

# Bridging education gap in higher institutions of learning using Bloom's taxonomy of educational objectives

Irene Aheisibwe<sup>1\*</sup>, Loyce Kobusigye<sup>2</sup> and James Tayebwa<sup>1</sup>

<sup>1</sup>Department of Foundations of Education, Faculty of Education, Kabale University, Uganda.

<sup>2</sup>Department of Educational, Social and Organizational Psychology, School of Psychology, College of Humanities and Social Sciences, Makerere University, Uganda.

Accepted 4 January, 2021

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## ABSTRACT

In Uganda, there is a problem of graduate unemployment which has caused teachers, employers, policymakers, and the entire community to appreciate a critical role in bridging the existing gaps in education. This study examined how Bloom's Taxonomy of Educational Objectives can be used in bridging the education gap in higher institutions of learning. A cross-sectional descriptive survey design, with 180 participants, purposively selected was involved. The study was conducted in two public universities and one private university in South Western Uganda. Data was mainly collected using interviews and focus group discussions. Ethically, permission was sought from relevant authorities, the purpose of the study was clearly explained, participation was purely voluntary and confidentiality was ensured. Respondents described the cognitive domain as activities of the mind, affective domain as the ways in which people deal with situations emotionally and the psychomotor domain as the skills attained. The study suggests using cognitive, affective and psychomotor methods of teaching. The study recommends need to directly teach higher order thinking skills, shift from pedagogy to andragogy, instructors of higher institutions of learning should wisely select sources of content, determine how to present that content effectively, and assess students' progress in relation to that content and activities that promote psychomotor learning especially apprenticeship, internship and school practice should be encouraged.

**Keywords:** Education gap, higher institutions of learning, Bloom's taxonomy.

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\*Corresponding author. E-mail: aheisibweirene@gmail.com.

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## INTRODUCTION

In Uganda there is a big problem of graduate unemployment which has caused teachers, employers, policymakers, and the entire community to appreciate a critical role in bridging the existing gaps in education. For some years now, the blame game has centered on gaps in education where graduates lack the required skills (Kakuru, 2007). Estimates indicate that at least 400,000 graduates each year at the various public and private universities but not even a quarter get absorbed in the employment world (Mbah, 2014). Worse still, projects registered by the Uganda Investment Authority indicate that only 150,000 jobs are created annually leaving an estimated 350,000 potentially jobless. Youth

unemployment has paused a serious security and policy challenges in Uganda (Teijeiro et al., 2013). For example, some youths enlist themselves under the National Association of the Unemployed (NAU) with others branding themselves as "poor youths" which depicts a disgruntled constituency with a capacity to endanger national security (The Republic of Uganda, 2010). According to statistics, youth unemployment in Uganda stands at 62% representing 4.5 million of 7.2 million youths which is indicative of a ticking time bomb lest timely interventions are invoked to arrest the situation (Sparber and Fan, 2012).

Historically, the education gap has existed in formal

education (Kroft et al., 2016). These gaps are societal, economic, demographic, resource, and skills related. Consequently, the Uganda community has been divided into groups: the have and the have-nots, the rich and the poor, the rural and the urban (Riddell and Song, 2011). Education has, unfortunately, become more of an indicator of a person's social-economic standing than a process of enablement and empowerment. Schooling for all and improving access to quality education is key for emerging economies (Shamsuddin et al., 2013). Education is fundamental to increasing prosperity, and improving scholastic systems is a vital pillar to spur this growth. Improving the education system and structures in countries that have vast landmass, widely dispersed populations, and a shortage of skilled teachers is a long process (Lowden, et al., 2011).

