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# Social Needs and the Provision of Polytechnic Education in Ghana

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**Abstract:** The first government of Ghana just after independence realised the technological need gap and built technical schools to serve that purpose. Nyarko in 2011 noted that to meet the needs of the rapidly expanding mining activities and railway lines in Ghana, technical schools were instituted in Takoradi, Kumasi and Accra. These institutions were to offer training to workers of the railway lines and mining industries in Ghana. Before the 1993 that polytechnic became part of the tertiary institution, expansion of the higher education institutions were limited and access was to higher education was the preserve of the elite group and continuing students from high school into the universities. While the then existing polytechnics served the workers community. The education reforms of 1987 created a pool of high school graduates and this has created a high demand for polytechnic education. Polytechnic education has increased the enrolment into tertiary education but do the working community and women still get the chance to access polytechnic education currently. The result of this study is, however different from the aim of the provision and expansion of the polytechnic in Ghana. The study used six out of the ten polytechnics to find out which social groups access polytechnic education in Ghana.

**Key words:** Polytechnic education, social needs, working class and gender, institutions, Ghana

## INTRODUCTION

Polytechnic education is a different system but having tertiary status. The polytechnics mostly offer various Higher National Diploma (HND) and bachelor of technology (M. Tech) courses to those students who successfully complete their secondary school education and diploma courses at technical colleges to upgrade their certificates to HND. For example if a student successfully completes a advance diploma electrical and electronic course at the technical college, he or she could join a polytechnic to study HND electrical and electronic courses and upgrade the certificate. This applies to courses such as Accounting, Business Management, Finance and Banking, Sales and Marketing, Electrical, Civil Engineering, Automobile, Carpentry, Fashion, Hotel Management, Travel and Tourism Management, Secretarial Science and Economics. The courses are for the duration of 3 years and students graduate with HND, for those who enter polytechnics with Senior Secondary School (SSS) certificate and the working class as well.

**Background:** Ghana's rapid population growth and the expansion in pre-tertiary education since the education reforms of 1987 have created a high demand for tertiary education. Polytechnic education has increased the enrolment into tertiary education and to cater for some of the high demands for tertiary education access.

A number of factors have contributed to the increase in the demand for HE at the polytechnics, Hewlett (2005) identified the following:

**Changes in the expectations of polytechnic education:** The information or knowledge explosion that has occurred in recent years has changed what students are expected to study. Whereas it was once possible for a student to master a specific field of knowledge, it is now more realistic to expect that graduates acquire specific job-related skills continuously throughout his or her life. These specific job-related skills are often learned through corporate training and development programs or through specialized graduate-level programs.

**Changes in student demographics:** The demographics of the polytechnic students' population have changed dramatically. The typical graduate student of the recent past was an 18-25 years old, full-time student living in dorms for a period of 3-4 years programs. The custom is now an adult part-time student who usually has a full-time job and often a family has more restrictions on the time they have available for attending class. Polytechnic programs that target these types of students often hold classes at evenings or weekends.

**Changes in the educational needs of students:** The demographics of polytechnic students are not changing

because older adults suddenly want to go back to school and take courses leading to degrees or diplomas. Much of the motivation for adult education is the creation of new types of jobs and the broadening requirements of existing jobs. Adults go back to the polytechnic institutions to get the skills necessary to move into a different field or to obtain the more in-depth skills they need to advance in their current job. Polytechnic institutions are creating new courses and new degree programs to meet these needs. Present day principals and rectors are certainly aware of this trend and many are making attempts to adjust to it. But, in what directions are the attempts being made in terms of their products delivery to reach the majority who want to access them.

**Statement of the problem:** The first government of Ghana just after independence realised the technological need gap and built technical schools to serve that purpose. Nyarko (2011) noted that to meet the needs of the rapidly expanding mining activities and railway lines in Ghana, technical schools were instituted in Takoradi, Kumasi and Accra. These institutions were to offer training to workers of the railway lines and mining industries in Ghana. Before the year 1993 that polytechnic became part of the tertiary institutions, expansion of the higher education institutions were limited and access to higher education was the preserve of the elite group and continuing students from high school into the universities. While the then existing polytechnics served the workers community that is the main purpose of the establishment of polytechnic was to serve the working class, provide up to date knowledge and skills to workers to enhance their competencies, take on new responsibilities. The education reforms of 1987 have created a high demand for polytechnic education. Polytechnic education has increased the enrolment into tertiary education after the attainment of tertiary status in 1993 but do the working community and females still get the chance to access polytechnic education or do the polytechnics still perform their social need of providing technical knowledge to the working community or is there a shift of focus since after the upgrading there is too much demand on polytechnic education in Ghana.

