Vocationalisation of Higher Education in Ghana: Contextual Concerns and Prospects from Lecturers and Students in Accra Polytechnic

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Abstract
In today's industrial world, vocational and technical education has emerged as the key to the development of every economy and that various experts and educational stakeholders have highlighted on this claim. In view of this, the main objective of this study was to examine the challenges and prospects in the delivery of vocational/technical education at the higher level in Ghana. We collected data from both primary and secondary sources using Accra Polytechnic (now Accra Technical University), as a case study. Using the stratified random sampling technique, 130 respondents comprising 100 students and 30 lecturers were selected for the study. A hybrid of quantitative and qualitative research methods were employed for data gathering purposes. In addition to descriptive statistics, Freidman test and t-test were used to analyse the data. The findings revealed that vocational/technical education curriculum keeps changing over the period and has assumed different purposes due to the emergence of complex social, technological, economic, demographic and political developments in Ghana. We recommended that, among others, the whole curriculum must be re-oriented towards providing occupational skills, stakeholders must come with unifying vision of exerting influence, set goals, create new ideas, policies, vision and provide direction to ensure that reforms lead to effective delivery of viable vocational education in Ghana.
Keywords: Curricula, Context, Higher Institutions, Lecturers, Students, and Vocational   Education.

1.0: Introduction

Historically, Technical and Vocational education (TVET) and Higher Education have emerged from a dichotomous traditions with the universities offering and producing systematic scientific knowledge whiles vocational and technical education provide hands-on training for specific jobs. This relationship has been well established over the years with the socio-economic development demands influencing the process. Vocational and technical education have developed into different levels such as mass education, elite education, polytechnics and vocational institutions which have developed such intricate and dynamic relationships with the industry in various countries in the world. Vocational and technical education contribution to the growth of an economy has been acknowledged by strong industrial economies such as Germany and the UK and that have developed different and comprehensive approaches towards higher education which includes vocational and technical education (Nilsson, 2010; Pavlova, 2008).

Vocationalisation in our context means a way of empowering and equipping individuals through formal training and the development of their capabilities and capacities by providing them with the opportunity to position themselves, acquaint and adapt seamlessly into the work environment. Thus, the main objective of vocationalisation in this context is to improve the vocational importance of education.

2.0: The broad purposes of vocationalisation

Vocational and technical education is beset with definitional and conceptual inaccuracies over the time (Barghaus, Bradlow, McMaken, & Rikoon, 2012). As a result, Strong (1990) rightly described the issue as 'identity crisis'. Different definitions and meanings have been prescribed to vocational and technical education not only across countries but even within the same country despite the universal definition by UNESCO. In Ghana for example, the conventional educational system use the term "vocational" to refer to those instructional subjects that comprise of Visual Arts (mainly the Handicrafts) and Home Economics. According to a report by the Ministry of Education, the specific vocational courses include Leatherwork, Sculpture, Graphic Design, Basketry, Food and Nutrition and Management in Living. However, the term 'technical' refers to trade, industrial and engineering related subjects such as Technical Drawing, Applied Electronics, Auto Mechanics, Metalwork and Woodwork (A. K. Akyeampong, 2005), Ministry of Education, 1999). It must however be noted that Agricultural and Business Education subjects in Ghana's educational curriculum do not form part of any of the two categories being technical and vocational. On the other hand, definitions provided by UNESCO distinguishes between vocational and technical education based on the level of training and the relative combination of skill training, related sciences and general academic education involved. The concept of "vocationalisation" used in this study embraces those instructional areas traditionally labelled as "vocational" or

"technical", including agriculture and business subjects.

2.1: Concept of vocationalisation in Ghana

In Ghana, the concept of vocationalisation became a policy issue since manual training for the various trades was taken away from industry, business and field agriculture to the formal educational system. This national educational policy generally referred to the modification of previously liberal arts or general academic curriculum of the second cycle schools to include a lot more of vocational and technical areas. Different countries have different approaches to vocationalisation. One of such approaches is to have a main curriculum and diversified constellation of elective subjects that include vocational and technical subjects (Chin-Aleong, 1993; Hollander & Mar, 2009).

The vocationalisation concept is relatively simple to understand, however, its purpose is rather a complex one. Traditionally, the universal accepted purpose of vocational education in general has been the provision of specific occupational skills for employment (Oketch, 2007; Strong, 1990). However, with time, vocational education has assumed different dimensions and purposes (Billett, 2011; Gijbels, Raemdonck, & Vervecken, 2010). In view of this, several factors including social, technological, economic, demographic and political forces have put enormous pressure on policy makers to keep reviewing as well as expanding the purposes and expectations of vocational and technical education.

