

Reform of Educational Systems in Ghana: The Case of Polytechnic Education

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Abstract

Over the last few decades, the educational system in Ghana has undergone a series of educational reforms to enhance teaching and learning in the country for high skills acquisition and national development. The Ghana Educational Reforms, initiated in 1987 recognized the need for relevant practical education for the solution of problems for the country's overall development. In line with these reforms, Ghana's polytechnics were upgraded from Second Cycle Technical Institution to Tertiary Institutions in 1992. This was on account of the growing need to produce more middle level manpower for the industries in Ghana. In September 2007, another educational reform took place and the polytechnics were mandated to train graduates for industry, commerce, business and administration in Ghana. Competency Based Training (CBT) therefore has been introduced in the polytechnics in order to help in achieving this goal and objective. The paper highlights on the educational reform that has taken place in Ghana and the need for polytechnics to reform their programmes and run them on the principles of CBT. It also outlines the importance of CBT in the polytechnic education.

Keywords: Educational Reform, Tertiary Institution, Polytechnic, Ghana

1. Introduction

The Ministry of Education in Ghana, in 1987, introduced a new educational system which gradually replaced the British-based G. C. E. Ordinary and Advanced level systems. Following the promulgation of the polytechnic law, PNDC law 321 (1992), polytechnics were established in Ghana as a tertiary institutions. In September, 2007, the country gave birth to another educational reform which emphasized on science, mathematics, technology and technical and vocational education and training (TVET). This is to provide employable skills for graduates and help reduce the high rate of unemployment in the country (Amankwah, 2011). In line with the 2007 reforms, PNDC law 321 was repealed by the new polytechnic law 745 (2007), giving autonomy to polytechnics, mandating them to run Bachelor of Technology (B-Tech) degree programmes.

The polytechnic educational system in Ghana took its root from the TVET which aim is to equip people with the technical and professional skills needed for socio-economic and industrial development of the country. The emphasis is on training people for self-employment.

The government of Ghana recognizes the strengthening of TVET as a means of developing the technical and skilled human resource base which Ghana needs urgently as a key strategy for rapid economic growth and for realizing the Ghana vision 2020 plan. One of the basic philosophy and orientation of Ghana's vision 2020 plan is to reform all Technical /vocational education system to make it more responsive to the national goals and aspirations as well as local and global demands. Indeed, an improved TVET system will promote manufacturing, construction technology, agro-based industry and commerce. To achieve the said objective, requires a radical shift in the design and delivery of the TVET curriculum at all levels especially at the polytechnic level (Afeti, Baffour- Awuah & Budu- Smith, 2003). It is in this regard that competency based training (CBT) has been introduced and emphasized in recent TVET education especially at the polytechnic level. This change of focus of training is based on the fact that it is the trained technical manpower in the advanced countries which has served as catalyst for industrial development and transformation of industries in their economies.

2. The historical context of Ghana Educational Reform

Education was placed at the centre of Ghana's economic and social development policies following its independence in 1957 and the 1961 Education Act (Akyeampong, 2010). Technical education, through the development of technical schools and polytechnics was a key element of Ghana's education plans. Rapid expansion of the education system, however, was later criticised for compromising on quality (ibid).

In 1967, continuation schools were established for learners who were not selected for secondary education. Continuation schools emphasized pre-vocational education; this contributed to the erosion of TVET's credibility, as it was viewed as a route for those who had failed to progress to academic education (ibid). The National Vocational Training Institute was established in 1970 to provide national co-ordination of TVET (Preddey, 2005).

The economic crisis of the 1980s led to reduced levels of public sector employment, increased unemployment and a reduced rate of return to post-basic education (Atchoarena & Delluc, 2001). It also led to protracted problems for Ghana's education system, including shortages in textbooks and instructional materials, as well as teaching staff (Akyeampong, 2010). Reforms in 1987 saw the combination of primary and junior secondary education into 'basic education', and senior secondary education reduced to three years. Curriculum reforms aimed to ensure that all primary school leavers had access to secondary education, and to prepare learners who left the formal education system for paid work or self-employment (Akyeampong, 2002 & 2010).

These curriculum reform included a greater focus on TVET, but 'failed to recognise that the kind of macro-economic conditions needed to motivate demand for practical subjects was lacking in what was a poor-performing economy' (Akyeampong, 2010, p.6). Less time was available in the curriculum for the development of the literacy and numeracy skills necessary for more advanced technical and vocational understanding (Atchoarena & Delluc, 2001).