Conceptually, an educational gap is defined as the difference between what a student has learned and what the student expected to learn at a certain point in his or her education, such as a particular age or grade level (McKeown and Lindorff, 2011). As universities struggle to break even, commercial maneuvering has resulted in over duplication of courses, high student enrollment; widening the student-lecturer ratio breeding inadequate training and instruction methodologies that affect the quality of output (Ministry of Finance, Planning and Economic Development, 2013). Sub-Saharan Africa is the region with the lowest higher education enrollment barely 8 percent. Conscious of the importance of higher education for socioeconomic development and in response to the ever-increasing demand for higher education, African countries have made huge efforts despite of many constraints and challenges in increasing access to higher education which is in line with sustainable development goals (SDGs) 4 i.e., providing quality education. Enrollment in most countries has increased by several folds (The Republic of Uganda and UNDP, 2010). The outcome was as expected with the greater output of graduates. Perhaps not expected was the increasing unemployment of these graduates, and this is true for almost every African country (Hinchliffe, 2010).

In order to contain the educational gap, Bloom's taxonomy of educational objectives could be adopted in higher institutions of learning. Bloom's taxonomy is a convenient way to describe the degree to which university students can understand and use concepts, to demonstrate particular skills, and to have their values, attitudes, and interests improved. Bloom's taxonomy is a hierarchy, which defines various orders of thinking, commencing at a lower level, and progressively moving to a higher level. It was developed in 1956 by Bloom, Engelhart, Furst, Hill and Krathwohl and later revised in 2001 by Anderson, Krathwohl, Airasian, Cruikshank, Mayer, Pintrich, Raths and Wittrock. This taxonomy divided learning into three behavioral domains, that is, cognitive, affective and psychomotor. The cognitive domain involves knowledge and the development of

intellectual skills (Bloom, 1956). This includes the recall or recognition of specific facts, procedural patterns, and concepts that serve in the development of intellectual abilities and skills. There are six major categories of cognitive processes, starting from the simplest to the most complex; Knowledge, Comprehension, Application, Analysis, Synthesis and Evaluation. The affective domain involves feelings, attitudes, and emotions. It includes the ways in which people deal with external and internal phenomenon emotionally, such as values, enthusiasms, and motivations. This domain is categorized into five levels, which include receiving, responding, valuing, organization, and characterization. These subdomains form a hierarchical structure and are arranged from simple feelings or motivations to those that are more complex. The psychomotor domain is action-based and basically it means to change or develop in behavior or skills. It describes how learning a physical skill begins with observation and progresses to mastery. The subdomains of this domain include; perception, set, guided response, mechanism, complex over response adoption and origination.

### **Purpose of the study**

The main purpose of the study was to examine how Bloom's Taxonomy of Educational Objectives can be used in Bridging the Education Gap in Higher Institutions of Learning.

### **Problem statement**

Great philosophers like Plato, Socrates and Aristotle posit that education is a solution to unemployment (Wedlock and Gorwe, 2017). This has motivated many people to do whatever it takes to acquire education. In Uganda today, most people ensure that they attain higher educational qualifications with hopes of immediate employment. On the contrary, reports indicate that at least 400,000 people graduates each year at the various public and private universities but not even a quarter get absorbed in the employment world (Mbah, 2014). One of the pointers to high level of unemployment is the nature of training received. This calls for reexamination of the role of higher institutions of learning in training students using Bloom's Taxonomy of educational Objectives which has been cited as one of the best approaches in addressing education gaps. Otherwise, the current rate of high unemployment is pausing serious security and policy challenges in Uganda.

### **Research question**

How can Bloom's Taxonomy of educational objectives be used in bridging the educational gap in higher institutions

of learning?

## **MATERIALS AND METHODS**

### **Research design and approach**

This study adopted a cross sectional descriptive survey design. This design was utilised because it allows collecting data from large population at a particular point in time. The qualitative approach was used in the collection, analysis, interpretation and presentation of data.

### **Target population**

The target population for the study consisted of students, alumni, Lecturers, Heads of Departments and Faculty Deans.

### **Area of study**

The study was conducted in south western Uganda. It involved two Public Universities and one Privately Owned University.

### **Sample size**

Using Morgan and Krecjie's table of sample size determination, the study used 3 Faculty Deans, 12 Heads of Departments, 30 lecturers, 120 students and 15 alumni.

### **Sampling technique**

Purposive sampling was mainly used. This was because the study focused on participants from the Faculty of Education who were knowledgeable about Bloom's Taxonomy of Educational Objectives.

