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Innovations in educational assessment in Africa: A proposed framework for the Zambian secondary school sector

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Abstract

Assessment is an essential part of any educational enterprise. Its policies and practices are critical to any educational improvement strategy which is essential to teaching and learning, monitoring, evaluation and improvement of the education system. Education assessment is used to determine learner competencies for certification, progression from one level to another and suitability for employment. Assessment must, therefore, be aligned to national goals in order to have a beneficial influence on the economic and social conditions of people. The credibility of an education system is determined by the quality of its education assessment.

Countries endeavour to employ educational assessment systems that are congruent with national objectives and goals. In Africa, many countries have had curriculum changes and innovations, some of which have not been accompanied by appropriate educational assessment systems resulting into unacceptable educational outputs.

This paper examined the main features of educational assessment in the Zambian secondary education sector since independence. Some of the findings were that the format of assessing learners in this sector had not changed over the years, the educational assessment was conducted internally by the schools and externally by the Examinations Council of Zambia, and that the public paid more attention to the assessment done by the external examinations. The proposed innovations included government and other stakeholders to adequately finance the secondary school sector in order to acquire the necessary teaching and learning resources, strengthen continuous assessment and decentralize the operations of the Examinations Council of Zambia.

Key words: Education, education assessment, innovations and curriculum.

Introduction

At independence in 1964, the most advanced level of education in Zambia was primary education, mostly offered by missionaries. In terms of coverage, primary education reached the remotest parts of the country. Children in these primary schools aspired to go to secondary school with the hope of going to colleges or universities upon completion. According to Kelly (1991), the education system was not able to accommodate all the school-aged children. However, some of the children failed to stay in the school due to hardships related to their sexual roles and the poor learning environment.

Zambia's formal education system uses a 7 – 5 – 4 structure with seven years of primary education (four years of lower and three years of upper primary) five years of secondary (two years of junior and three years of senior secondary) and four years of university education to first degree level. Admission to junior secondary is dependent upon candidates passing the grade 7 examination. Equally the admission to secondary school is based on one's performance in the terminal examination currently called the Junior Secondary School Leaving Examination (JSSLE) that pupils take at the end of grade 9. These two examinations are public educational assessments set and marked by the Examination Council of Zambia. On the basis of performance in the JSSLE candidates proceed to grade 10 or senior secondary school while the examination taken at grade 12 level is equivalent to the ordinary –level standard in the British system. Admission to tertiary and wage sector employment hinge on school certificate performance. The secondary school sector in Zambia caters for the age group 13 to 18 years. The school certificate examination evaluates how successful the school system has been in attaining very specific curricula objectives. In theory, secondary schools are supposed to provide educated persons in the numbers needed and with skills required for national development.

Background

Braun & Kanjee (2006) acknowledge that secondary school education is critical to improving the quality of life in developing countries because it plays a pivotal role in promoting rapid economic growth by preparing learners to enter the world of work or to pursue further education

and training. It also prepares young people and at risk—youth to participate more fully in their own social development and development of society.

Between 1964 and 1974 secondary school enrolment increased four-fold (Kelly, 1991). This expansion meant that there was need for increased resource allocation to both and Senior Secondary levels. This is inclusive of the deployment of teachers both at diploma and degree levels. The curriculum at the Junior secondary level was supposed to comprise a number of full subjects together with modules on important issues and areas that could be offered either independently or within the framework of an appropriate subject. The curriculum was also supposed to promote high levels of competence in communication and mathematical skills and to strengthen the foundation on which the Junior secondary education was to be based.

