

## Research Article

### Access to Polytechnic Education and Distance Learning in Ghana: The Enrollment Factor at Takoradi Polytechnic

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**Abstract:** This study aimed to investigate the enrollment factor at the polytechnics in Ghana. Secondary data was obtained from the admissions office of Takoradi polytechnic. Frequencies were used to analyze the data. The finding showed that a lot of the polytechnic applicants do not get access to polytechnic institutions due to physical space limitation. The denial of these qualified applicant access to pursue degrees of their choices contribute to both human underdevelopment and country underdevelopment. The study suggests distance learning centers at the district levels in Ghana as alternative mode to increase enrollment at the polytechnics and contribute immensely to the human resource development of Ghana.

**Keywords:** Access, polytechnic education and enrollment

## INTRODUCTION

Higher education development suffered from the political, economic and social problems that bedeviled the African continent in the past decades, in spite of these, Sawyerr (2004) acknowledges an exponential increase in higher education enrollment in Africa. Over all, higher education enrollment increased from 181,000 in 1975 to over 600,000 in 1980. By 1995, student enrollment reached approximately 1,750,000 (Sawyerr, 2004). The author accredited this drastic expansion of enrollment partly to the emergence of private universities and the establishment of distance education centers in Africa, the University of Cape Coast and the Jomo Kenyatta University of Agriculture and Technology are examples of these enrollment expansion. Sawyerr (2004) further postulates two main factors that have forced institutions to increase enrollment. First, historically there was the need to correct colonial restrictive policy in providing access to higher education. Secondly, the increasing growth of population that has led to an untold increase in enrollment in primary and secondary education has made expansion in tertiary education a necessity.

Despite these remarkable expansions of enrollment, the Gross Enrollment Ratio (GER), that is the proportion of young people aged 19-24 enrolled in higher education, is on average, lower in Africa than anywhere else and can be considered, in the long term, inadequate to the demands of the modern knowledge society. A sketchy look at access in some countries reveals the situation in Africa with glaring clarity. Teferra and Altbach (2003) delineate the access challenge faced by Africa higher education. They

believe that while the total number of higher education institutions has increased over the years as a result of the newly created private institutions, enrollment at public universities is highly restricted because universities' facilities remain unexpanded and cannot absorb all qualified applicants. Indicating some examples from the well developed higher education systems in Africa, the analysis provided by Teferra and Altbach (2003) revealed that even though South Africa has a well developed system of higher education in Africa, the country is ranked third in the enrollment of students. Egypt, the highest, has 22 percent of its 18-24 age group admitted to higher education; Nigeria, rated second, has a "gross enrollment" of five percent of the 18-22 age cohorts, while Ghana has less than 3 percent (Teferra and Altbach, 2003).

The above issue of access and participation of Higher Education in Africa depicts a vivid picture about the performance of the continent as a whole; therefore, a consideration of Ghana's Higher Education standings will balance the scale of assessment.

In Ghana, Effah (2003) compiled statistics from the Ghana Education Service (GES) about enrollment and participation rate. Ghana's education system witnessed serious problems in the 1970s and 1980s. Drastic policy reform spearheaded by the International Monetary Fund and World Bank known as the Educational Sector Adjustment Credit (EDSAC) was launched in Ghana to improve the condition of education in the country (Effah, 2003).

The reform then proposed for an increase in access to basic education and a complete reduction in the number of years spent at secondary education. The aftermath of the reform was the graduation of more

high school students than the available higher education system could enroll. But efforts were made to increase admission. Effah (2003) notes that enrollment in universities increased by 165 percent between 1991 and 1999 and by 730% at the polytechnic between 1998 and 1999.

Nevertheless, of the 83,193 candidates from the Ghana's public and private secondary institutions who took the 1997 University Entrance Examination (UEE), only 9,730 were selected for admission representing approximately 11.7%. This situation of limited facilities denied and continue to deny access to a pool of qualified higher education applicants who could have contributed meaningfully to the economic development of Ghana after graduation. In effect, Effah (2003) contends that In spite of the expansion in enrollment at the tertiary level, the participation rate for the 18-21 age group in tertiary level education is less than 3 percent in Ghana, compared to participation rates of between 30 and 40% for the corresponding age groups in developed countries.

**Background:** In the 1960s the first republic of Ghana just after attaining independence in 1957 came out with an industrial development policy which sought rapid technological progress of the newly independent state of Ghana. A dazzling gap in the nation's manpower needs was acknowledged, Ghana had three Universities at that time which graduated administrators and clerks while the skilled manpower needed at the lower, middle level, hands-on, skilled labour to move and push for industrial development was vacant.