In the view of Facer (2011) the economic, technological, demographic, societal and educational context in which vocational and technical education is practised has been altered in recent times. It must be noted that these changes have posed a great challenge to the smooth delivery of vocational and technical education in Ghana. Vocational and technical education in Ghana must therefore respond appropriately to these changes so as to remain quite relevant in preparing and equipping individuals to be able to take full advantage of the opportunities for the kind of workforce needed in today's demanding work environment. In today's World of Work, the main focus and demands of smart employers is people who are experienced, competent, innovative, quick and deep thinkers with the ability to learn quickly and understand the current complex technology in the work environment. Thus, educational policy makers must include and design a curriculum that will ensure that vocational and technical education prepare and equip people with the requisite on-the-job skills and also provide them with such additional skills as critical thinking, problem solving abilities and career development as well as lifelong learning (Facer, 2011). Achieving this task is possible if the vocational and technical education system in Ghana embarks on a change with regards to structures, programs, processes and practices in order to be effective in overcoming the challenges and meeting the expectations in these contemporary times.

2.2: Progress in Technical/Vocational Education and Polytechnic Education.

Since the attainment of independence from the British Colonial rule, successive governments in Ghana have identified and given priority to technical/vocational training as the sector for providing the middle manpower base for faster economic growth. It must however be stated that, progress in the area of technical/vocational education has been slow; for instance, between the years of 2002-2006, enrolment in TVET institutions stagnated at about 18,000 students (MOESS, 2007) (A. K. Akyeampong, 2005). Although enrolment in the 10 polytechnics has increased substantially in recent times, these increases have been significant in business related programmes and not in Science and technical programmes (MOESS, 2007).

In Ghana, Polytechnics form part of the higher educational system and are basically responsible for TVET at the tertiary level. Under the tutelage of the Ghana Education Service (GES), Polytechnic education in Ghana started as part of the second cycle institutions in the 1960 (Agyepong Boakye, 2012; Nsiah-Gyabaah, 2005). However, in 1963, through the promulgation of the Polytechnic Law (PNDC Law 321) their status was changed from being second cycle institutions to tertiary institutions. There were only 2 public tertiary institutions in Ghana at the time of independence. However, the country has experienced a phenomenal growth in the area of tertiary education over the last decades. Ghana currently boasts of 10 polytechnics which are all state-owned and are primarily vocational in orientation. Polytechnics have now positioned themselves as more vocational and technical oriented for producing high quality industrial middle level labour force to meet the Ghanaian industrial needs for accelerated economic growth. As a result of this, all the Polytechnics in Ghana were recently converted again to Technical Universities by the promulgation of the new Technical University Act (Act 922). The focus of this new direction is to help close the gap between lower and high level manpower categories in Ghanaian industries, commerce, public and civil service for a harmonised national development agenda. This new direction of vocationalisation was also meant to absorb those individuals who for various reasons could not pursue higher academic education after their secondary education.

Again, the essence of this new direction of the Polytechnics is to produce graduates who would be involved and become the vehicle for national, regional, district and local level growth pole centres for national policy formulation, implementation and evaluation thereby taking the centre stage for the acceleration of the national decentralisation policy. Proposals to transform the polytechnic curriculum to support and improve on

core competencies as well as generic skills to increase chances of polytechnic graduates fitting in well in this ever changing labour market demands suggest a response to the need for the demand-driven policies that will satisfy the job market. It must however be noted that polytechnic education in Ghana has not received the requisite attention and the infrastructural development it deserves to enable the sector to contribute effectively towards national development (Akomaning, 2012) (OXIA Ghana Limited, 2004). According to (K. Akyeampong, 2010); Ansah (2012) the TVET curriculum is institution-based, supply-driven and is seen as outmoded and not responding to the industrial needs and the demands of the labour market in general. This has resulted in a mismatch between the training offered by institutions and the skills needed by the industry which consequently has serious implications for the Ghanaian economy as well as the employability of graduates from the TVET institutions especially the Polytechnics (K. Akyeampong, 2010).

The main objective of this study, therefore, is to critically analyse the contextual concerns and prospects of technical and vocational education in Ghana using Accra Polytechnic as a case study with the aim of recommending ways of restructuring the vocational/technical education system for effective teaching, training and learning experiences. In order to achieve this objective the study was guided by the following null hypotheses:

3.0: Hypotheses
1. There are no significant differences among the levels of agreement of respondents on the context of the curricula in terms of theory, practical work and industrial attachment.
2. There is no significant difference in the level of agreement between lecturers and students on the curricula context of the technical/vocational programmes in Ghana.
3. There is no significant difference on the levels of agreement on the curricula context between respondents who would like to encourage relatives, friends and others to study technical/vocational programmes and those who would not like to encourage others to study technical/vocational programmes in higher institutions in Ghana.