It was anticipated that there would be remedial teaching in the early stages of Grade 8 while the Standard Officers paid special attention to monitoring teaching and developing modules to support such teaching. At Junior secondary school level, pupils would take a practical or technical subject. The Government was expected to build a number of Junior secondary school programmes around different practical subjects in order to provide pupils with a sounder preparation for subsequent training or for entry into the world of work. Before these children can go for training or enter the world of work they need to be assessed by the Secondary Schools they attend. Assessment is the process of identifying, gathering and interpreting information about the learner's performance (MoE, 1996). The central purpose of assessment is to provide information on learner achievement and progress and set the direction for on-going teaching and learning. The process which is designed to enhance teaching and ultimately improving learning outcomes is referred to as 'assessment for learning'. Assessment for learning can be summarised as:

- An essential and integrated part of teaching and learning
- Reflecting the belief that all learners can improve
- Involving setting goals with learners
- Helping learners know and recognise the standards they are aiming at
- Involving learners in self-assessment and peer assessment

- Providing feedback that helps learners understand the next steps in learning and plan how to advance them
- Involving teachers, learners and parents in reflecting on assessment data
- The other process is communicating information.

The process of communicating information about learner achievement and progress gained from the assessment system is referred to as assessment of learning. Teachers use the information gathered from 'assessment for learning' to summarise learner achievement. Schools do this in written report to parents. The purpose of reporting is to support teaching and learning by providing feedback to learners, parents and teachers. Learners' learning achievement and progress are also reported to other stakeholders including employers. This information about learners' achievement is valuable for school and system-wide planning and reporting (Braun & Kanjee, 2006).

Theoretical Framework

The study was done in the context of three theories namely; the extension theory advanced by Roling (1988) and the diffusion theory by Nutley et al (2002) .

The extension theory assumes that increased adoption rate of innovations would occur as information about the innovation is communicated to the beneficiaries' social net works. Although the theory was first used among farmers in New Zealand, it applies in the present study in that the Secondary school system has networks such as subject associations through which information on various innovations can be communicated and utilised. As observed by Fulton (2003) the term extension has been used to collectively include any advisory, consulting, technology transfer, research, training, marketing, industry development ,learning, communication, education and many other...self-development activities that are undertaken with the aim of bringing about positive change.

The diffusion theory was relevant in that it shows how ideas from a wide range of related disciplines are drawn together. According to Nutley et al, (2002) the underpinning disciplines provide a range of perspectives on the diffusion of the innovations. In this study ,the

educational assessment involves many elements which constitute innovations and these must be diffused to the secondary sector of the education system.

Review of relevant literature

Assessment is a very important activity in education. Kizilk (2012) describes assessment as a process by which information is obtained relative to some known objective or goal. It is preceded by the teaching and learning activities which are based on some known specific objectives in the curriculum. It is a broad term which includes testing. Testing is done at the end of the teaching activity to assess the amount of learning that has taken place.

Scalnia (n.d) contends that assessment is the process of making a judgment or measurement of worth of an entity. Educational assessment involves gathering and evaluating data evolving from planned learning activities or programmes. Scalnia further argues that learner assessment represents a particular type of educational assessment normally conducted by teachers and designed to serve several related purposes which include:

- a) Motivating and directing learning
- b) Providing feedback to students on their performance
- c) Providing feedback on instruction and/or the curriculum
- d) Ensuring standards of progression.

For teachers, curriculum specialists and course designers, carefully constructed learner assessment techniques help in determining whether or not the stated goals are being achieved. Braun and Kanjee (2006) describe assessment as an instrument of change. According to these scholars, some assessments serve learners, teachers, parents and policy makers by providing them with useful information; others focus on educational effort by virtue of the consequences that are attached to the performance of the learner. They further contend that assessment is neither an end in itself nor a panacea for the ills of education.

The Ministry of Education (MoE) (1976) contends that assessment is part of the continuous teaching and learning process. The Ministry of Education further observes that the assessment procedure in Zambia is of great concern to the public. It comprises the written examination that terminates one stage of education and serves as a selection instrument for admission to the next

stage. MoE (1992) explains that assessment of school pupils can be achieved through examinations. This is even more important in developing countries where educational opportunities at the higher levels will remain scarce for the foreseeable future especially if economic growth is slow. It, therefore, concludes that the only cheap, efficient, equitable and objective way that society has been able to devise for the allocation of these scarce educational opportunities and benefits is by means of examinations.

