Science Related Senior High School Curriculum in Ghana and Its Relevance to the World of Work

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***Abstract:* -** *Mass youth unemployment toady has been a major challenging phenomenon in Africa. One attributable cause has been the irrelevance of the school curriculum. However, this curriculum has not been examined critically and empirically to prove its relevance or otherwise. The study sought to examine the skills in curriculum in relation to the skills employers usually demand of employees and the empirical evidence in the literature. A conceptual content analysis was used to help establish the skills embedded in the curriculum. A sample size of 20 respondents was selected using purposive sampling procedure. Through an interview, data was gathered, sorted out and coded through the use of NVvo 8 for the counting of the frequency of the skills. The findings showed that the science related senior high school curriculum is relevant though with a high percentage of the skills embedded in the affective domain (attitudes and values) as against employers' demand of the skills embedded in the cognitive domain (application of knowledge). The relevance of the science related curriculum therefore relates to instilling values and attitudes into the students but not relevance from the perspectives of employers in the application of knowledge that they demand of employees at the work place.*

***Keywords:* -** *Curriculum, senior high school, reality, relation, relevance, world of work*

Introduction

Ghana was colonised by Britain, so the former inherited the grammar type of education from the latter and this type of education is commonly referred to as 'bookish' type of curriculum. The post-independence of Ghana (from 1957) saw Ghanaians moving away from the bookish curriculum towards science related curriculum. The aim was to help graduating students gain employment, go into self-employment or further their education (GES 2010).

In order to help the graduating students gain employment, the curriculum was diversified to comprise seven elective programmes namely Agriculture, Business, Technical, Home Economics, Visual Arts, General Arts and General Science (Education Review Committee Report, 2002). This current study looked at the science related curriculum that comprises Agricultural Science, General Science, Technical Drawing, and Home Economics.

The major concern of the researcher is the alarming rate of unemployment (Amankrah 2014). About 60 percent of the unemployed in Ghana can be found in the 15 – 24 years age group, thus making Ghana's youth unemployment rate one of the highest in the world (Amankrah 2014). According to GES [Teaching Syllabi] (2010), all the subjects of the science related programmes have been designed in such a way that they will offer enough knowledge and skills to students terminating their education at the end of senior high school to gain employment, and at the same time they offer adequate foundation for those who will pursue further education in their areas of interests.

The questions worth asking are: 'What is the nature of the skills embedded in the science related senior high school curriculum? What is employers' rating of the skills found in the science related curriculum? What skills do employers in Ghana usually demand of employees? What do empirical studies reveal to

be the ideal related skills for gaining employment?' The science related curriculum is assumed to contain critical thinking skills, problem solving skills, good communicating skills, good collaborative skills (Partnership for 21st Century Skills 2009; Chu, Reynolds, Tavares, Notari and Lee 2017).

The components of the science related curriculum

The science related curriculum comprises four elective subjects and five core courses. The core subjects together with the elective subjects constitute a complete programme or curriculum.

Agricultural programme

Agriculture comprises five major areas with detailed syllabus of each. These are the General Agriculture, Crop Husbandry and Horticulture, Animal Husbandry, Fisheries and Forestry. Each of the syllabi has both theory and practical component. Secondly, each has 6 periods of 40 minutes per week and out of the six periods, three are devoted to practical work and three to theory. Thirdly, each has two strands, (1) providing terminal education for students, (2) serving as a prerequisite for further studies. This strand is summarised using a sample from General Agriculture:

The content of this syllabus has been designed in a way that will offer knowledge and skills to students for whom senior high school education is terminal. Knowledge and practices acquired in this subject will enable such students to work on their own, or seek employment in agricultural establishments. The syllabus also provides adequate foundation knowledge and skills for students who will want to pursue further education and training in agriculture after SHS. (GES 2010, iii).

General science programme

The General Science programme comprises Chemistry, Elective Biology, Elective Physics and Elective Maths. Chemistry and Physics outline the details of content and possible placement of students after the programme. For instance, it is stated that topics have been selected to enable the students to acquire the relevant knowledge, skills and attitudes needed for tertiary level education, other institutions,

apprenticeship and for life. Both Elective Maths and Elective Biology are silent on students' world of work and concentrate only on the breakdown of the content.

Technical drawing programme

The Technical programme is composed of seven subjects – Applied Electricity, Auto Mechanics, Building Construction, Electronics, Metal Works, Technical Drawing and Wood Work. All these subjects have the same structure in terms of the organisation and the suggestions for teaching each of the syllabi. The time allocation is the same for all of them. Both theory and practical components have equal value of 50%, except Metal Work and Wood Work which have 60% practical and 40% theory.