4.0: Methodology
This study adopted a survey research strategy using the quantitative research approach. The population for the study were students and lecturers of Accra Polytechnic. This comprise of 12,014 and 187 students and lecturers respectively. The School of Business and Management had 62.6% of the students while the Schools of Applied Sciences and Engineering had 19.9% and 17.4% respectively. The proportion of the lecturers among the schools was 36.4%, 27.2% and 36.4% for School of Business and Management, School of Applied Sciences and School of Engineering respectively. The students-teacher ratio was 64:1.

The researchers applied different sampling techniques to arrive at 130 respondents. Firstly, population was separated into the various schools/faculties using cluster sampling technique, and further stratified into students and lecturers within each school. Convenience sampling technique was then employed to settle on thirty (30) lecturers of the institution, which is over 16.0% of the teaching population. Simple random sampling was used to select one hundred (100) students of the institution, which is just about 1.0% of the students' population (Best & Kahn, 1993; Fraenkel & Wallen, 2003). This is summarised in Table 1.

Table 1: Sample size per School/Faculty of the Institution

| School | Respondent category | | | | | |
| | Students | | Lecturers | | Total | |
	f	%	f	%	F	%
Business and Management	49	49.0	12	40.0	61	46.9
Applied Science	33	33.0	9	30.0	42	32.3
Engineering	18	18.0	9	30.0	27	20.8
Total	100	100.0	30	100.0	130	100.0

A content-validated questionnaire was distributed to respondents. To ensure total response rate, more respondents were selected so that those questionnaires which could not be retrieved did not affect the sample size. The questionnaire consisted of 4 main parts. The theory construct was measured using 8 items; practical construct was measured using 7 items while the industrial attachment construct was measured using 5 items. These three domains formed the curricula context of the study. The latter part of the questionnaire sought for respondents' background characteristics.

A six-point Likert-type scale (ranging from 1 – strongly disagree to 6 – strongly agree) was used in measuring the items on curricula context and the related variables. The computed scores were then converted to mean levels of agreement and their related variables. Mean below 1.500 = Strongly disagree; those ranging from 1.500 to 2.499 = Disagree; 2.500 to 3.499 = Moderately disagree; 3.500 to 4.499 = moderately agree; 4.500 to 5.499 = Agree; and above 5.499 = strongly agree. Statistical Package for Social Sciences (SPSS) version 20.0 was used to generate frequencies, percentages, means and standard deviations to describe the lecturers and students on the variables of the study. Friedman nonparametric test for mean rank was used to examine

differences in the levels of agreement of the various components of the curricula (theory, practical works and industrial attachment). Independent sample t-test was used for differences in the levels of agreement between lecturers and students, and between those respondents who would like or not to encourage relatives and others to study technical/vocational programmes in higher institutions in Ghana. An alpha level of 0.05 was set as a priori for all test of significance in all cases.

5.0: Results and Discussion
With the age range of 19 to 31 years, most of the students (71.0%) were below 25 years of age. Thus, less than one-third of the students was 25 years or above. This is against the general public perception that vocational and technical education is for old adults, as a result of the long processes involve in accessing vocational/technical education at the tertiary levels. Similarly, majority of the lecturers (60.0%) were between 31 and 39 years, and oldest having more than 5 years to retirement. This illustrates the youthfulness of all respondents and its implication on developing young and energetic manpower in the vocational and technical sector for national development.

Table 2: Percentage Age Distribution of Respondents by Category

Ages	Respondent category		
	Students (f = 100)	Lecturers (f = 30)	Total (n = 130)
< 20	7.0	0.0	5.6
20 - 24	64.0	0.0	50.8
25 – 29	28.0	0.0	22.6
30 - 34	1.0	16.0	4.0
35 – 39	0.0	44.0	8.9
40 - 44	0.0	32.0	6.5
45 – 49	0.0	4.0	0.8
50 - 54	0.0	4.0	0.8
Total	100.0	100.0	100.0