However, the general public and some teachers consider examinations as merely for certification and selection of some students for the next stage of education. This has forced teachers and pupils to direct their efforts towards passing examinations and not mastering what they teach and learn respectively for application to solve real problems.

Assessment can be used to determine the quality and efficiency of an educational enterprise. Braun and Kanjee (2006) designed a frame work with whose help we can discuss the role of assessment. They identify attributes of Access, Quality, Equity and Efficiency. Access refers to issues of entry or attendance at school. This means that the school system is covered from the start through to the exit. Assessment depends on how available access is to the learners at all the stages. Quality refers to what learners should know, where and how learning takes place. Efficiency looks at the optimal use of educational resources and facilities to improve access to schooling and the quality of education provided. It comprises functioning of the current structures and systems at different levels of educational administration i.e. school, district and province. The staffing levels, formulation and implementation of policies, monitoring of policies and practice within the system play an important role in educational assessment. Availability, allocation and use of human and financial resources and the management of resources at different levels within the system constitute quality in education. The education output and repetition rate of learners all point to efficiency.

Equity is based on the principle that essentially all children of the school-going age can be provided equal opportunity to learn irrespective of their background. It is based on inclusiveness of all children regardless of race, colour or economic status. There must be no form of discrimination for children when entering school.

In Zambia, the education system has experienced a lot of difficulties in the areas discussed above that were identified by Braun and Kanjee (2006). Their effects on the education system lead to failure to assess the learner in totality. The issue of quality was one of the causes for the 1976 proposed education reforms in the country.

It is clear from the above that the Zambian secondary school system suffered from all the attributes relating to assessment proposed by Braun and Kanjee (2006) that would qualify an education system as having an effective assessment. The outcome of the critical shortage of resources in various forms was several innovations such as the 1976 Education for Development: Draft Statement on Educational Reforms. The Government states:

The need to change certain aspects of our education system has been felt for a long time ... in order to implement these priorities, a number of bold decisions had to be taken. The structure and organisation of the education system were changed: tuition and boarding fees were abolished; the capacity of the system was substantially increased as the investment... as a result many more children entered school and remained in school for longer periods; the expansion and diversification of adult, technical, teacher and higher education were embarked upon ... (MoE, 1976).

Thus, the Government embarked upon massive expansion of the education system at all levels throughout the country. In spite of the massive expansion, parents still felt such efforts did not succeed in meeting the rising demand for education. They also felt that the quality of education was declining while vast numbers of early school-leavers were being eliminated from the system without satisfactory preparation for adult life.

For a long time the secondary school system in Zambia depended on seconded teachers to teach classes they were not qualified for. This made the school system fail to deliver as expected. Several initiatives were done by individuals and institutions to try and address the problems of the school performance. Apart from the lack of qualified personnel, the secondary school system suffered from lack of resources leading to initiatives to restock the schools with books and laboratory equipment.

Another indicator of the problems of assessment in the education system is the gender inequality. The Government of the Republic of Zambia notes:

The status of women is very low. Available information indicates that gender –based disparities persist in favour of males in education, decision making, health agriculture and many other areas. Literacy rates are much higher among males than females of all ages at 76.6 percent for males and 58.3 percent for females. Serious gender disparities also exist at secondary school and tertiary levels of education (GRZ, 2003: ii).

In Australia, the National Assessment Programme (NAP) sets the framework of operation and seeks membership with outside bodies:

The National Assessment Program (NAP) is an on-going programme of assessments, ... to monitor progress towards the Educational Goals for Young Australians and to support on-going evaluation of the national education system. The NAP encompasses the National Assessment Program – Literacy and Numeracy (NAPLAN) and three-yearly sample assessments in science literacy, civics and citizenship, and information and communication technology (ICT) literacy. Australia's participation in international assessments – Programme for International Student Assessment (PISA) and Trends in International Mathematics and Science Study (TIMSS) – are also part of the NAP (OECD, 2011:24).