Home economics programme

The subjects that make up the Home Economics programme are Clothing and Textile, Food and Nutrition and Management in Living. The organisation and structure of the respective subjects are similar. For example, time allocation in terms of the number of periods and minutes per week is the same for all the subjects. One significant difference is, however, observed in the area of profile dimensions. While both Clothing and Textile and Food and Nutrition have percentage values of 15 for knowledge and understanding, 25 for the application of knowledge and 60 for practical skills, Management in Living has percentage values of 20 for knowledge and understanding, 40 for the application of knowledge and 40 for attitudes and values.

The core subjects

There are five subjects, English Language, Mathematics, Integrated Science, Social Studies and Information and Communications Technology (ICT) that make up the core subjects of the senior high school curriculum. They have the same organisational pattern and structure. They add up to the elective subjects to constitute a complete programme.

The graduating senior high school student and the job market

Senior high education, as a terminal point for a majority of the graduates of the senior high school programme (Odamtten 1996), has three strands: (1) those who go for employment, (2) those who go for self-employment, and (3) those who further their education. The current study looks at those who graduate and will like to go to the world of work.

Anderson and Gantz's (2013) research showed that the skills and competences that support a well-developed, civically competent student are the same skills that will be widely in demand by employers in 2020 and beyond. The other skills Anderson and Gantz (2013) found out from their research were cross-functional skills (job readiness skills), as against occupation specific skills (job training skills), as the former can help one to get any job in any occupation.

Skills employers demand of employees

Barton's (2006) *high school reform and work: facing labour market realities* has been one of the comprehensive and empirical studies on the skills employers' demand of employees. The study was carried out from 1983 to 2001. It was carried out in seven organisations namely San Francisco Employers (1983); A survey of Personnel Officers, Centre for Social Organisation of Schools, The Johns Hopkins University (1984); Conference Board Survey of Executives (1984); The Committee for Economic Development Survey of Employer Needs (1984); Department of Education Survey of 101 Executives (1988); Educational Quality of the Workforce National Employer survey (1995); National Association of Manufacturers (NAM) (2001).

The findings from the survey were organisation specific but generally there were some commonalities. The first among the common skills from the seven surveys were the skills that relate to attitude. The second of the common skills were first impressions of the applicants. The last was the recommendations. It was therefore empirically established that the skills employers' demand of employees are those that relate to attitude, first impressions and recommendations.

Method

Study area

The study area was one of the four endowed senior high schools, according to Ghana Education Service (2014) criteria for best schools. Mawuli Senior High School in the Volta region of Ghana was purposively chosen among the four schools which were offering all the seven programmes (out of which the four science related programmes were selected). According to Creswell (2014), purposive sampling is used in so far as it is a good example of what is being studied and so far as it will provide the necessary data as required.

Research design

The study used qualitative paradigm in which interview and conceptual analysis of the science related curriculum was carried out. Five theoretical propositions related to the key issues of the curriculum were also used in the study. The study used a descriptive approach to give a narrative account (Darke, Shanks and Broadbent 1998; Merriam 2001; Robson and McCartan 2016; Yin 2002).

The target population of the study comprised all final year students who were offering the science related programmes at the Mawuli senior high school in Ghana. Some resource personnel of various industries in Ghana were also selected. In all, twelve students and eight industrialists were interviewed. The students constituted those in the excellent position, average position and low performing position. The human resource personnel were taken from fishing industry, estate farm (Agriculture); Centre for Scientific Medical Research and Science Department of a university (Science); Agorwu Furniture and Alizoo Entreprise (Technical Drawing); Catering Services of a university and Forest Hotel, Ghana (Home Economics). So, in all, the sample size consisted of twenty (20) respondents for the interview.

Unit of analysis

The study was guided by four main issues that "determine the appropriate unit of analysis and

number of cases" (Darke, Shanks, and Broadbent 1998, 280). Thus, (1) content analysis formed the first unit of analysis. (2) The employers' rating of the skills in the curriculum formed the second unit of analysis. (3) The skills employers in Ghana usually demand of employees gives the third unit of analysis. (4) The empirical data on the skills employers' demand of employees also formed the fourth unit of analysis.

Data collection instruments

An interview guide and theme generating guide of content analysis were used to gather data from the informants. The interview guide served as a dynamic guide for conversation (Marrie-Lou, Christiane and Jorgen 2011). A theme generating guide of content analysis was also used because there was the need to establish the number and nature of skills embedded in the curriculum.

Data collection procedure

Content analysis, theme generation and interview were used to gather the data. In the content analysis of the science related senior high school curriculum, the syllabus of each of the four programmes namely Agriculture, General Science, Technical Drawing, and Home Economics were analysed with the help of NVivo 8. This helped in establishing the frequency of the various skills of each syllabus. Seidman's (2013) phenomenological interview guide that looks at interviewee's focused life history, details of the experience, and finally, the reflection on meaning derived from the phenomenon was adapted for the interview.