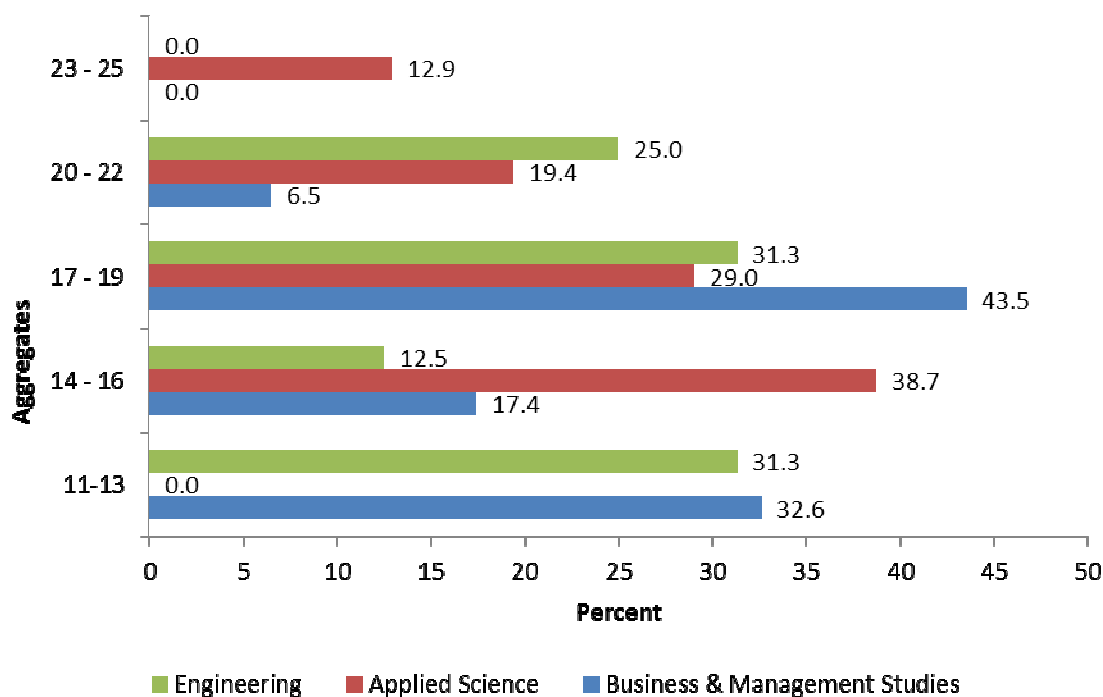**Age range = 19 – 31 (Students) and 31 -54 (Lecturers)**

Fig1. Aggregates of students used to enter into the various programme by School/Faculty
      From Figure 1, 50.0% of the business and management students had aggregates between 11 and 16 years, only 6.5% of them had aggregates more than 19. A quarter of the Engineering students had aggregates above 19 while about one-third (32.3%) of the Applied Science students fall within the same aggregates. With a mean aggregate of 16.667 (S = 3.357) and a range from 11 to 25, it could be established from the student respondents that those pursuing Business and Management were admitted with the best grades followed by the Engineering and Applied Sciences in that order. A post hoc of one-way ANOVA indicates that aggregates of

students from School of Business and Management Studies was significantly better than those from School of Applied Sciences ($\overline{X}$ = 18.129, S = 3.233) but not School of Engineering ($\overline{X}$ = 16.625, S = 3.757). Though School of Engineering was better than School of Applied Sciences, this was not significant.
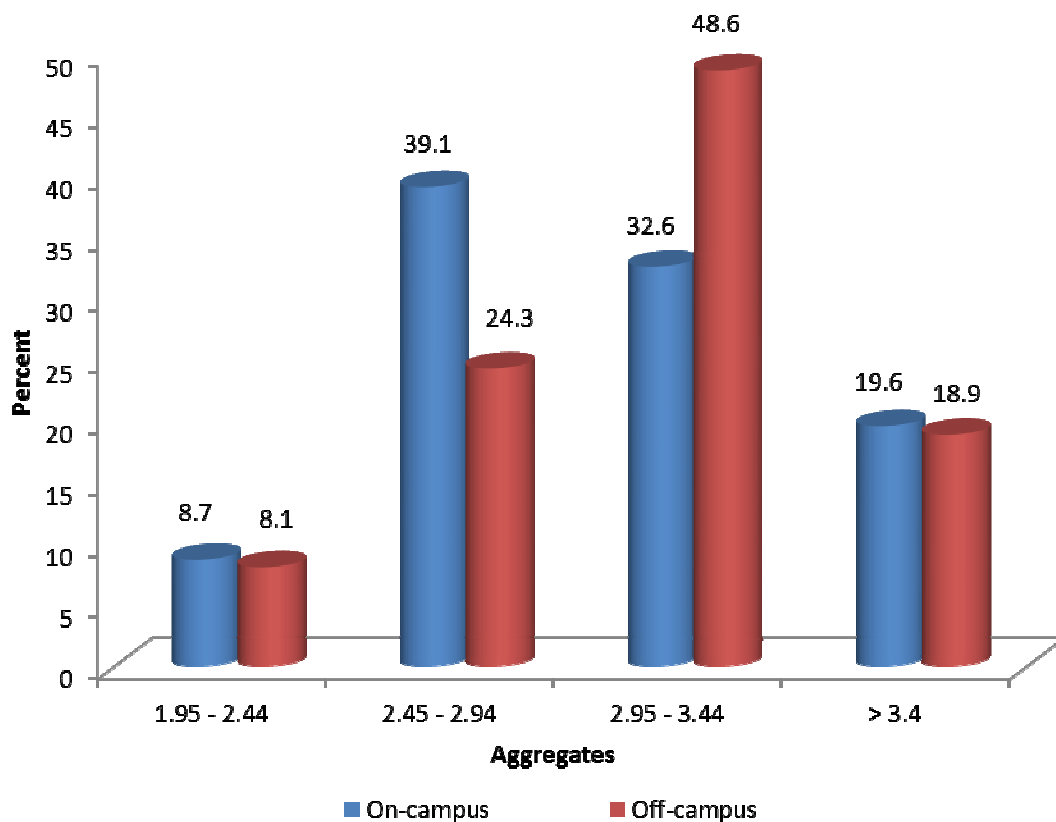

Fig 2. CGPA distribution of students by residential Status.