Braun and Kanjee (2006) observe that the challenge was how to nurture and develop, even under the manifold constraints characteristic of developing countries, assessment practices and systems that are systematically valid. The Zambian educational assessment system, therefore, fails to meet the criteria proposed by Braun and Kanjee.

One of the ways of overcoming the challenges of educational assessment is by innovating ways of assessing the learners. Innovations can be done at different points in the teaching and learning process. The teaching can be changed in order to achieve the intended goals of the curriculum. Lawler (1970) defines innovation as a deliberate, normal specific change, which is thought to be more efficacious in accomplishing the goals of the system. It is an improvement made on the existing curriculum or assessment by either adding more activities or replacing some.

In Nigeria, several attempts were made to change the teaching system in order to suit the local needs. Boa (1987) reports a study in the teaching of Mathematics where the new discovery method was used instead of the traditional method. The innovation failed as teachers did not use the discovery method in their teaching. Instead, they used the traditional method which kept learners bored.

Another innovation was adopted also in Nigeria in the teaching of Science. This was developed by the Science Teachers Association of Nigeria (STAN). The teaching emphasised the inquiry method which should result in active involvement of learners in the learning process, working

and thinking independently, recalling information and experience, using and classifying given information, devising schemes for solving problems, application of knowledge, showing judgment and assessment in interpreting information, communicating effectively, and relating this experience in science to other subject areas (Boa, 1987). The conclusion of the study was that teachers were poorly equipped to teach using the new method because they did not understand it and lacked the proper material and equipment for using the new methodology. The study also revealed that there was lack of proper assessment instruments to measure the outcomes of teaching and learning activities.

Similar innovations were tried in Sierra Leone but yielded no positive results. According to Boa (1987), the International Development Aid (IDA) sponsored a project in the teaching of Science using the inquiry method. The findings showed that there were many obstacles in the school that hindered the successful use of the inquiry method in teaching Science. For example, classrooms were overcrowded with unsuitable furniture and inadequate textbooks. It was reported that 50% of the teachers visited had abandoned the discovery method for the traditional methods and that that teachers had resisted change.

It can be concluded from the foregoing that innovations meant to improve the education system in Sierra Leone and Nigeria failed because not enough resources were provided. For example, there was a critical shortage of teaching and learning materials and teachers were not adequately trained to successfully implement the innovations.

Statement of the problem

Countries endeavour to employ educational assessment systems that are congruent with national objectives and goals some of which are: being animated by a personally held set of civic, moral and spiritual values; developing an analytical innovative creative and constructive mind; appreciating the relationship between scientific thought action and technology on the one hand and sustenance of the quality of life on the other and increasing access to education and life skills training (MoE, 1996). In Africa, Zambia in particular, there have been curriculum changes and innovations, some of which have been accompanied by inappropriate educational assessment systems thereby resulting into unacceptable educational outputs. This study, therefore, sought to establish the existing relevant educational assessment systems in the Zambian secondary school sector and suggest innovations congruent with the national goals and objectives.

Purpose of the study

The purpose of the study was to examine some educational assessment systems in Africa with particular reference to the Zambia secondary school sector and suggest innovations congruent to the national educational goals and objectives.

Significance of the study

The findings of the study may help stakeholders such as the Ministry of Education, Vocational Training and Early Education in general, the Examinations of Council of Zambia and its affiliates in coming up with more appropriate assessment systems. The findings may also benefit higher institutions of learning, the world of work and society in general by establishing appropriate training for teachers in educational assessment. Further, school leavers may also contribute more positively to the world of work and society in general having passed through an effective educational assessment system.

Objectives

The objectives of the study were to:

1. establish the educational assessment systems in the Zambian secondary school sector.
2. suggest innovations in the educational assessment system in the Zambian secondary school sector.