Recognizing this need, three technical schools were established in Accra, Kumasi and Takoradi to train the needed manpower skills to fill this gap and accelerated industrial development policy also formulated in 1963. The remaining regions subsequently had technical schools as well. Later some of the technical institutions were re-designated as Polytechnics. Two issues accounted for this move:

- Ghana needed technicians with higher level of knowledge in skills acquisition.
- The Universities were able to absorb only 5% of the Senior Secondary Schools graduates' as at 1992. The government of Ghana therefore needed to create an avenue to augment the Universities in take at that time. This resulted in the emergence of 10 Polytechnics from the existing technical schools and the government's white paper on tertiary education in 1993 gave prominence to the role and nature of polytechnic education in Ghana. Currently there are ten regionally based polytechnics in Ghana which represent equity to give each region the opportunity to train its needed manpower.

The Polytechnic law, PNDCL 321, which gave backing to upgrade of Polytechnics to tertiary status, assigned these aims and objectives to them.

Polytechnics were to provide tertiary education through 'full time' courses in the field of manufacturing, commerce, science, technology, applied social science, applied arts and other areas as may be determined by the authority. Polytechnics therefore became part of the Higher Education system in Ghana.

Ghana's vision 2020 is essentially human centered. The policy prescription focuses on human resource development, poverty reduction, employment generation and accelerated economic growth and these could be achieved through science and technology. Government of Ghana made a firmer commitment to polytechnic education to serve as the key to wealth creation and socio-economic development when the white paper on the reforms to the tertiary education system (Government of Ghana, 1991) was in print. Emphasis was on the role polytechnics should play in developing the skilled manpower needed by the country for development. This vision makes the provision and access to polytechnic education in Ghana a vital issue that should be analyzed.

**The problem:** As Ghanaian youths have begun to understand and appreciate the significance of polytechnic education as a tool to job creation, self employment, self reliance and self empowerment, access is a challenge. The mass access to polytechnic education in Ghana is becoming a challenge day by day. It is evident everyday that going strictly by the use of four walls institutions and limiting learning to full-time, not much may be done within the coming decades to provide sufficient classroom space, accommodation and facilities for all those intending to acquire polytechnic education in the country. For example, according to the Ghana population Census 2010 (Accessed on: December, 2011), 55.35% of Ghana's population is aged 15 to 64 which make Ghana a youthful population with the provision of education an essential commodity. The total number of secondary school students preparing for tertiary admission between now and the next four to five years will come from this figure. Yet in this era of knowledge seeking and knowledge advancement, polytechnics in Ghana still operate the full-time courses prescribes by the Act of its establishment PNDCL 321. For a period of five years now, Ghanaian polytechnics had been able to take among themselves, a little institutional expansion which cannot absorb the rate of applicants who want to access polytechnic education and this makes distance education an eminent choice.

**Purpose of the study:** The study purpose is to bring to bear the significance of introducing distance learning as an alternative and or supplementary mode of widening access to polytechnic education in Ghana. Rosenberg (2001) noted that the biggest growth in the Internet and the area that will prove to be one of the major agents of change will be in the area of e-learning. Sharing similar

views to Rosenberg, distance learning technology will act as a driver to increasing access to polytechnic education in Ghana.

## LITERATURE REVIEW

There are different forms of education delivery but the one that is currently delivering knowledge and skills through a vacuum to reach a wider population is distance learning.

**Distance education, or distance learning:** Many writers have written about distance learning and tried to define the concept. According to the U.S. Department of Agriculture (Accessed on: December, 2011), distance learning is a process to create and provide access to learning when the source of information, materials and the learners are separated by time and distance, or both. In other words, distance learning is the process of creating an educational experience of equal qualitative value for the learner to best suit their needs outside the classroom.

Distance education courses that require a physical on-site presence for any reason including the taking of examinations is considered to be a hybrid or blended course of study. This technology has been widely used in universities and institutions around the globe. With the recent trend of technological advancement, distance learning has become more recognized for its potential in providing individualized educational attention and communication with students internationally.

Because of the benefits accruing from the use of distance learning approach, such as cost savings, flexibility and increased performance, there has been unequaled rise in the recognition of the potential of e-learning in today's knowledge economy.

Almala (2007), Cook *et al.* (2004) and Johnston (1997) argue about quality and identified advantages of e-learning to include increased student autonomy, facilitation of a realistic balance between learning, personal and professional commitments and the elimination of potential student concerns such as embarrassment at making public mistakes and working at a slow pace.