### **Data collection methods and tools**

Data was mainly collected using interviews and Focus Group Discussions. Interviews were held with Heads of Departments, alumni and Faculty Deans while Focus Group discussions were held with students.

### **Ethical considerations**

Permission was first sought from relevant authorities who offered an introduction letter which was presented to the

different study participants. The purpose of the study was clearly explained. Respondents were free to choose whether they wanted to participate in the study or not without any reprimand. Confidentiality was ensured using Pseudo names. Before participating in the study, respondents were asked to sign consent forms.

## **RESULTS**

Respondents were asked to describe the different domains of learning as explained below;

The cognitive domain describes the activities of the mind such as sustained attention, long term memory, passing examinations with first class degree/diploma, thinking, reasoning and ability to solve problems. One respondent had this to say " *The several activities that bright students do that enable them get a first-class degree*". The affective domain was described as the ways in which people deal with situations emotionally as being grateful, positive attitude towards work, time management, and response to criticism. The psychomotor domain was described as the skills attained i.e., what one is able to do after attaining a qualification.

The respondents were further asked how the different domains of learning can be taught in higher institutions of learning as presented in Table 1.

Table 1 describes how Bloom's Taxonomy of educational objectives can be applied in Higher Institutions of learning. Using cognitive methods of teaching such as problem-based learning, cooperative learning, role play and game-based learning, while utilising activities like reflection activities, new activities/problems, mentorship programmes and debating clubs, could enhance learners' cognitive abilities of university students. The study also established that affective learning methods such as observation/visualization, direct instruction, self-report, peer ratings, inquiry based, discussion and role-playing while using dancing groups, sports clubs, counseling units and religious groups can also enhance the affective domain of learners. The psychomotor domain could be taught using kinesthetic learning, programmed learning approach, situational analysis, problem based learning and cooperative learning. Activities that promote psychomotor learning include internship/ school practice, apprenticeship and establishment of demonstration centers.

## **DISCUSSION**

The study revealed a need to implement cognitive based methods of teaching such as problem-based learning, cooperative learning, role play, higher order thinking skills, dramatization and game-based learning. This is supported by Nichols et al. (2017) who investigated

**Table 1.** Utilization of Bloom's taxonomy of educational objectives in higher institutions of learning.

| <b>Aspect</b>      | <b>How it can be taught in higher institutions of learning (method)</b>   | <b>Activities</b>   |
|--------------------|---|---|
| Cognitive          | Problem Based Learning<br>Cooperative Learning<br>Role Play<br>Game Based Learning  | Reflection activities<br>New activities/Problems<br>Mentorship programmes<br>Debating Clubs |
| Affective Domain   | Observation/ Visualization.<br>Direct Instruction<br>Self-Report<br>Peer Ratings<br>Inquiry Based<br>Discussion<br>Role-playing | Dancing Groups<br>Sports Clubs<br>Counseling units<br>Religious groups                      |
| Psychomotor Domain | Kinesthetic Learning<br>Programmed Learning Approach<br>Situational Analysis<br>Problem Based Learning<br>Cooperative Learning  | Internship/School Practice<br>Apprenticeship<br>Demonstration Centers                       |

student success with diagramming tasks in secondary science. The study revealed ways in which levels of Bloom's Taxonomy can manifest in the biology classroom. He further states that diagrams learning tools can help with the mental models and clarify abstract ideas. Diagramming also taps into the student's spatial skills. In biology, these skills are needed to understand many course topic objectives that are too small to see what is happening such as protein synthesis, immunology, photosynthesis, cellular respiration, and organic compounds.

The study reveals a need to higher order thinking which is mapped into Bloom's 1956 taxonomy of Educational Objectives. This is one of the cognitive activities suggested in the study where by drawing upon their prior experience when learning enables a learner to develop analytical and evaluative skills. This ultimately leads to application of knowledge and creation of new ideas. The goal of an educator should be to improve the quality of students' thinking so that they are able to think more effectively. This includes skills like thinking deeply, consistently, and more productively. This is also supported by Allen and Tanner (2006) who suggests that students do not often think as effectively as possible. He asserts that students must move past memorization to develop a full range of thinking skills that they need to deal with the complex issues of their world. This is anchored in the cognitive domain of Bloom's taxonomy. Similarly, Lord (2005) asserts a desire for students to perform at higher order levels.