Generally, it can be observed that off-campus students are relatively better than students who live on-campus. This could be attributed to the fact that most off-campus students (68.2%) are gainfully employed, as compared to only 34.0% of the on-campus students. Most of them were working in their respective areas of study where they can get more practical knowledge in the subject areas and therefore applying these experiences in their studies. Independent sample t-test shows no significant different between them (t = 1.22, p = .155), though off-campus students ($\overline{X}$ = 3.090, S = 0.395) had better grades than on-campus students ($\overline{X}$ = 2.994, S = 0.420).

Table 3. Cross tabulation between whether they will allow their relative to study Technical/Vocational programme in any Ghanaian higher institution.
Respondents

Responses		School/Faculty			
		Business & Management	Applied Science	Engineering	Total
Yes	f (%)	40 (71.4)	34 (85.0)	23 (88.5)	97 (79.5)
No	f (%)	16 (28.6)	6 (15.0)	3 (11.5)	25 (20.5)
Total	**f (%)**	**56 (100.0)**	**40 (100.0)**	**26 (100.0)**	**122 (100.0)**
Chi-Square					4.263
Sig.					.119

In assessing the prospects, the respondents were asked to indicate whether they will encourage any of their relatives, friends or others to pursue technical/vocational education in any higher institution in Ghana. About 80.0% of the respondents responded positively while only 20.0% responded in the negative (see table 3). This revelation contradicts a survey by (Anamuah-Mensah, 2004) who indicated that none of TVET teachers wanted their children to study technical/vocational programmes. Reasons given by those who responded affirmatively included such issues as since technical/vocational education in higher institutions emphasises hands-on training, where theoretical components are synchronised with industrial practices, trainees acquire

more practical and professional skills, knowledge and competencies to enable them establish, manage their own enterprises and to create jobs for others. This will encourage entrepreneurial spirit among them and reduce the hassle for non-existing jobs. In addition, some of the respondents see the future of Ghana as an industrialised nation which will need more expertise in technical/vocational programmes. They added that even as at now, there is under representation of experts in such fields in the country hence the need to train more students to occupy those positions for national development.

For those who answered in the negative, they asserted that inadequate and poor facilities at the technical and vocational institutions of higher learning in Ghana makes students not able to acquire the relevant skills and competencies that will enable them to apply it at work places. Some are of the view that government and other stakeholders in the education sector fail to recognise importance of technical and vocational education in the country and most of the graduates are regarded as second grade to those from the traditional Universities. The public do not respect graduates and certificates obtained from Polytechnics and discriminate against them at the job market. This supports African Union (2007) report that apart from inadequate financing and negative perceptions, the socio-economic environment and the appropriate framework within which vocational education is delivered in Ghana is characterised in general by other factors such as huge numbers of poorly educated, unskilled and unemployed youth, uncoordinated, unregulated and fragmented delivery systems, low quality gender and economic inequalities, weak monitoring and evaluation mechanisms and poor management and ill-adapted organisational structures.

Investigating into whether there is any disparity among respondents with regards to their school/faculty, the result reveals that there was no significant differences in their responses, (χ^2 =2, n= 122) = 4.263, p = .119. Thus, the proportion of respondents from each faculty who are in favour or otherwise are similar. The number of respondents who are in favour of technical/vocational education in higher institutions in Ghana are significantly more than those who are not in favour due to conditions in which the technical/vocational programmes are handled (χ^2 = 42.492, p = .000).

Table 4. Opinions about the theoretical aspect of vocationalisation.

Theory	SA	A	MA	MD	D	SD	X̄	S
The curricula are structured to achieve the expected objectives	29.2	40.0	20.8	2.3	3.1	4.6	4.762	1.250
The scope of courses in my programme are relevant to student needs	23.8	53.8	13.1	4.6	3.1	1.5	4.862	1.032
The course contents are relevant to emerging issues	15.4	38.5	30.0	7.7	6.2	2.3	4.423	1.167
The content of the courses is relevant to the job market	26.2	31.5	30.0	7.7	2.3	2.3	4.646	1.154
The content of the courses meet your expectations	24.6	23.1	35.4	8.5	5.4	3.1	4.439	1.270
The course content is designed to allow the student engage in extra curricula activities	18.5	25.4	29.2	16.2	7.7	3.1	4.215	1.306
The credit hours for the courses are adequate.	17.7	28.5	31.5	10.8	11.5	0.0	4.300	1.218
The programme allows students to actively engage in training process.	14.1	26.6	31.3	22.7	2.3	3.1	4.180	1.187
Overall theory							**4.480**	**0.853**