Furthermore, although vocational programmes in schools were intended to offer vocational orientation to learners within a school-based setting, delivery conflicted with policy objectives: 13 specialised vocational subjects were offered, rather than a more general vocational curriculum (Akyeampong, 2002), and teachers failed to implement the proposed integrated approaches (Osei, 2004).

In 2004, the Government of Ghana published a white paper on education reform. The paper suggested that the 1987 reforms had led to 'immature' learners between the ages of 12 and 15 who were unable to absorb vocational skills, and vast numbers of 'unskilled, unemployable' young Ghanaians entering the labour market at the age of 15 (Government of Ghana, 2001, p.2). The white paper saw an ambition to develop TVET as a 'credible alternative' to general education (2004, p.8) and stated that a particular focus would be given to training TVET teachers.

Education reforms in 2007, the result of the 2004 white paper, aimed to streamline general, vocational, technical and agricultural education through improvements in the quality and nature of compulsory subjects (Gondwe & Walenkamp, 2011). Core subjects are English language, mathematics, integrated sciences, social studies and ICT; elective subjects are agriculture, business, technical education, vocational education and general education (arts or science) (UNESCO, 2010).

3. Mission of Polytechnics in Ghana

The polytechnics Law of 1992 (PNDC Law 321) which upgraded the polytechnics into tertiary institutions assigned the appropriate aims and objectives as follows:

- To provide tertiary education through full time courses in the field of manufacturing, commerce, science, technology, applied social science, applied arts and such other areas as may be determined by the authority for the time being responsible for higher education.
- To encourage study in technical subjects at tertiary level.
- To provide opportunity for development, research and publication of research findings.

From the above, it can be inferred that the central aim of polytechnic education is that its programmes are career-oriented and have a more practical focus than those offered in the university whose central mission is to generate and disseminate knowledge through teaching research and service. Polytechnics have a primary mandate in the development of highly skilled manpower that is much needed in industry and the world of work.

Kwami Report (Technical Committee on Polytechnic Education) described polytechnics in Ghana as: "Technological institutions contributing actively to national development by providing career-focused education and skills training to the highest level possible and providing opportunities for applied research in close collaboration with business and industry".

The Report went further to restate the mission of polytechnics in Ghana as to:

- a. Maintain teaching and learning environment conducive to training highly skilled and competent manpower invested with entrepreneurial skills in partnership with other institution and industry;
- b. Provide opportunities for and conduct applied research to advance economic growth; and
- c. Provide expert service with the view to satisfying needs.

These objectives were further clarified by Polytechnic Law (Act 745, 2007). This law emphasized the role of polytechnics in the provision of tertiary education that is career focused, to prepare students for middle level supervisory and managerial positions in business and industry in Ghana. Commenting on their role and challenges in Ghana before the enactment of the Polytechnic Law, Kwami (2001:16), noted that:

"The reason or mission for establishing the polytechnics is to provide high calibre career –focused middle-level technical personnel, possessing knowledge-based modern skills for various sectors of the

economy. For industry, they are crucial for transforming knowledge and ideas into goods and services through productive progresses. They are needed to ensure and sustain efficient productivity in industry’.

4. Transformation of Polytechnics in Delivering Career-Focused Education

Globally, polytechnics are being transformed, with some turning into universities. For example in the United Kingdom, a large number of regionally recognized polytechnics are now universities. For instance Manchester Polytechnic is now Manchester Metropolitan University, Newcastle Polytechnic is now Northumbria University, North London Polytechnic is presently part of London Metropolitan University and Oxford Polytechnic is now Oxford Brookes University (Page, 2003). In America, such transformed polytechnics include California State Polytechnic University at Pomona, New York State Polytechnic University, Polytechnic University of America in Doral, Florida and Rensselaer Polytechnic Institute, America oldest technological university (Owusu-Mintah, 2011). In the Republic of South Africa, the Technickons, which were initially higher technical institutes (equivalent to polytechnics in Ghana), were approved to award degrees in various courses in 1993 (Ogude et al, 2003). This was the period just after South Africa’s renouncing of the apartheid policy of racial segregation. In other African countries such as Kenya, polytechnic education has also undergone some transformation. With support from the Swiss government, the Kenya Utalii College (KUC) was established in 1975 to broaden the scope of courses taught at the tertiary level to both local and international students from over 40 different countries, mainly from sub-Saharan Africa. According to Lim (2010), polytechnics in Malaysia are going through a similar crisis period as they wait their upgrading to university level by 2015.