**Scope of the study:** Little is available in terms of research on the social needs and gender aspect of polytechnic education accessibility to the development of skills in Ghana. Literature available shows research on access to, financing of and strategic management of polytechnics institutions in Ghana (Owusu-Agyeman, 2006; Boakye-Agyeman, 2006; Afeti *et al*., 2003). Furthermore, due to rapid changes in the education industry with great emphasis on provision of higher education institutions with skills development that interest employers, there is a need to determine if the polytechnics are still performing their traditional role of providing skills to workers or there is a shift in focus. This would help Ghana higher education system to identify the current trend of polytechnic institutions.

**Literature:** Ghana's workforce has grown rapidly since its independence in 1957; formal employment has failed to grow at the same rate, resulting in significant levels of unemployment and underemployment (ILO, 2003). According to King and Palmer (2006), Ghana has placed Technical and Vocational Education and Training (TVET) at the centre of its policies to help solve technological problems and to reduce poverty and has placed the acquisition of tangible skills in the domain of the polytechnic. Ghana Government recognises, however that the country's training system still needs to be improved with the right skills (Ministry of Education, Science and Sports, 2008). Capacity building is a significant challenge. The combined training capacity of public and private TVET institutions in Ghana is estimated at around 12% of the annual number of labour market entrants calculated from figures used by Botchie and Ahadzie. TVET completion rates are low which may be linked to course duration. Technical institutes and national vocational institutes run courses of between 3 and 5 years; many learners leave after 2 years, believing that their skills would not be significantly improved in the remainder of the course (Atchoarena and Delluc, 2001).

A recent analysis of skills supply and demand by Gondwe and Walenkamp (2011) found that the breadth and range of courses on offer in Ghana are generally appropriate with the exception of ICT and oil sector training, for which insufficient programmes are available but the actual group of class that are accessing the training programmes does not meet the needs of the work world.

Anamuah-Mensah (2004) suggests that the supply demand challenge faced by Ghana could be improved by the establishment of a national labour market forecasting unit, labour market monitoring by training institutions and improved links between training providers, employers and trades unions. Unequal access to educational opportunities is a fundamental policy challenge for Ghana: women, for example have lower access to training which is compounded by low literacy rates, family responsibilities, limited female autonomy, gender stereotypes within educational curricula and a lack of awareness about training opportunities, inequity is observable in educational choices.

The Fourth World Conference on women, held in Beijing in 1995, recognized that women's literacy is key to empowering women's participation in decision making in society and to improving families' well-being (UN Women, 1995). The differences in educational access distributions of women and men within occupations have been and continue to be, a prominent feature of the school market (Blau and Ferber, 1986). Different researches have indicated a high degree of difference that remained fairly constant from the early 1900s up until about 1970 (Cotter *et al*., 1995). But from 1980s women continued to make inroads into male-dominated occupations, although the pace of change slowed. No doubt that with all other factors women's enrollment in higher education played a vital role to reduce the gender gap in employment. Therefore, the issue of gender access has gained importance and focus has been given on rising educational attainment of women.

Despite of the improvements during the last 2 or 3 decades, access to higher education remains a problem for women in many countries while women have fairly equal access to higher education in the more developed regions. Statistics show that though girls actually outnumber boys in tertiary level education in a very few countries, most notably in some of the Middle East and former Soviet bloc countries an obvious gender gap in education tends to appear and on average, grows more severe with each year of education (World Economic Forum, 2005). In addition, the number of women represented among tertiary level educators is lower than among primary level educators (ibid). The reason is that the interaction between higher education and employment are often affected by conservative culture and social norms in which traditional gender roles are strongly enforced. Such type of situation is observed mainly in the Middle East and North African (MENA) countries. The poor access to higher education is also accompanied by under-representation of women in science and technology and a clustering of women in the traditional female studies of arts, humanities, languages, education, nursing and medicine (UNESCO, 2002). As reason behind this situation different researches suggest that women who specialized in a male-dominated occupation are particularly disadvantaged on the job market (Reimer and Steinmetz, 2007). However, the situation in the region is slowly changing. Women activists, who generally come from the educated segments of society are challenging this social inequality and calling for women's economic, political and social empowerment.