The study reveals a need to shift from pedagogy to andragogy in higher institutions of learning. As most university students are adults' different methodologies

should be used in their teaching. Knowles (1975) popularized the term "andragogy" to refer to those pedagogical practices that focused on adult learners. He asserted that adults have a self-concept and are responsible for their own learning, so the relationship between learners and instructors resembles a partnership rather than a parent-child relationship. To effectively manage the problem of unemployment in Uganda, higher institutions of teaching should shift from teaching students like children. The following adult approaches as postulated by Knowles could be quite helpful; self-direction, such that the learning environment enables learners to choose what and how to learn, experience that learners can draw upon in their own lives, motivation that builds on learners' personal and professional needs, readiness that recognizes the power of just-in-time learning, need to know, so that instructors should give the rationale for the content to be learned, timing that recognizes adults' need to fit learning within their busy schedule and practicality that facilitates close transfer of learning.

The study revealed that most university students are not well prepared for the external world. This is in agreement with a study by Lee (2016); they argued that many college graduates are underprepared and graduate without the ability to apply the information that they supposedly learned. To correct the problem, instructors are encouraged anchor their teaching methodologies on all the three domains of learning i.e., cognitive psychomotor and affective. Instructors of higher institutions of learning should therefore wisely select sources of content, determine how to present that content effectively, and assess students' progress in relation to

that content.

The study also established that affective learning methods such as observation/ visualization, direct instruction, self-report, peer ratings, inquiry based, discussion and role-playing while using dancing groups, sports clubs, counseling units and religious groups can also enhance the affective domain of learners. This is in agreement with a study conducted by Christie et al. (2009) who suggested that the dialogue that occurs between students and teachers in the classroom contributes to overall student understanding of the science topics.

The study further revealed that the psychomotor domain could be taught using kinesthetic learning, programmed learning approach, situational analysis, problem based learning and cooperative learning. Activities that promote psychomotor learning include internship/ school practice, apprenticeship and establishment of demonstration centers. This is in agreement with Nichols et al. (2017) who suggested that kinesthetic teaching methods such as videotaping to record actions of students during small group activities encourage creativity and a positive attitude. Apprenticeship is also encouraged in higher institutions of learning under the psychomotor domain. The objective of apprenticeship training and course attendance programs improves the attractiveness of the participant to potential employers or to enable them to establish their own business. These programs serve to enhance the human capital of the participant. Ultimately, this increases the employers' demand for the participants' labor or the participants acquire the necessary skills to establish their own business, as a result the participants' probability of employment will increase. Frazer (2006) conducted a study on apprenticeship in Ghana and established that in most cases after completing the apprenticeship, the apprentice may be employed by the firm where the apprenticeship occurred. Mohrenweiser and Backes-Gellner (2010) who suggest that in many countries' apprenticeship programs are important step into the labor market contributing to alleviate youth unemployment problem.

## Conclusion

The study revealed a need to implement cognitive, affective and psychomotor based methods of teaching in higher institutions of learning to avert unemployment. Problem based learning, Cooperative and Higher order thinking skills are quite essential in solving the problem of unemployment.

## RECOMMENDATIONS

1. Need to directly teach higher order thinking skills among learners in higher institutions of learning.

2. There is a need to shift from pedagogy to andragogy in higher institutions of learning.
3. Instructors of higher institutions of learning should wisely select sources of content, determine how to present that content effectively, and assess students' progress in relation to that content.
4. Activities that promote psychomotor learning especially Apprenticeship, internship and school practice should be encouraged.

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**Citation:** Aheisibwe, I., Kobusigye, L., and Tayebwa, J. (2021). Bridging education gap in higher institutions of learning using Bloom's taxonomy of educational objectives. *African Educational Research Journal*, 9(1): 69-74.

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