As stated by Schulte (2005), the goal of tertiary education must be sustainable and provide long-term usable professional education. From Table 4, over 80.0% of the total respondents were of the view that the curricula are well structured to achieve the expected objectives of which 29.2% strongly agreed, whiles only 9.4% not asserting to it, of which 4.6% strongly disagreed. Regarding the scope of the courses and their relevance to students' needs, over 90.0% overwhelmingly asserted to its relevance of which 53.8% agreed. Only 9.2% of the respondents stated that the scope of the vocational/technical courses is not relevant to the students' needs. Similar revelation can be said of course content relevant to emergent issues where 83.9% of the respondents agreeing to its relevance, whiles only 16.1% not in favour, with 7.7% moderately disagreed. As posited by Udofia, Ekpo, Nsa, and Akpan (2012) technical/vocational education must deliver meaningful and relevant programs to trainees with future employment as the goal. In response to whether the course content is relevant to the job market, 31.5% of the respondents agreed to the course content meeting the job market. Overwhelming 87.7% believed the course content is relevant, with only 12.3% finding it to be irrelevant to the job market. Also, 17.0% disagreed that the content of the courses meet their expectations. Over 80.0% were in favour of the courses content meeting their expectations; of which 24.6% strongly agreed.

The course content engaging students in extra curricula activities was highly approved by the respondents. Also, 73.0% agreed to it while 30.0% of respondents did not agree to it, with about 16.2% moderately disagreed. In addition, over 77.0% consented to the credit hours being adequate to the courses, whiles, 22.3% believed that the credit hours was woefully inadequate. For the programmes allowing students to actively engage in the training process, 22.7% moderately disagreed, with 31.3% moderately agreed. Relatively, 28.1% believed that there is no active engagement of students in the training process as compared to 71.9% who think the programmes engage students in the training process. The mean level of agreement reveals that respondents agree on curricula meeting expected objectives, the scope of the courses are relevant to students

needs and job market. The respondents moderately agreed on the rest of the items. The standard deviations indicate that most of the respondents did not have much varied views. In sum, majority of the respondents believe that the theoretical aspects of vocationalisation are very relevant to the curriculum and that engages the students in much technical/vocational knowledge.

With regards to the practical aspects (Table 5), 78.2% of the respondents asserted that the components of the practical aspects are well arranged to achieve the desired skills whiles 21.8% think otherwise. About 45.0% of the respondents did not agree to that students always complete the practical sessions before the semester ends. Among the 55.1% that consented, 27.9% moderately agreed that students completed the practical before the semester ends. Besides, 69.2% of the respondents were of the opinion that the duration of the practical period is adequate in engaging students in learning activity, with 35.4% moderately agreed as opposed to 13.8% that think the credit hours for practical do not engaged the students in learning activity. With the practical content adequate to empower students with employable skills, 20.7% believed it does not whiles 79.3% asserted that it empowers students with employable skills.

Table 5. Opinions about the practical aspect of vocationalisation.

Practical	SA	A	MA	MD	D	SD	$\bar{X}$	S
The components of the practical are well arranged to achieve desired skills	20.9	28.7	28.7	10.9	3.9	7.0	4.310	1.391
Students always complete the practical before semester ends	7.0	20.2	27.9	20.9	15.5	8.5	3.566	1.380
The credit hours for the practical are adequate to allow student to actively engage in learning activity	12.3	21.5	35.4	13.8	10.8	6.2	3.923	1.356
The practical content is adequate to empower students with employable skills	17.7	34.6	26.9	6.9	6.9	6.9	4.285	1.399
The practical component complement what is taught in the theory	13.1	37.7	26.9	10.8	7.7	3.8	4.262	1.267
There are enough equipment available to complete the practical works	4.6	13.1	26.2	15.3	20.0	20.8	3.046	1.499
The practical sessions are compatible with the facilities available	9.2	13.1	23.1	13.8	25.4	15.4	3.207	1.559
Overall Practical							**3.800**	**0.986**

With practical component complementing the theory taught, 22.3% disagreed, whiles 77.3% overwhelmingly consented to that, with 37.7% agreeing. Regarding enough equipment available to complete the practical works, 56.1% of the respondents do not assert to that, whiles 43.9% asserted that equipment availability is enough to complete the practical works. In the same vein, 54.6% of the respondents are not in favour that the practical session are compatible with the facilities available, whiles 45.4% believes the practical session are compatible with the facilities available.

Creating a beneficial and mutual partnership between higher education and society at large has become one of the basic missions of higher institutions (Dewar, 2005). Academically detached education is regarded as providing insufficient skills for appropriate employability of graduates (Maclean & Pavlova, 2011). Table 6 presents the views of lecturers and students on industrial attachment context of the technical/vocational programme in higher institutions in Ghana.