## MATERIALS AND METHODS

The study evaluated the extent to which the polytechnic education affects the social need of Ghana. The research basically employs empirical study by using these research questions: What is the status of polytechnic students' population in Ghana? has the polytechnic education been effective in reaching the under-served, especially the female population in Ghana? To test these questions, respondents chose from a range of characteristics that are applicable to students' status, gender and polytechnic education. The questionnaires had a randomly selected 100 respondents of the current final year students from six out of the ten polytechnics in Ghana. Data was coded and statistical tools of frequencies, descriptive and correlation were used to analyse the data. The working community in this research was coded as evening school while the fresh and continuing students from the high school straight to the polytechnic were coded as regular school. These groups of participants in the research were also correlated with the employability indicators to find out if gender and student status, thus evening or regular school status had any significance to employability indicators adopted for a broader research from which this article forms part.

**Survey and data:** The questionnaire had a high response rate of 86%, thus 516 out of 600 respondents were returned. Student status in Table 1 shows 85.1% of the respondents were regular students attending classes from 8 a.m. to 5 p.m. whilst 14.9% were evening school, indicating that 14.9% attend classes at 5 p.m. after close of work. The larger population of polytechnic students is regular school.

About 51.2% of the final year students who responded were males as against 48.8% females of the total response rate of 100% which shows more male respondents than female. Though the sampling was random, the percentages here reflect the actual situation due to the technical nature of polytechnic education and thus polytechnic institutions have more male population than female. This finding also support UNDP (2010) result on GDI about Ghana that for every 100 males that have enjoyed development, in the human development only 60 females experience the same level of development. An indication that the female population in Ghana is underserved, considering the country's population background 51% female as against 49% male (Fig. 1). A lot of work still needs to be done to narrow the gender gap

Table 1: Student status

| Valid | Responses frequency | Responses frequency | Valid (%) | Cumulative (%) |
|---|---|---|---|---|
| Regular | 439 | 85.1 | 85.1 | 85.1 |
| Evening school | 77 | 14.9 | 14.9 | 100.0 |
| Total | 516 | 100.0 | 100.0 | - |

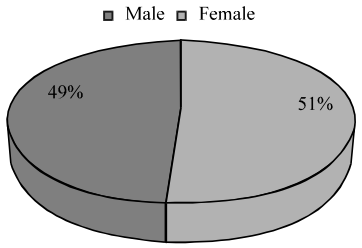


Fig. 1: A pie graph showing the male and female composition

Table 2: Descriptive statistics (gender)

| | Male (n = 264) | | Female (n = 252) | |
|---|---|---|---|---|
| Descriptive statistics | Mean | SD | Mean | SD |
| Theoretical | 3.2462 | 0.91252 | 3.1508 | 0.93252 |
| Practical oriented | 4.2197 | 0.88343 | 4.1111 | 0.96325 |
| Creativity | 3.9659 | 0.88221 | 4.0913 | 0.93813 |
| Team-working | 3.8523 | 0.96564 | 3.8373 | 0.97851 |
| Leadership | 3.6212 | 0.98684 | 3.7937 | 0.91745 |
| Interpersonal skills | 3.7803 | 1.02304 | 3.8571 | 1.01160 |
| Customer orientation | 4.0909 | 0.90587 | 4.1865 | 0.83316 |
| Oral communication | 3.1818 | 1.05599 | 3.1825 | 1.06296 |
| Self-awareness/confidence | 4.0682 | 0.89946 | 4.0992 | 0.90708 |
| Self promotion skills | 3.7273 | 1.00637 | 3.8452 | 0.87225 |
| Initiative and proactivity | 3.9470 | 0.94579 | 3.9960 | 0.89930 |
| Networking skills | 3.6212 | 1.11696 | 3.6667 | 1.05241 |
| Willingness to learn | 3.6364 | 1.02644 | 3.7302 | 0.95235 |
| Action oriented | 3.8295 | 1.04159 | 3.8690 | 1.05370 |
| Problem-solving | 4.1174 | 0.89647 | 4.0238 | 0.84650 |
| Computer/IT | 3.1364 | 1.10493 | 3.0873 | 1.00215 |
| Flexibility | 3.7841 | 0.96850 | 3.9762 | 0.86971 |
| Numeracy skills | 4.0682 | 0.80108 | 3.9048 | 0.93985 |
| Business acumen | 4.2235 | 0.84506 | 4.2262 | 0.80364 |
| Commitment | 4.2235 | 0.74460 | 4.2659 | 0.73389 |
| Curriculum | 3.8210 | 0.62727 | 3.7976 | 0.56958 |
| Coordination | 3.6686 | 0.60652 | 3.7550 | 0.60478 |
| Self R skills | 3.8049 | 0.54878 | 3.8677 | 0.53530 |
| Generalist skills | 3.9255 | 0.49536 | 3.9140 | 0.47781 |
| Valid N (listwise) | - | - | - | - |

between males and females and to ensure that improvement can be translated into the practical, active and meaningful participation of women at all levels.

