' abilities (low, moderate and high). Specifically, most items favoured students with moderate (an average student) to high ability levels. This means that students with low ability levels had low chances of answering a given item correctly (with partial or full marks).
- The average and poor student performance in the UCE examinations is attributed to a combination of factors such as: poor attitude towards certain subjects like Chemistry and Mathematics; biasness towards some subjects with the misconstrued view that they are hard like Mathematics; language barrier; large class sizes and lack of instructional materials (such as textbooks) and other specific materials needed for practical lessons (such as apparatus and reagents necessary for Biology and Chemistry lessons); inadequate number of qualified teachers which causes a high presence of part-time teachers and poor syllabus coverage; early scheduling of examinations that reduces the time available for teaching by more than one month and so on.
- The great majority of subject examinations were found to require the students to mainly use their LOT skills and the HOT skills to only a minor degree (examples are Physics Paper One in which only 1.5% of the items assessed HOT skills and Mathematics Paper One in which none of the items assessed HOT skills). Most of the examination questions required the students to recall the memorised information and reproduce it, rather than try to apply it as was the case with the practical parts of the science subjects. The only exception was English Paper One examination, which included 85.7% of HOT questions, though the marking guides the examiners had to follow were not correctly evaluating the creativity skills but mostly assessing the correct reproduction of written styles of communication (which is considered a lower level skill).

The meaning of the findings of this study

The teaching and learning processes in Secondary Schools in Uganda, combined with the current national examinations setting is ill-equipped to nurture the development of HOT skills among teachers and students.

On the other hand, this situation presents an opportunity for the educationists, policy makers and technocrats to overhaul Uganda's education system by introducing changes such as increased overall Government budgetary investment, increased capacity building for teachers, introduction of career guidance for students and more.

The study recommends, among others, to: re-look into the scheduling of final examinations that affects syllabus coverage and ensure that all examination items are included in the UCE teaching content; make sure examinations are set in such a way that the items span the whole range of the learning taxonomies; and facilitate access to examination feedback/reports by teachers beyond the marking period.

Relevance of the study

This study was conducted in 2018 based on the UCE results of 2017, and its findings were released the following year. Therefore, this study is still relevant as the Uganda national curriculum for Secondary Schools has only been changed and adopted in 2020.

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