Table 6. Opinions about the industrial attachment aspect of Vocationalisation.

Industrial Attachment	SA	A	MA	MD	D	SD	$\bar{X}$	S
Provision is made in the programme for adequate practical attachment.	19.2	36.2	30.7	6.2	4.6	3.1	4.500	1.189
Duration for off campus attachment is appropriate to expose the students to practical experience.	23.8	33.8	22.3	10.0	6.2	3.8	4.477	1.331
The experiences for student intern are relevant for his/her future career.	29.2	38.5	19.2	6.2	6.9	0.0	4.769	1.145
Students are placed at relevant institutions for their attachment.	14.6	33.1	21.5	12.4	13.8	4.6	3.597	1.513
Students are satisfied with the supervision during off campus attachment	7.8	27.9	20.2	15.5	17.8	10.9	4.258	1.159
Overall Industrial Attachment							**4.284**	**0.915**

From Table 6, providing answers with regard to whether provision is made in the programme for practical attachment; 86.1% of the respondents believed it do whiles only 13.9% do not think adequate provision is made in the programme. With regard to off campus attachment appropriate for much exposure to practical experience, 20.0% did not assert to it, whiles 80.0% asserted to that, with about 33.8% of the respondents agreed

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and 23.8% strongly agreed. Also, only 13.1% of the respondents do not accept that students' internship is very relevant to their future career. However, 38.5% and 29.2% agreed and strongly agreed respectively to the experiences of students' internship very relevant for their career in the future.

With regards to students being placed in relevant institutions for their attachment, 69.3% of the respondents were in favour, whiles, 30.7% do not think students are often placed in relevant institutions for their attachment. With satisfaction of supervision during off campus attachment, 55.8% of the respondents consented to it whiles 44.2% do not think so. The mean responses to these items indicate that, apart from adequate provision for attachment and relevance of the attachment to students' future career which were agreed on, the rest were moderately agreed.

Table 7. Friedman Nonparametric Tests for the Components of Technical and Vocational Curriculum

Friedman Test Statistics for the mean ranks	*Theory*	*Practical*	*Attachment*
Means	4.480	3.800	4.284
Standard deviations	0.853	0.9986	0.915
Mean rank	2.32	1.55	2.13
Total observation		130	
Chi-Square		41.863	
Degree of freedom		2	
Asymptotic Significance		.000	

Scale: 6 = Strongly Agree (SA);   5 = Agree (A);   4 = Moderately Agree (MA);   3 = Moderately Disagree (MD);   2 = Disagree (D);   1 = Strongly Disagree (SD)

A Friedman test was conducted to assess if there were differences among the mean ranks of the levels of agreement of the respondents on the ratings of the three main components of the technical/vocational education programmes in higher institutions in Ghana. The chi-square, χ^2 (2, n= 130) = 41.863, p = .000 indicates significant differences among the mean ranks of levels of agreement on theory, practical and industrial attachment components. Three orthogonal contrasts were therefore performed using Wilcoxon Signed Ranks Test with the Bonferroni correction (comparison-wise alpha = .017) (Leech, Barrett, & Morgan, 2005). The contrast between theory and practical (Z = 7.260, p = .000), theory and industrial attachment (Z = 2.559, p = .010), and industrial attachment and practical (Z = 5.283, p = .000) were all found to be significant. In all cases, the significant contrasts indicated that the theoretical components was highest followed by the attachment and then practical works.

On the contexts of the curricula, students agree more to all the components than their lecturers. For instance, the students agree ($\overline{X}$ = 4.607, S = 0.731) while the lecturers moderately agreed ($\overline{X}$ = 4.058, S = 1.083) to the relevance of the theoretical context. For the practical works, students moderately agree ($\overline{X}$ = 3.961, S = 0.902) while the lecturers moderately disagree ($\overline{X}$ = 3.260, S = 1.074). On the industrial attachment, though both groups of respondents moderately agree, the students' level of agreement ($\overline{X}$ = 4.384, S = 0.888) was higher than that of the lecturers ($\overline{X}$ = 3.952, S = 0.941). This was similar to the whole context of the curricula. Considering the standard deviations, the lecturers tend to have varied views than the students. The independent sample t-test was therefore conducted to test the significance of these differences, bearing in mind the assumptions of using the t-test (Leech et al., 2005).