Ethical Issues

Ethical issues were followed and observed during data collection. The students were interviewed personally by the researcher. Before the interview, permission was sought from the Headmaster of the institution. With the help of the Headmaster, the subject tutors assisted in organising the students for the interview. The twelve students were interviewed together, making it a focused group interview. A question would be posed them and each had an equal opportunity to respond. The responses from the interviewees were recorded through permission from

the respondents and at the same time notes were being prepared from their responses. The respondents were told about the confidentiality of the data.

Theoretical Propositions

Theoretical propositions, as used in this study, are statements based on the skills embedded in the curriculum, employers' rating of the skills, the skills employers usually demand of employees and the empirical evidence of skills employers demand of employees. These are outlined in Table 1.

Table 1. Theoretical propositions

Theoretical propositions of the relevance of the senior high school curriculum

Skills embedded in the curriculum

1. The skills in the curriculum embody the cognitive domain.

2. The skills in the curriculum embody the affective domain.

3. The skills in the curriculum embody the psychomotor domain.

Employers' rating of the skills in the curriculum

1. Employers rate the skills in the science related curriculum as relevant.
2. The skills employers usually demand of employees are in the same domain (cognitive, affective and psychomotor) as shown by empirical evidence.

Source: Researcher's construct

Data analysis

With the help of NVivo 8, the data obtained from content analysis were analysed. The identification of the skills was followed by NVivo open coding and categorisation of the skills. This was also followed by the identification of themes (cognitive, affective and psychomotor) and the use of Tree nodes for sub-themes. A final coding of the skills helped in the counting of frequencies. A simple statistical analysis (Microsoft Office Excel) for visual representations – tables and graphics – was also used (Anderson and Aresenault 2005).

In the case of the closed quantitative interview of students, a scale was used to rate the level of students' familiarity with the identifiable skills in the curriculum. Statistical analysis using Microsoft Office Excel was adopted. This procedure of coding the skills was the same for the analysis of the data from employers. The theoretical propositions were also analysed by comparing and contrasting them with the empirical data and this helped to reject or fail to reject the propositions.

Results

The findings of the study were based on the four major concerns raised in the unit analysis. These concerns have been put in the form of guided questions:

Guided question (1): What is the nature of skills embedded in the science related senior high school curriculum? In response to this question, the frequencies of the four science related programmes in terms of the three domains (cognitive, affective and psychomotor) were used. The results through the use of frequencies are presented in Table 2.

Table 2. *Frequency of skills in each of the four science related programmes*

Skills	Frequency of skills in each programme				
	Agriculture	Science	Technical	Home Economics	**Total**
Cognitive					
Knowledge	03	03	01	02	9
Comprehension	08	21	14	74	117
Application	16	31	35	24	106
Analysis	02	02	00	07	11
Synthesis	03	01	00	06	10
Evaluation	07	11	10	06	34
Affective					
Receiving	00	00	00	00	00
Responding	01	06	01	00	08
Valuing	157	101	98	64	420
Organisation	00	00	00	00	00
Characteristics	23	37	14	32	106
Psychomotor					
Reflexive	00	00	00	00	00
Fundamental	00	00	00	00	00
Perceptibility	00	00	00	00	00
Physical ability	01	01	00	01	03
Skilled movement	01	03	02	01	07
Express movement	00	00	00	00	00
Non-discrimination	00	00	00	00	00
Total	**222**	**217**	**175**	**217**	**831**

(Source: Researcher's construct)

Table 2 shows that putting all the skills together, affective domain contains 534 while those of the cognitive domain are 287, with psychomotor domain consisting of 10 skills. The frequencies as shown in Table 2 are visually represented in Figure 1.
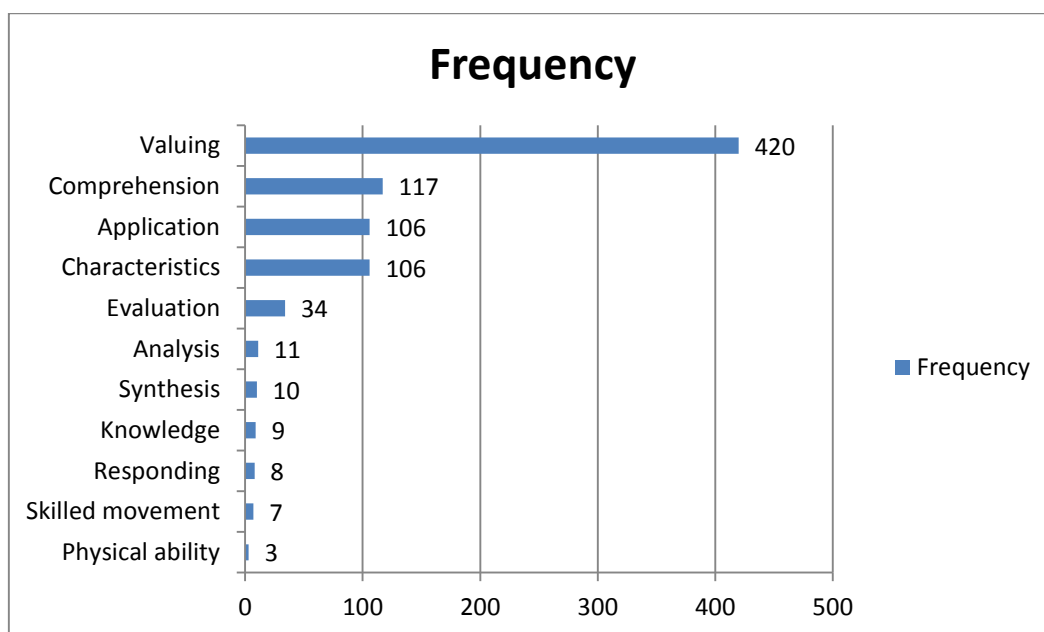
Figure 1. Frequency of skills in the domains of the science related senior high school curriculum