As part of the educational reforms in Ghana, its Polytechnics have been upgraded into tertiary status to train career-focused personnel required for national growth and development. This change of focus of training is based on the fact that it is the trained technical manpower in the advanced countries which has served as a catalyst for industrial development and transformation of industries in their economies.

Ghanaian polytechnics knowing that they are to complement the work of other tertiary institution such as universities have started running Bachelor of Technology (B. tech.) degree programmes, aimed at making their graduate practically ready for industry. Some of the polytechnics are even planning to run Master of Technology (M. Tech.) programmes soon. However, they are aware that they are not in competition with the universities. It is hoped that running such higher degree would help solve the nagging problem of academic progression of their graduates and increase the value that will be added to the quality of polytechnic graduates in Ghana.

5. The Need for Re-design and Delivery of Curriculum in the Polytechnics

The Polytechnic educational system in Ghana has remained practically the same in content and delivery for decades with curriculum being institution-based. Some of the curriculum is generally regarded as being out of date and not responding to the needs of trainees and demands of industry and the labour market. The mismatch between institutional training and the needs of industry has serious implications for the employability of graduates from the Polytechnics. This condition, ultimately, has implications for the nation’s economy (Afeti, Baffour-Awuah & Budu-Smith, 2003).

In order that graduates from Polytechnic institutions may meet the needs of industry and commerce and be productive, the curriculum delivery must be reviewed. In this regard, the proposal by JICA to introduce Competence-Based Training (CBT) methodology of teaching at the polytechnic level should be supported. Quality assurance mechanisms needed to be introduced to ensure the practical content of programmes; and entrepreneurship training must be made part of the curriculum to encourage polytechnic graduates to go into private sector and self-employment so as to create wealth for themselves and the nation.

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6. Competency Based Training for Capacity Building

Competency-Based Training has been defined in different ways by different authors. Some people use the terms Competency Based Education (CBE), and Competency Based Learning (CBL) to promote their approach to designing their curricula and to describe education that focuses on the acquisition of the competencies necessary to be able to perform professional tasks. Agodzo (2005) defined competency-based learning simply as ‘do-it-yourself (DIY) learning. According to him, a graduate who has gone through CBT should be well equipped for hands-on, practical work that is demonstrated in the specific tasks he can do and must do. Competency is an integrated entity that is made up of knowledge (what you know), skills (being able to perform a task), values (what you want, feel and think) and personality (your being). The aggregate of these attributes leads to a desired professional attitude and behaviour that defines the competency of an individual. It moves education’s focus

from what academics believe graduates should know (Teacher-focused) to what students need to know and be able to do in varying and complex situations (Student focused/workplace focused).

According to Lowrie (1999), CBT is an approach to Vocational Education and Training (VET) that places emphasis on what a person can do at the workplace as a result of completing a programme of training. Competency standards are industry-determined specifications of performance that set out the skills, knowledge and attitudes required to operate effectively in a specific industry or profession. For people to be assessed competent, they need to demonstrate the ability to perform tasks and duties to the standard expected by industry. CBT thus focuses on the development of the skills, knowledge and attitudes required and achieve those competency standards (Nsiah-Gyabaah, 2007).

One of the primary features of CBT is that each learner's achievement is measured against the competency standards set by industry, rather than against the achievement of other learners. Under the CBT approach, each learner is assessed to find the gap between the skills they need (as described in the Training Package) and the skills they already have. The difference between the two is called the skills gap. The training programme is then developed to help the learner acquire the missing skills. In many cases the learner has no current skills and the training programme is a full curriculum based course. However, the learning outcomes achieved through the curriculum are derived from the competencies described in the training package. Competency –based training programmes are often comprised of modules broken into segments called learning outcomes, which are based on standards set by industry, and assessment is designed to ensure each student has achieved all the outcomes (skills and knowledge) required by each module (Smith & Nangle, 1995).

CBT could be used as an effective means for capacity building, because an important component of CBT is continuous industrial experience by students in college. In capacity development using CBT, the teacher is a facilitator of the learning process, or better still a 'resource person' (Lowrie, 1999). To use CBT successfully therefore, teachers must be well prepared and trained (Smith & Nangle, 1995). This will enable them to know the right methods to use to achieve the aims of such education and training. Adopting this method of education would help polytechnics to add value to the quality of their students.