**The polytechnic education:** The Polytechnic education is a different system but having tertiary status. The polytechnics mostly offer Higher National Diploma (HND) courses to those students who successfully complete their secondary school education, in addition to this some polytechnics offer Bachelor of Technology (B. Tech) programs. Takoradi, Accra and Kumasi polytechnics have graduated (B. Tech) graduands since 2009. Another development to the polytechnic education in Ghana is the institution of Master of Technology (M. Tech) programs of which Takoradi and

Accra and Kumasi polytechnics are privy to this in conjunction with Hanze University in Netherlands.

Some parts adopted from R. J. Introduction to Engineering Technology, prentice-Hall, 1999. Revised by Kwegyiriba. A.

Table 1 shows the industrial team in which current Polytechnics programs are up to the level of Engineers, emphasizes the application of knowledge rather than the search for new knowledge. The thrust of Polytechnic training is, therefore, on the acquisition of the necessary skills for a proper understanding of the tasks to be performed.

**Demands for polytechnic education in Ghana:** A number of factors have contributed to the increase in the demand for HE at the Polytechnics, notable among these include:

- **Basic expansion:** The 1983 educational reform which proposed an expansion in access to basic education and a reduction of the number of years spent at secondary schools, ended up graduating more high school graduates than the available higher schools could admit. The system piled up many years of qualified applicants, so with the current expansion and upgrading of polytechnic education, demand is increasingly higher.
- **Outlook change of higher education students:** The information knowledge explosion has changed what students expect to study. It is more realistic that students now acquire specific job-related skills continuously throughout their life. These specific job-related skills are often learned through corporate training and development programs, or through specialized post diplomas-level programs which makes students seek short, specific and professional job related skills from the polytechnics.
- **Students' demographics changes:** HE students' population demographics have changed dramatically. The typical graduate student of the recent past was an 18 to 25 year old, full-time student living in dorms for a period of three to four-years programs. The fashion is now an adult part-time student, usually has a full-time job and often a family to be responsible to and has more restrictions on the time available for studies.
- **Students' education needs changes:** The demographics of HE students are not changing because adults suddenly want to get back to school. Much motivation for adult education is the creation of new types of jobs and the broadening requirements of existing jobs. Adults go back to school to get the skills necessary to move into a different field, or to obtain the more in-depth skills needed to advance in their current job.

Table 1: Defining the industrial team: From crafts person to scientist of polytechnics in Ghana

Designation and duties	Theory (%)	Practical (%)	Academic qualification
Scientist searches for new knowledge	90	10	M.Tech or Ph. D
Engineer designs and creates hardware and software for new knowledge and ideas; system developer	70	30	B.Tech or M. Tech
Technologist makes design prototype, suggests redesign or modification, acts as system development engineer	60	40	HND or B.Tech
Technician makes models of prototype, suggests redesign or modification, acts as system development engineer	50	50	Technician part III
Craftsperson produces parts from completed designs, installs and runs hardware	20	80	Technician/vocational school certification plus on the job training

- **Self employment:** The later day's polytechnic graduates in Ghana have deviated from the path of seeking employments from companies after graduation, but rather create their own small jobs. Tertiary institutions are creating new degree programs to meet these needs. Present day Rectors at the polytechnics are certainly aware of this trend and many are making attempts to adjust to it. But in what directions are the attempts in terms of their products delivery to reach the majority who want to access polytechnic programs.

## METHODOLOGY-CONTENT ANALYSIS

This study uses secondary data from the admission's office of the Takoradi polytechnic (Admission's brochure Takoradi Polytechnic, Accessed on: 20<sup>th</sup> November, 2009) and employs descriptive analysis in order to bring out the detail reports of the situational study. According to Healey (1984) descriptive statistics is to present research results clearly and concisely. To help proper comprehend the Polytechnics access situation in Ghana, analysis of the enrollment of Takoradi polytechnic is a case study.

The choice of Takoradi Polytechnic for this case study is as follows:

- Takoradi polytechnic was the first technical institution to be established in 1963 after Ghana gained republic in 1961 from the British.
- It was among the first three polytechnics to be upgraded to tertiary level polytechnic in 1993 and has completed every full cycle of the polytechnic phases in Ghana.
- It has a high reputation among the polytechnics in Ghana and the first school in Ghana to introduce HND in oil engineering to serve the newly discovered oil fields in the Western Region of Ghana,
- Takoradi Polytechnic was the first school willing to release data for this study followed by Kumasi although all others were consulted.