From Figure 1, it can be deduced that most of the skills in the science related senior high school curriculum emphasise the teaching and learning of skills of the affective domain (valuing and characterisation) as against the cognitive and psychomotor domains.

Generic skills of the agricultural programme

The skills of each of the programmes have been embedded in the general objectives of the science related senior high school syllabi (Ghana Education Service 2010). The generic skills of the Agricultural programme were analysed and it was found out that there were in all 27 skills with a total frequency of 222 (100%) (Table 3). Out of this number, the most common skills are the appreciation of all aspects of agriculture with a frequency of 51 (22.97%); recognition skills with a frequency of 50 (22.52%); awareness skills with frequency of 42 (18.92%). The rest of the skills fall below 10% and the least among them are the skills for relation, handling, determining, interpretation, communication, management, maintenance, planning, prediction, designing, performance and exploration with each having a frequency of one (1) (0.45%).

Table 3. *Generic skills of the agricultural programme*

Skills	Frequency of skills				
	General Agric	Animal Husbandry	Chemistry	Physics	**Total**
Appreciation	15	10	01	25	**51**
Recognition	15	11	15	09	**50**
Awareness	15	09	05	13	**42**
Understanding	00	00	13	09	**22**
Acquisition	04	08	00	00	**12**
Application	05	00	02	00	**07**
Development	00	03	00	02	**05**
Utilisation/using	03	00	02	00	**05**
Demonstration	01	00	03	00	**04**
Showing	00	00	03	00	**03**
Adoption	02	00	00	00	**02**
Description	01	00	01	00	**02**
Familiarity	00	02	00	00	**02**

Identification	01	00	01	00	**02**
Communication	00	00	01	00	**01**
Designing	00	00	01	00	**01**
Determining	00	00	01	00	**01**
Exploration	00	00	01	00	**01**
Handling	01	00	00	00	**01**
Interpretation	00	00	01	00	**01**
Maintenance	01	00	00	00	**01**
Management	01	00	00	00	**01**
Measurement	01	00	00	00	**01**
Performance	00	00	01	00	**01**
Planning	00	01	00	00	**01**
Prediction	00	00	01	00	**01**
Relation	01	00	00	00	**01**
Total	**67**	**44**	**53**	**58**	**222**

(Source: Researcher's construct)

The skills, as presented in Table 3, are graphically represented in Figure 2. The figure shows the first ten skills. The highest among them are appreciation, recognition, awareness and understanding.
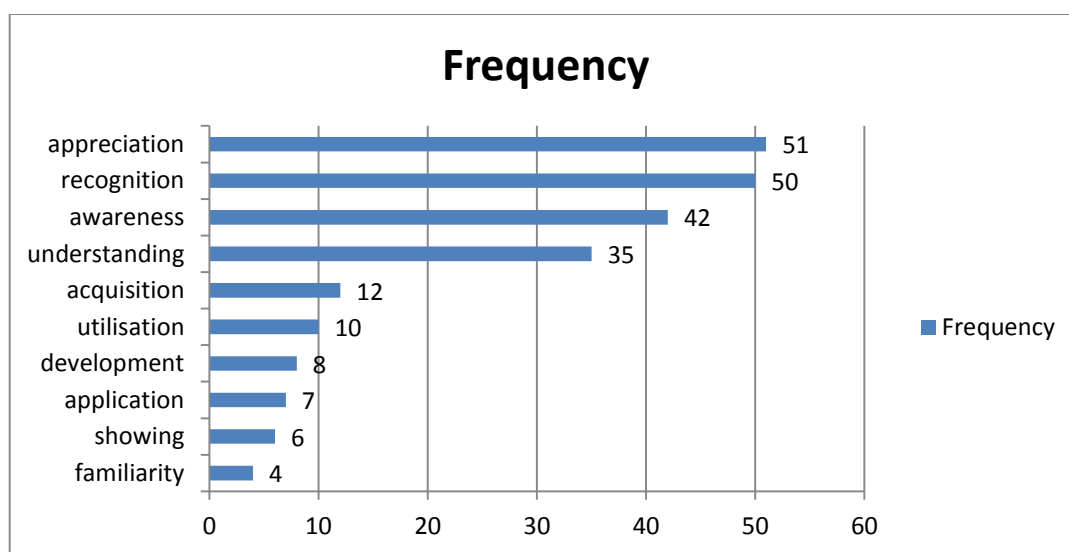