The gender competencies over the employability indicators of responses were interesting. The male had an edge in the theory and practical of 3.2462 and 4.2197, respectively whilst the females had a higher mean in creativity. Though there are some minor differences among the other items with gender competencies, the differences are not striking (Table 2).

Regular schools' curriculum significantly correlated with coordination at a value of 0.518, self reliance skills value of 0.451 and general skills value of 0.281 but the evening schools' curriculum did not significantly correlate with coordination, self reliance skills and general skills as shown in Table 3.

Table 3: Correlations for the regular and evening school students

| Student status | Correlation | Curriculum | Coordination | Self R skills | Generalist skills |
|---|---|---|---|---|---|
| **Regular** | **Curriculum** | | | | |
| | Pearson correlation | 1 | 0.518** | 0.451** | 0.283** |
| | Sig. (2-tailed) | - | 0 | 0 | 0 |
| | N | 439 | 439 | 439 | 439 |
| | **Coordination** | | | | |
| | Pearson correlation | 0.518** | 1 | 0.480** | 0.392** |
| | Sig. (2-tailed) | 0 | - | 0 | 0 |
| | N | 439 | 439 | 439 | 439 |
| | **Self R skills** | | | | |
| | Pearson correlation | 0.451** | 0.480** | 1 | 0.470** |
| | Sig. (2-tailed) | 0 | 0 | - | 0 |
| | N | 439 | 439 | 439 | 439 |
| | **Generalist skills** | | | | |
| | Pearson correlation | 0.283** | 0.392** | 0.470** | 1 |
| | Sig. (2-tailed) | 0 | 0 | 0 | - |
| | N | 439 | 439 | 439 | 439 |
| **Evening school** | **Curriculum** | | | | |
| | Pearson correlation | 1 | -0.05 | 0.06 | 0.16 |
| | Sig. (2-tailed) | - | 0.67 | 0.61 | 0.18 |
| | N | 77 | 77 | 77 | 77 |
| | **Coordination** | | | | |
| | Pearson correlation | -0.05 | 1 | 0.07 | 0.04 |
| | Sig. (2-tailed) | 0.67 | - | 0.56 | 0.75 |
| | N | 77 | 77 | 77 | 77 |
| | **Self R skills** | | | | |
| | Pearson correlation | 0.06 | 0.07 | 1 | -0.12 |
| | Sig. (2-tailed) | 0.61 | 0.56 | - | 0.31 |
| | N | 77 | 77 | 77 | 77 |
| | **Generalistskills** | | | | |
| | Pearson correlation | 0.16 | 0.04 | -0.12 | 1 |
| | Sig. (2-tailed) | 0.18 | 0.75 | 0.31 | - |
| | N | 77 | 77 | 77 | 77 |

**Correlation is significant at the 0.01 level (2-tailed)

## RESULTS AND DISCUSSION

**Provision of polytechnic education and social needs:** Student status shows that 85.1% of the respondents were regular students attending classes from 8 a.m. to 5 p.m. whilst 14.9% were evening school, indicating that 14.9% attend classes after 5 p.m. The larger population of polytechnic students now is regular school. This point out that polytechnics in Ghana pay more attention to the young adults who are from the secondary school educations straight into the higher education system than those who branched off to join the work market and wish to acquire more and enhance their skills at the work place. A shift from the polytechnics core establishments? Polytechnics were basically established to provide technology education to workers in Ghana to enhance their skills acquisition. Due to the 1983 educational reform which graduated more high school leavers but did not

expand the corresponding higher education institutions, a lot of the then high school graduates joined the working force with limited technological knowhow and theory knowledge. This has put a lot of demand of the polytechnics due to their regionally cited position as universities cannot be found in all the 10 regions of Ghana but polytechnics does. Adult workers attend polytechnics as evening school to improve on their technical knowledge. The result of this research is different and shows a more limited institutional outlook from the Hewlett (2005) findings which identified the typical higher education student of the recent past was an 18-25 years old, full-time student living in dorms for a period of 3-4 years programs. The custom is now an adult part-time student who usually has a full-time job and often a family, has more restrictions on the time they have available for attending class.