## THE ENROLLMENT FACTOR OF TAKORADI

The mission statement of the School of Business of Takoradi Polytechnic stated in 2009 congregation

Table 2: Depts and students enrolments at the school of business at takoradi polytechnic as at 2009

Departments	Student enrolments	Certification
Accountancy	1,629	HND
Marketing	1,370	HND
Purchasing and supply	1,723	HND
Sec. and mgt studies	318	HND
Tourism mgt	6	B. TECH.
Total enrolments	5,046	

Table 3: A table of takoradi polytechnic by schools

Schools of the polytechnic	Students population
School of Applied arts	1,727
School of Engineering	1,600
School of Applied science	614
School of Business	5,046
Total Students Population	8,987

brochure reads: "the mission of the School of Business Studies is to offer FULL-TIME tertiary education to meet the needs of commerce and industry in order to fill the gap in the supply of middle level personnel. The school of Business aspires, therefore, to be a unique centre of excellence in teaching and research into commerce and industry in Western Region and Ghana as a whole". Table 2 is showing the departments, students' enrollment strengths and degrees awarded at the school of Business in Takoradi polytechnic.

In addition to the above, the mission statement of the School of Applied Arts of the same Polytechnic stated in 2009 congregation brochure reads: "The mission of the school of applied arts is to provide FULL-TIME tertiary programmes in the field of manufacturing and the application of technology of the Arts".

The figures in Table 2 feeding Table 3 indicate that a lot of people are interested in taking courses at the school of business, followed by the school of Applied Arts. Which is graphically presentation in Fig. 1 and 2?

The graphical representations show that school of business, takes almost 56.15% of the total Polytechnic population indicating a higher demand on their products, followed by School of Applied Arts. Moreover, with such high demands for these two School's products in the Polytechnic, the Schools as at 2009 had no intention and vision to introduce distance learning as an alternative way of making sure their enrolment capacity expands to reach the masses that

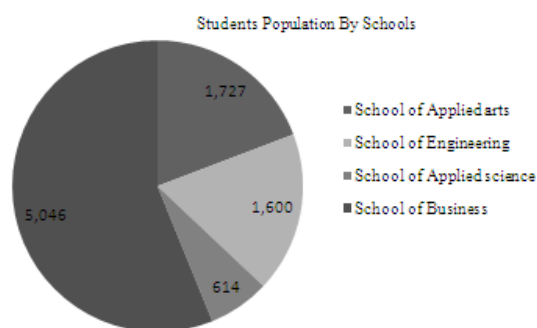


Fig. 1: A pie graph of Takoradi polytechnic students' population by schools

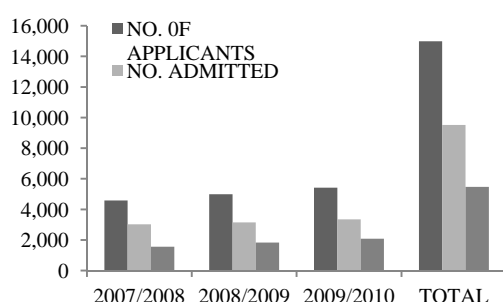


Fig. 2: A graphical presentation of the enrollments situation at Takoradi polytechnic (2007/2008-2009/2010)

want to access higher education through Takoradi Polytechnic, as it is visible in their mission statements above. The full-time stated in the mission statement indicates confining learning to the four walls of a classroom. How many people can the four walls admit, considering the nation's population growth as well as delivering their product to the people of western region who are willing to access the polytechnic education? As there is no University in the western regional capital and the polytechnic serves as their only form of higher education institution. This is would be interpreted as denial of access to higher education, which is the spinal cord of personal and economic development in the present day knowledge economy.

### THE ENROLLMENT FIGURES

The 2007/2008 2008/2009 and 2009/2010 enrolment figures above show that in 2007/2008 academic year, a total of 4,580 qualified applicants applied to read different programmes at Takoradi Polytechnic, 3,020 had admission into the Polytechnic. In 2008/2009 academic year, 4,987 qualified applicants, 3,153 got admission into the school. 2009/2010 academic year presented 5,423 qualified applicants, 3,345 were admitted into the Polytechnic. Within a period of three years a total of 14,990 qualified applicants wanted to enroll at Takoradi polytechnic to