Figure 2. Frequency of skills of the agricultural programme

Generic skills of the science programme

There were in all 34 skills of the science programme with a frequency of 217 (100%). The most common skills were six: appreciation skills 47 (21.66%); recognition skills and understanding skills 36 (16.59%) each; awareness skills 19 (8.76%); application skills 17 (7.83%) and utilisation skills 13 (5.99%). The rest of the skills fell below 3%.

Table 4. *Generic skills of the science programme*

Skills	Frequency of skills per subject				
	Biology	Elective Maths	Chemistry	Physics	**Total**
Appreciation	18	03	01	25	**47**
Recognition	05	07	15	09	**36**
Understanding	14	00	13	09	**36**

Awareness	01	00	05	13	**19**
Application	01	14	02	00	**17**
Utilisation/using	01	10	02	00	**13**
Finding	00	06	00	00	**06**

Table 4 (Continued)

Distinguishing	01	03	00	00	**04**
Calculation	00	03	00	00	**03**
Demonstration	00	00	03	00	**03**
Relation	02	01	00	00	**03**
Resolution	00	03	00	00	**03**
Showing	00	00	03	00	**03**
Ability	01	01	00	00	**02**
Determining	00	01	01	00	**02**
Development	00	00	00	02	**02**
Explanation	00	02	00	00	**02**
Identification	01	00	01	00	**02**
Representation	00	02	00	00	**02**
Acquisition	01	00	00	00	**01**
Assigning	01	00	00	00	**01**
Carrying out	00	01	00	00	**01**
Communication	00	00	01	00	**01**
Description	00	00	01	00	**01**
Designing	00	00	01	00	**01**
Differentiation	00	01	00	00	**01**
Drawing	00	01	00	00	**01**
Exploration	00	00	01	00	**01**
Interpretation	00	00	01	00	**01**
Listing	00	01	00	00	**01**
Performance	00	00	01	00	**01**
Prediction	00	00	01	00	**01**
Solution	00	01	00	00	**01**
Writing	00	01	00	00	**01**
Total	**47**	**62**	**53**	**58**	**217**

(Source: Researcher's construct)

The skills, as presented in Table 4, are graphically represented in Figure 3. The figure shows the first ten skills. The highest of all is the skill of appreciation followed by both understanding and recognition which have the same figure of 36. The skill of awareness is the next highest. The first four highest are skills under the affective domain.
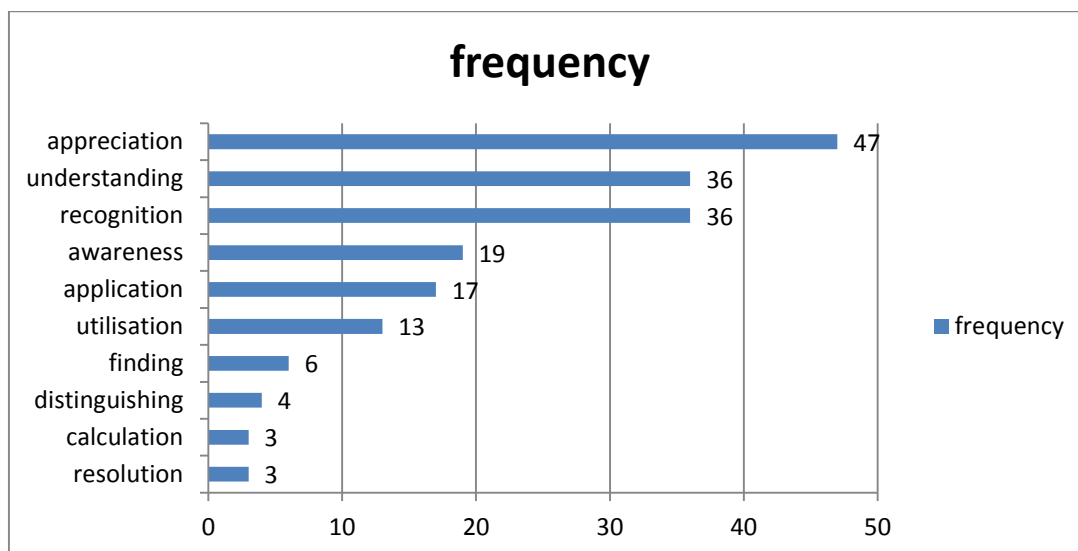
Figure 3. Frequency of skills of the science programme

Generic skills of the technical drawing programme

In the analysis of the Technical Drawing programme, 23 skills were identified. The frequency of the 23 skills was 175 (100%). The most common skills were identified to be appreciation 31 (17.71%); acquisition 26 (14.86%); recognisance 24 (13.71%); application 18 (10.29%); awareness 17 (9.71%); understanding 13 (7.43%); utilisation 10 (5.71%); development 7 (4%) and finding 6 (3.43%). The remaining skills fell below 2% as can be seen in Table 5.