In addition, the demographics of HE students are not changing because older adults suddenly want to go back to school and take courses leading to degrees or diplomas. Much of the motivation for adult education is the creation of new types of jobs and the broadening requirements of existing jobs. Adults go back to the polytechnic institutions to get the skills necessary to move into a different field or to obtain the more in-depth skills they need to advance in their current job. Polytechnic institutions are creating new courses and new degree programs to meet these needs. Present day principals and rectors are certainly aware of this trend and many are making attempts to adjust to it. But in what directions are these attempts directed to meet the Ghanaian societal needs terms of their products delivery to reach the working class majority who want to access them.

**Gender access to polytechnic education:** The gender distribution frequencies of the current students of 516 respondents showed 51.2% males as against 48.8% females of the total response rate of 100%. Though the sampling was random, the percentages here reflect the actual situation since polytechnic institutions have more male population than female. Gender correlation was to find out curriculum, coordination, self reliance skills and generalistic items on gender perspective. The male had a positive correlation of curriculum and coordination at 0.470, curriculum and self R skills of 0.449, curriculum and generalist skills of 311 whilst the female had coordination and curriculum of 0.476, coordination and self reliance skills of 0.468, coordination and general skills of 0.370 at a significance level of 0.01. This shows that while male view curriculum more positively, the females had preference for coordination and curriculum, self reliance skills and general skills more significant. Connecting this finding to the national agenda of Ghana, Ghana has a population of 51% females to the 49% of the male population. However in the educational distribution the institutions present a higher percentage of the male population than that of the female population as confirmed by the findings in this research. These percentages undermine the Ghana national human resource development agenda and are in sharp contrast to the Government of Ghana policy of achieving an enrolment ratio of 50-50 at the tertiary level neither does it conform to the Ghana's National Science and Technology (S&T). The Fourth World Conference on women, held in Beijing in 1995 which Ghana participated, recognized that women's literacy is a key to empowering women's participation in decision making in society and to improving families' well-being. In addition, the United Nations has articulated the Millennium Development Goals (MDGs) which include goals for improved education, gender equality and women's empowerment but the findings to this aspect of research revealed there still exists a bias gap between genders and higher education equity attainment in Ghana in favour of males and that polytechnic education does serve more males than females, although Ghana has more females population than males (Millennium Development Goals, 2005). It must be observed, however that currently for every 100 males that have enjoyed development in the human development, only 60 females experience the same level of development. A lot of work still needs to be done to narrow the gender gap between males and females in Ghana and to ensure that improvement can be translated into the practical, active and meaningful participation of women at all levels.

## CONCLUSION

Inevitably, the education system is part of the process of social selection in contemporary Ghana as elsewhere. Since its significance is increasing, the social processes within this system also attract more attention. But investment in education at all levels has both social and private impacts. While beneficiaries enjoy high levels of earnings, better social life and better health conditions in the case of women, the impact of investment in higher levels of education on the national economy cannot be oversimplified. Higher level of education benefits society through technological advancement, higher level of skills and thinking, high level of research into global problems, the training of high level scientists, medical doctors and the improvement of information technology and innovation. The polytechnics must become a primary tool for Ghana's development in the new century. Access to education is a major index of development and it

determines human capital formation of a country. A nation with high human capital formation would be able to transform the natural resources in their region to goods and services that would lead to economic growth and social development. Considering the present Ghana societal needs, polytechnics must help develop Ghana's society by providing education to the working community as there exists too many workers with in depth experiences but without advance certification. The current society needs of Ghana is to tap these working class, develop their knowledge, skills and expertise for Ghana to have more expect in certain fields of endeavour. The development of both the working class and the fresh graduates from high school enhance the development of the societal human capital capabilities. Due to Ghana's population structure, of 51% females as against 49% males, more women should be brought into the higher education system, especially polytechnic education which is more technological form of education to strengthen domestic scientific institutions; serve as a model environment for the embracement of more women into good governance, conflict resolution and respect for all gender and human rights and enable Ghana women to play more active part in the global community of scholars. An understanding of the contribution of polytechnic education services in the society in terms of availability of workers and gender skills development and accessibility will afford both education planners and other stake holders in the society to be able to identify the existing lapses and to plan for the future; it forms the basis of providing solution to the identified problems.

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