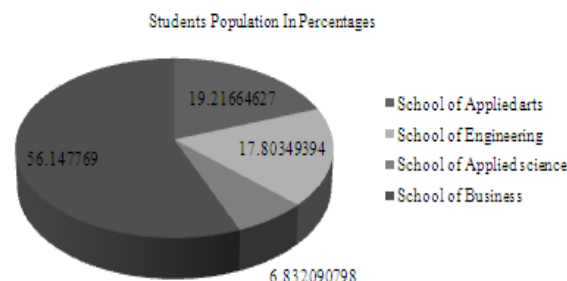


Fig. 3: Graph of Takoradi polytechnic students' population by schools in percentages

Table 4: The enrolment figures at the takoradi polytechnic

Academic year	No of qualified applicants	No admitted	No not admitted
2007/2008	4,580	3,020	1,560
2008/2009	4,987	3,153	1,834
2009/2010	5,423	3,345	2,078
TOTAL	14990	9,518	5,472

Table 5: 2007/2008- 2009/2010 academic year enrolment figures at the Takoradi Polytechnic

Academic year	Admitted%	Not admitted%
2007/2008	65.93886463	34.06113537
2008/2009	63.2243834	36.7756166
2009/2010	61.68172598	38.31827402

acquire higher education but were indirectly, if not directly denied access to tertiary education. However, 9, 518 had access to pursue the degrees of their choices leaving a big number to the tune of 5,472 unattended to (Table 4).

Figure 2 shows a graphical presentation of the enrollments situation at Takoradi polytechnic.

Figure 3 shows that within a period of three years a total of 14,990 applicants sought admission at Takoradi Polytechnic, but 9,518 secured admission denying 5,472 also qualified applicants' admission to read different programs of their choice due to limited infrastructure. Almost 36.5 percent of the qualified applicants were denied access to higher education at polytechnic in the three year period as indicated by yearly percentages in Table 5 and Fig. 4.

In spite of a series of reviews and government initiatives, the methods of knowledge impartation are still obsolete. Polytechnics cannot survive in this present state, because global trends are changing and demand for HE is increasing. There is growing an opinion that the very fabric of the current educational system must change, or society must face the consequences since the total of 36.5% would have contributed meaningfully to nation building, but were denied access due to limited classrooms and dogmatic statements of "FULL-TIME" that are not willing to change with the times. Some have argued that the educational system must change purely because it is a system originally set up to meet the needs of the

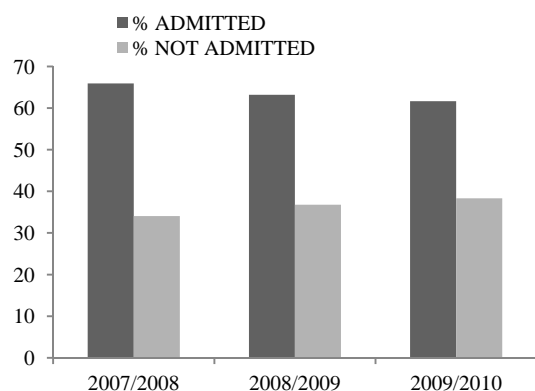


Fig. 4: Showing percentage of admitted and not admitted applicants between 2007/2008 and 2009/2010 academic years

industrial revolution and is now hopelessly outmoded since only selected few people can access it.

### CONCLUSION

In Ghana polytechnic education is provided by the state. Trends in education and expectations about polytechnics are changing. As student populations continues to grow, the demand for better learning, more flexible study programs and access to HE are increasingly required. Polytechnics education is for empowerment, enablement, enhancement and advancement (3EA) and career oriented and therefore, plays a crucial role in the developmental process of the nation by offering varied programmes to train the middle-level manpower requirements. Most of the graduates of the polytechnics are self employed and create small jobs which form the basis of an economic growth of a country.

However, due to limited infrastructure and institutional outlook, a lot of applicants are denied access to the kind of education that make them self reliant. With this, polytechnics in Ghana should open up; change their obsolete dogma in educational system for the masses to access it. Higher education massification is a good policy which allows more disadvantaged students access colleges and other institutions of higher education (Shen, 2008).

Ghanaian Polytechnics must create identity for Polytechnics education and consider the re-thinking of the each school's mission to produce enough graduates

who prove their worth in the job market by the introduction of distance learning at the district levels in Ghana since polytechnic education is limited to the regional capitals. Distance learning in Polytechnics should neither be seen as duplication of university programmes nor the springing up of competitive institutions but rather, as a mode which has specific role to play in the education delivery process to widen access and contribute to human development process.

### RECOMMENDATIONS

Polytechnics' contribution to achieving Ghana's vision 2020 is essential, to introduce distance learning at the district level, widen access and to take a broader part on human resource development, poverty reduction, employment generation and accelerated economic growth as stated in the vision 2020 since polytechnics are regionally sited.

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