Methodology

The study used the descriptive research design to achieve its objectives. The main purpose of descriptive research is to describe the state of affairs as it exists and the researcher reports the findings (Kombo & Tromp, 2006). Data on educational assessment in the Zambian education system and beyond were reviewed through desk research.

Findings and discussion

The study established that the format of assessing learners at both the Junior and Senior secondary school examinations have not changed over a long period. Learners are assessed at grade 9 and 12 for suitability to continue with secondary school and tertiary level respectively

and for the world of work which should be seen as levels of attainment. According to Eggleston and Kerr (1969) the results of the examinations are used to predict and select the learners. The learners are assessed using a national examination at the end of the study year. Braun and Kanjee (2006) observe that public examinations can fulfill one or more of the following roles: selecting learners to secondary or to tertiary education, credentialing learners for the world of work, and/or providing data for holding school staff accountable for their performance.

Frith and Macintosh (1984) describe this approach to assessment as predetermined. It depends on established aims, set objectives by which aims can be achieved and a criterion by which the progress or level of mastery of the pupils can be measured. The designing of such examination involve pre-testing and post-testing of the material for the purpose of suitability of candidates and ability. Secondly, it also helps to ensure relevance of the subject taught. In recent years the predetermined approach has tended to dominate assessment practices, particularly in large scale examinations. For example in Zambia, in the 2013 grade 12 examinations, over 130 000 candidates sat the examination. Such examinations are particularly critical in developing countries where the number of candidates for advancement is usually many times greater the number of places available (Braun and Kanjee , 2006).

The study also established that the educational assessment in Zambia is conducted internally by the schools and externally by the Examination Council of Zambia. At secondary school level, it is only the evaluation of practical and project work that contribute to the overall grading in some subjects at both Junior and school certificate levels. The current practice in Zambia is that a nominal number of subjects such as home economics, geography, industrial arts and sciences have a component of practical at school certificate level which make a separate paper, i.e. Paper 1 of the entire examination in that subject. The marks in this paper are later combined with the marks from the theory paper (Personal communication with in-service teachers at the University of Zambia). However, several problems have been noted in the handling of practical and project marks in subjects such as geography and agricultural sciences where marks would go missing.

The public pays more attention to the written assessment than to the others. MoE (1977) observes that in Zambia, the assessment procedure which is of great concern to the public is the

written examination that terminates one stage of education and serves as a selection instrument for admission to the next stage.

It is a sad fact that at present the general public and even a considerable proportion of the teachers view examinations as merely fulfilling two functions namely: those of awarding certificates and selecting some students out of the many for the next stage of education. As a consequence, the examinations become the test of whether a school is doing its job; teachers tend to be blamed if too few of their students are selected for further schooling; students are considered to have 'failed' if they do not get selected; and teachers feel compelled to direct their efforts towards examination success. Furthermore, most public examinations tend to pay more attention to what students can remember and far less to how well students can think, to what they acquired and to what they can do... (MOE, 1977: 37).

For example, the emergence of private tuition in private homes and public places was a direct consequence of this scenario. If the examinations are well designed and in conformity with the official curriculum, then chances are that teachers will teach what they are supposed to teach and students will learn what they are supposed to learn. This implies that teachers should be key stakeholders in both curriculum design and examinations.

The assessment system mostly assesses knowledge areas leaving attitudinal and dispositional ones such as innovativeness, problem solving ability and capacity for self-initiated and lifelong (MoE, 1977, 1992 & 1996). According to MoE (1996), the school certificate examination evaluates how successful the school system has been in attaining very specific curricula objectives. It does not, however, evaluate whether other important national objectives have been achieved. Without some method of determining individual and institutional success in attaining stated goals for the system, the vision for education may come to consist of little more than sterile clichés. Frith and Macintosh (1984) state that mismatches can occur when assessment is constructed by an agency other than those who are to use it. The results of an examination may be used for quite a different purpose than that for which it was designed. As a result, totally wrong conclusions could be drawn which could have far reaching effects on a candidate's future.