Table 5. *Generic skills of the technical drawing programme*

Skills	Frequency of skills per subject				Total
	Tech. Drawing	Elective Maths	Build. Const.	Physics	
Appreciation	00	03	03	25	**31**
Acquisition	09	00	17	00	**26**
Recognition	04	07	04	09	**24**
Application	03	14	01	00	**18**
Awareness	02	00	02	13	**17**
Understanding	03	00	01	09	**13**
Utilisation/using	00	10	00	00	**10**
Development	04	00	01	02	**07**
Finding	00	06	00	00	**06**
Calculation	00	03	00	00	**03**
Distinguishing	00	03	00	00	**03**
Resolution	00	03	00	00	**03**
Determining	00	01	01	00	**02**
Explanation	00	02	00	00	**02**
Representation	00	02	00	00	**02**
Ability	00	01	00	00	**01**
Carrying out	00	01	00	00	**01**
Differentiation	00	01	00	00	**01**
Drawing	00	01	00	00	**01**
Listing	00	01	00	00	**01**
Relation	00	01	00	00	**01**

Solution	00	01	00	00	**01**
Writing	00	01	00	00	**01**
Total	**25**	**62**	**30**	**58**	**175**

(Source: Researcher's construct)

The skills, as presented in Table 5, are graphically represented in Figure 4. The figure shows a mixture of the skills of affective and cognitive. For instance, the skill of application (cognitive) comes before the skills of awareness and understanding (affective).
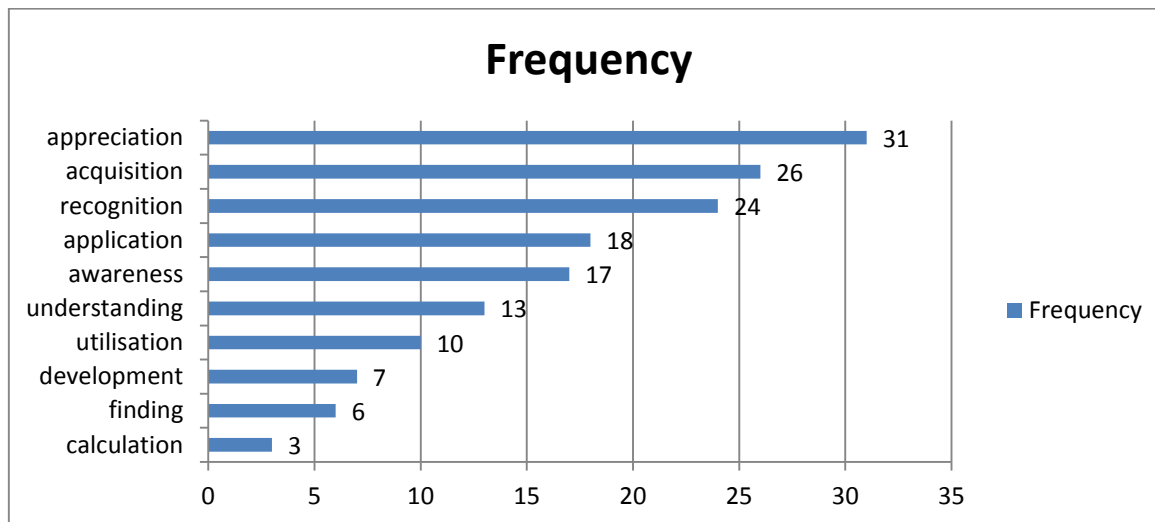

Figure 4. Frequency of skills of the technical drawing programme

Generic skills of home economics programme

When the skills for the Home Economic programme were analysed, 34 of them were identified. These 34 skills have the frequency of 217 (100%). The frequency of each skill was very low because the highest among them included the skills of recognition which comprised 28 frequencies with an equivalent percentage of 12.9; this was followed by the skills of description, understanding and restructuring or reconstitution with the same value of frequency of 22 (10.14%) each; appreciation and awareness with the same value of frequency of 15 (6.91%) each; development 13 (5.99%) and skills for explanation 10 (4.61%). The rest of the skills, as may be seen in Table 6 fell below 3%.