7. Uniqueness of CBT in polytechnic Education

While the new educational reform emphasizes on science, mathematics and technology as well as technical and vocational education and training to position the country for accelerated development, polytechnic are to structure all their programmes to conform to the principles of CBT. Polytechnics unlike the universities are mandated to provide tertiary education in the field of manufacturing, commerce, science, technology, applied science and arts. The polytechnic therefore have a herculean task of training graduates to fill the middle level manpower needed for industry, commerce, business and administration. Competency Based Training however, seeks to address the above challenges through the principle of "do it yourself". Nonetheless, CBT programme should be executed in an environment that duplicates or simulates the work place (Norton, 1987).

Unlike the traditional method of teaching which results only in passive learning, CBT ensures that students engage in active learning because the unit of progression in mastery of specific knowledge and skills. The traditional system is associated with information or memory overload, inadequate time for real learning process but rather memorization, lecturer directed and time bound; even though the traditional system also has some advantages such as large students' enrolment, large amount of information delivered per lecture and the lecturer having command over the learning process. CBT education is more of career-oriented and a more practical focus than traditional method of teaching. There is growing support for CBT because it enables people to acquire skills and competencies that meet the needs of industry and society (Norton, 1987). Foyster (1990) argues that using the traditional, time-based model for training is inefficient compared with CBT. The good thing about CBT is that when it is combined and integrated with traditional or old learning methods, students are able to learn what their future employers expect from them. Many countries such as Britain, USA, New Zealand, Australia, Canada, Singapore and South Africa have adopted and used CBT as an effective education and training system which can effectively respond to the needs of people entering the workforce for the first time, re-entering the workforce or upgrading their skills for an existing job (JICA, 2001).

Among the things which make CBT more important to polytechnic education are:

- The students require less training on the job and acquire working experience more rapidly.
- Industrial attachment forms a major component of the programme thus graduates fit more easily into the job market after graduation.
- The students develop their own learning goals and time frame and learning experiences are oriented by continuous feedback.
- The students develop competencies and skills relevant for the job market.

- Learning is flexible but challenging, and does not require traditional examinations to determine the progress of the students.
- Learning guide, practical manuals and readers (reference materials) are made available to students.
- CBT does not require detailed study of subjects that are irrelevant to the performance of the professional tasks.
- It makes teachers prepare thoroughly and in advance and respect the choice of the students.
- The curriculum is flexible in terms of study time per student. This means that students progress at their own pace and not at the pace of the teacher. In other words, students would progress through instructional programmes at their own rate by demonstrating the attainment of specified competences.
- Students would learn in an environment that duplicates the work place. The experience would help them to achieve competencies required in the performance of their jobs. This means that the Polytechnics would not only produce theory oriented engineers but engineers who would tighten the knots and operate machines in industry. They would train students to weld and spray the vehicle in the workshop rather than thinking about the chemical composition and durability of the paint that is used to spray a car or refrigerator.
- Assessment would take into account the student's knowledge and attitudes as well as his actual performance as the primary source of evidence.
- Students would build confidence as they succeed in mastering specific competencies and receive a transcript or list of competencies they have achieved.
- Training would be more practical and meaningful to both the trainer and the trainee as opposed to presenting lectures.

8. Conclusion and Recommendation

8.1 Conclusion

The polytechnics in Ghana were established in 1992 as tertiary institutions following the promulgation of the polytechnic law (PNDC Law 321). This educational reform is to provide employment skills for graduates and help reduce the high rate of unemployment in the country. The PNDC law 321 was repealed in 2007 by the new polytechnic law 745 (2007), giving autonomy to polytechnics in Ghana, mandating them to run Bachelor of Technology (B-tech) degree programmes.

The new educational reform emphasizes on science, mathematics and technology as well as technical and vocational education and training to position the country for accelerated development. As part of the educational reforms in Ghana, the polytechnics in the country are to structure their programmes to conform to the principles of Competency Based Training so that their programmes are career-oriented and more practical focus than those offered in the universities in Ghana.

8.2 Recommendation

The educational institutions especially the polytechnics must be provided with adequate resources to enable them produce the skilled technical manpower needed in specific industrial areas. The curriculum design and delivery must be reviewed in order that graduates from Polytechnic institutions may meet the needs of industry and commerce and be of more productive. In this regard, the proposal by JICA to introduce Competence-Based Training (CBT) methodology of teaching and learning at the polytechnic level should be supported.

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