That the examination performance has deteriorated over the years in that the number of candidates has increased enormously while the availability of teaching material has declined (Kelly, 1991, Moonga 2011). According to Kelly (1991), from 1975 to 1985 only 62.4% passed

fully and obtained a school certificate while 35.6% succeeded in obtaining 'O' level passes in one or more subjects, but did not pass the full certificate examination. The balance of 2.0% failed completely. Kelly also reports that there was varying performance in individual subjects with Mathematics rated at 50% with only about one third of the candidates getting the equivalent of an 'O' level pass. The performance of boys and girls continued to differ in the school examinations. In almost every subject investigated the percentage of boys obtaining an 'O' level pass was higher during 1980 to 1996 than the percentage of girls. Kelly contends that only some two out of three candidates complete the school certificate successfully. This is a great cost to the country with limited financial resources. The University of Zambia General Certificate of Education (GCE) centre receives not less than 2000 candidates seeking to rewrite examinations per year. Additionally, the Ministry of Education has introduced two sessions of writing GCE examinations: one in June and the other in November-December.

The examinations are poor due to under qualified teachers handling senior classes they are not trained to teach (UNZA, 2011). The problem that the Ministry of Education has to address through the FAST TRACK initiative is that of unsuitably qualified teachers teaching in the high school sector education in Zambia. The solution the Ministry has opted for is that of upgrading these teachers to degree level, meaning giving them the knowledge and skill need to teach effectively at secondary school level. Braun and Kanjee (2006) cite Bregman and Stallmeister (2001) contend that the shortage of qualified and experienced teachers, as well as the low morale and motivation of the teaching force, has been cited as the key factor for the low performance of the education systems in many developing countries. They further argue that the implementation of the effective teacher development programmes regarded as vital for improvement in the provision of quality education, has been a characteristic of many systems in the last decade. There is evidence of Continuing Professional Development (CPD) programmes in South Africa, Brazil and Indonesia (Braun & Kanjee, 2006) and Zambia (UNZA, 2011).

There are very few teachers who have been trained as examiners for secondary school. As a result only a small number of teachers are aware of the external examination requirements and are, therefore, in a better position to prepare their candidates for the external examinations.

Furthermore, there is no known forum to train most of the teachers in educational assessment and evaluation of external examinations in Zambia.

Conclusions

Based on the findings of the study, the following conclusions were made that:

- a. the format of assessing learners at both Junior and senior secondary levels have not changed over a long period and have not been well communicated to various stakeholders,
- b. the educational assessment in Zambia at secondary school level is conducted internally by the schools and externally by the Examinations Council of Zambia but the process lacks transparency,
- c. the public pays more attention to the assessment done by the external bodies than the internal assessment ,
- d. the assessment system of external examinations mostly assesses knowledge areas leaving attitudinal and dispositional ones,
- e. the examination performance has declined over the years due to expanded access to secondary education with limited resources for teaching and learning and,
- f. examination results are poor due to under qualified teachers handling senior classes which they are not qualified for.

Proposed innovations

In order to make the educational assessment system more effective and relevant, the following frame work for innovations was proposed:

1. The government and other stakeholders should adequately finance the Secondary school sector in order to have the necessary teaching and learning resources
2. The continuous assessment system should be strengthened at school level by including such elements as group activities, portfolios, tests and projects and a candidate should pass both continuous assessment and final examination at 40% and 60% respectively.
3. The external examination should include more affective and psychomotor skills.

4. The Examinations Council of Zambia should be decentralized in all its functions down to district level.
5. There should be constant and clear communication with all stake holders about the assessment system
6. compulsory assessment and evaluation courses at Secondary tertiary educational institutions should be designed
7. The government should ensure that the educational assessment system is sustained by qualified teachers.

Through this proposed innovation, it is expected that there would be improved delivery of educational assessment activities at secondary school level in Zambia and the secondary school education would be made more relevant to the local needs in Zambia in particular and Africa in general.

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