Table 6. *Generic skills of the home economics programme*

Skills	Frequency of skills per subject				
	Management	Food & Nutrition in Living	Chemistry	French	**Total**
Recognition	08	05	15	00	**28**
Description	00	00	01	21	**22**
Speech	00	00	00	22	**22**
Understanding	06	03	13	00	**22**
Table 6 (Continued)					
Appreciation	08	06	01	00	**15**
Awareness	02	08	05	00	**15**
Development	04	09	00	00	**13**
Ability	00	00	00	10	**10**
Acquisition	02	04	00	00	**06**

Communication	00	00	01	05	**06**
Application	02	01	02	00	**05**
Questioning & answ.	00	00	00	05	**05**
Exposure	00	00	00	05	**05**
Expression	00	00	00	05	**05**
Summary	00	00	00	05	**05**
Explanation	00	00	00	04	**04**
Demonstration	00	00	03	00	**03**
Restructuring	00	00	00	03	**03**
Showing	00	00	03	00	**03**
Utilisation/using	00	01	02	00	**03**
Argument	00	00	00	02	**02**
Locating & analysing	00	00	00	02	**02**
Planning	01	01	00	00	**02**
Conservation	01	00	00	00	**01**
Designing	00	00	01	00	**01**
Determining	00	00	01	00	**01**
Examination	01	00	00	00	**01**
Exploration	00	00	01	00	**01**
Identification	00	00	01	00	**01**
Interpretation	00	00	01	00	**01**
Judgement	01	00	00	00	**01**
Performance	00	00	01	00	**01**
Practice	01	00	00	00	**01**
Prediction	00	00	01	00	**01**
Total	**37**	**38**	**53**	**89**	**217**

(Source: Researcher's construct)

The frequency of skills, as presented in Table 6, is graphically represented in Figure 5. Three of the skills after the highest skill of recognition have the same value of frequency. These skills are the skills of speech, description and understanding. The least among the skills are the skills of communication and acquisition. These are graphically shown in Figure 5.
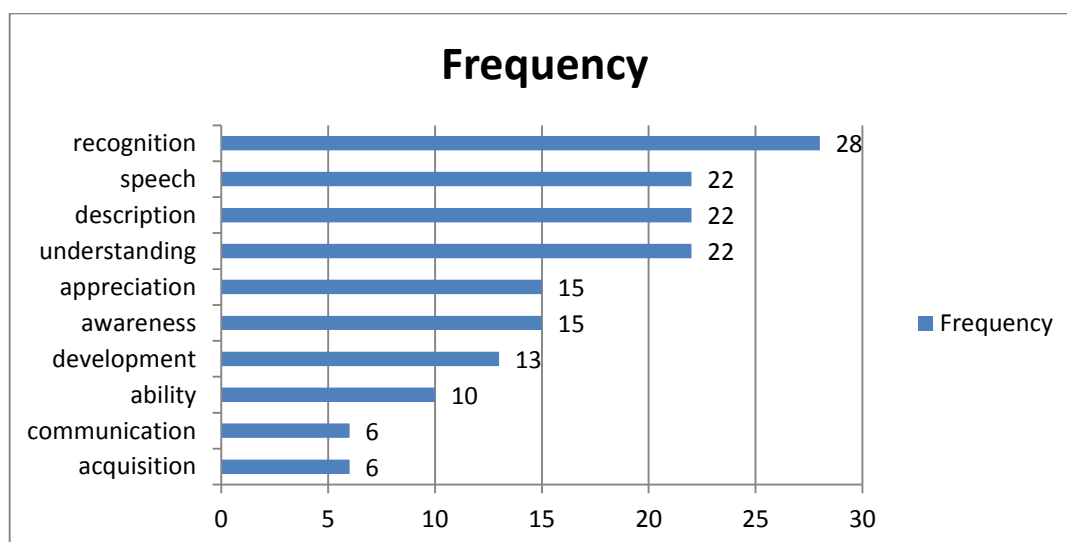

Figure 5. Frequency of skills of the home economics programme

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Frequency of skills of the core subjects

The frequency of skills of the core subjects was added to the frequency of skills of all the four programmes to make each of them a complete programme. The total number of skills of the core subjects was 56 with a total frequency of 178.

Employers' rating of the skills

Guided question (2): What is employers' rating of the skills found in the science related senior high school curriculum? In order to determine the relevance of such skills which were identified through content analysis, the employers, through interview, were asked to rate them using a rating scale of, 'skills not required' [0], 'skills less required' [1], 'skills required' [2], 'skills mostly required' [3] and skills 'highly required' [4] at work places. The findings are presented in Table 7.