Table 8. Independent sample t-Test of the level of agreement on the context of curricula components between students and lecturers

Components	Category	f	Mean	Std. Deviation	Mean Difference	Std. Difference	Error t-value	p-value
Theory	Students	100	4.607	0.731	0.548	0.211	2.601	.013
	Lecturers	30	4.058	1.083				
Practical	Students	100	3.961	0.902	0.701	0.197	3.566	.001
	Lecturers	30	3.260	1.074				
Attachment	Students	100	4.384	0.888	0.432	0.187	2.307	.023
	Lecturers	30	3.952	0.941				
The whole Curricula	Students	100	4.324	0.623	0.573	0.174	3.297	002
	Lecturers	30	3.751	0.888				

The Levene's test of equality of variance reveal that there were no significant differences in the variances for both practical and industrial attachment but theory and the whole curricula context. Since the assumption of homogeneous variance is not violated for practical and attachment components, equal variance

was assumed and appropriate t-test statistics were selected for them. However, equal variance was not assumed for the theoretical components and the whole curricula context since their test violated the assumption of homogeneity of variance (Leech et al., 2005). The differences for all the components were significantly different. With respective mean differences of 0.548 and 0.432, theoretical components and industrial attachment were significant at alpha levels = .05 while the practical and the whole context of the curricula were significant at alpha levels = .01 (mean difference = 0.701 and 0.573 respectively). The null hypothesis of no difference in the level of agreement between lecturers and students is therefore rejected. Thus the levels of agreement by the lecturers differ from those of their students on the curricula context.

Table 9. Independent sample t-test between respondents who affirmed that they will encourage their relatives to study Technical/Vocational Programmes in Ghanaian Higher Institutions and those who responded in the Negative

Curricula Components	Response	f	Mean	Std. Deviation	Mean Difference	Std. Error Difference	t-value	p-value
Theory	Yes	97	4.593	0.822	0.328	0.183	1.793	.075
	No	25	4.265	0.792				
Practical	Yes	97	3.947	0.913	0.430	0.210	2.043	.043
	No	25	3.517	1.032				
Attachment	Yes	97	4.476	0.835	0.654	0.186	3.515	.001
	No	25	3.822	0.810				
Curricula	Yes	97	4.337	0.693	0.446	0.153	2.919	.004
	No	25	3.891	0.629				

The test of mean differences between those who would like to encourage their relatives to study technical/vocational programmes in Ghanaian higher institutions and those who would not like to encourage their relatives revealed that there were significant differences in all the various components of the curricula context. With mean differences of 0.328 and 0.430 respectively for theory and practical, respondents who would like to encourage their relatives and others were significantly higher than those who would not like to encourage their relatives and others ($p \leq .05$). Similarly, with mean differences of 0.654 and 0.446, there were significant differences for attachment and the whole curricula at .01 alpha levels, where those who would like to encourage relatives and others agree more than those who would not like to encourage relatives and others. The null hypothesis of no difference between the two categories of those who would like and those who would not like to encourage relatives and others is therefore rejected. Thus, those who would not like to encourage their relatives, friends and others to study technical/vocational programmes in higher institutions in Ghana agree less to the context of the programme than those who would like to encourage relatives and others.

6.0: Conclusion

The respondents agreed more to the theoretical aspects of technical and vocational programmes in higher institutions than practical and industrial attachment. They also rated industrial attachment above the practical works. Although many asserted that the practical aspect equips students with skills and hands-on training, equipment and facilities are inadequate in meeting the practical needs of the students. Students who are the end-users of the programmes were inclined to have higher level of agreement than their lecturers. Most of the respondents are in favour of technical and vocational education in Ghanaian higher institutions and are inclined to have higher level of agreement than those who wish otherwise. Although the results revealed very high prospects for vocationalisation of higher education in Ghana, there is the need to upgrade facilities and laboratories in order for the higher institutions to improve adequately on the quality of teaching and practical training.

The study recommended that, among others, the whole vocational and technical educational curriculum should be re-oriented towards providing occupational skills. Stakeholders must also come with unifying vision of exerting influence, set goals, create new ideas, policies, vision and provide direction to ensure that reforms lead to effective delivery of viable vocational education in Ghana. Vocational/technical education is selectively more expensive than general education; therefore government should make adequate allocation of resources for vocational/technical education.

The study also recommended that financial assistance to the institutions offering vocational technical education should be increased so as to be able to build up infrastructural facilities and equipment so as to provide the acquisition of practical knowledge and hands-on experience in the chosen field of specialisation. The courses taught should provide market driven skills and knowledge necessary to be more productive and efficient.

6.1: Limitations of the Study

The study sample was limited to students and lecturers at the Accra Polytechnic and we suggest that future research on the research area should capture all the Polytechnics in the country to enable a larger sample to be

used to aid results generalisation in future.

The research again only focused on the views of students and lecturers but did not capture the views of the employers and the general public who actually demand the skills and competencies of these students.

Another limitation to the study was that we did not seek the opinion of the National Council for Tertiary Education (NCTE) and the National Accreditation Board (NAB) which are the bodies mandated to regulate and issue policy framework for curriculum development for all the tertiary institutions in Ghana.

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