Table 7. *Employers' views on the relevance of the skills in the curriculum*

Programmes Companies Total freq. %	No. of Skills	Overall Total	Frequencies	of Employers
Agriculture a) Fishing industry, Cape Coast	27	108	72	67
b) Estate Farm, Valley View University	27	108	77	71
Science a) Centre for Scientific Medical Research, Mampong,	34	136	122	90
b) Science Department, Valley View University	34	136	80	59
Technical a) Agorwu Furniture, Accra	23	92	56	61
Draw b) Alizoo Entreprise, Accra	23	92	67	72
Home a) Catering Service, Valley Economics View University	34	136	65	48
b) Forest Hotel, Dodowa	34	136	67	49

(Source: Researcher's construct)

Table 7 reveals the frequency of skills that employer's rate as required or otherwise at their work environment. The study revealed that there was none of the skills that was rated as 'Not required.' Home Economics was rated below 50%, thus, 67 (49%) while Agriculture, Science and Technical Drawing were rated above 50%. A Doctor at the Centre for Scientific Research into Plant Medicine rated the skills in the Science programme as high as 122 (90%) out of 136 (100%). The Doctor was impressed about the skills in the Science curriculum as he said "*even junior high school syllabus, the kind of things that is there, their science syllabus, the sort of skills or content that is there, if they take time to teach and understand it very well, they are very very valuable.*" Similar comments were made in the other subject

areas meaning that the skills in the curriculum are relevant.

Skills Employers require of employees

Guided Question 3: What skills do employers in Ghana usually demand of employees? All the skills that the employers gave out during the interview were screened through Bloom's (1956), Krathwohl et al.'s, (1964) and Harrow's (1972) taxonomies: Cognitive, Affective and Psychomotor, respectively. The total number of skills that the employers who were interviewed posited to be mostly required at work places was one hundred and eleven (111) (100%). In order to make a clear comparison among these skills, a visual representation of the frequencies is represented in Figure 6.
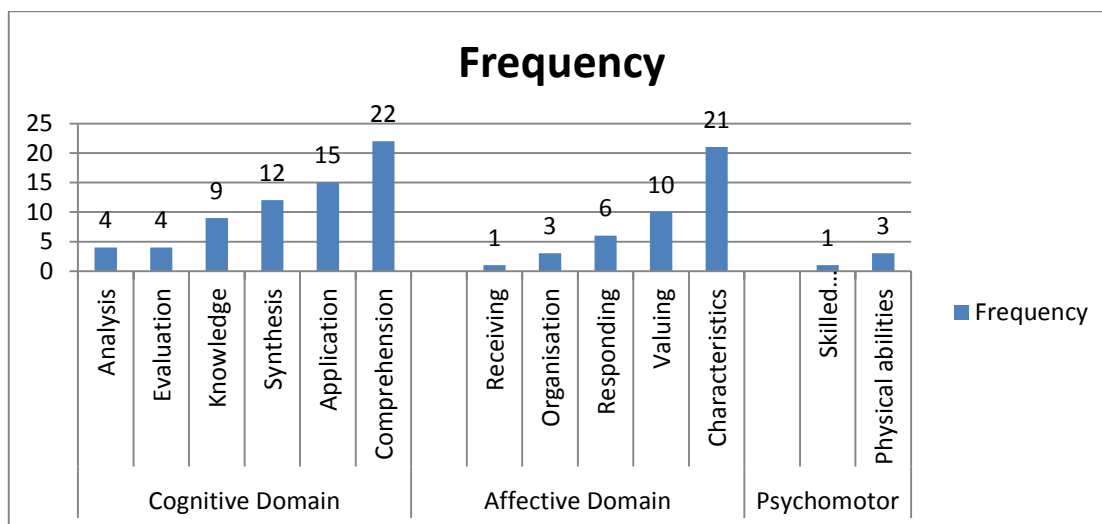
Figure 6. Frequency of skills employers' demand of employees

The skills in Figure 6, according to employers, are the highly required ones at the work place. In all, the affective domain contains a frequency of 41 (36.9%) while the cognitive domain comprises a frequency of 66 (59.5%) with the psychomotor domain consisting of a frequency of 4 (3.6%). It can therefore be concluded that employers demand more of the skills that relate to cognitive domain. In other words, employers require more of the skills that relate to the application of knowledge.

Guided question (4): What do empirical studies reveal to be the ideal related skills for gaining employment? The analysis of the empirical studies carried out by Barton (2006) on the seven organisations revealed that most of the skills required by employers at the work environment are in the affective domain (attitudes, first impressions and recommendations).

Theoretical Propositions (1), (2) and (3): The skills in the curriculum embody the cognitive, affective and psychomotor domains respectively.

The analysis of the data revealed that the skills of the affective domain constitute a frequency value of 534 while that of the cognitive domain contains a frequency value of 287. The skills of the psychomotor have only 10 frequency value. The skills in the science related senior high school curriculum, therefore, embody the affective domain. Theoretical propositions 1 and 3 are therefore rejected but fail to reject theoretical proposition 2

which says that the skills in the curriculum embody the affective domain.

Theoretical Proposition (4): Employers rate the skills in the science related curriculum as relevant.

All the employers interviewed rated all the skills in the science related curriculum as relevant. None of the skills was rated as 'less required' at the work environment. The science related senior high school curriculum is therefore relevant. The theoretical proposition 4 therefore fails to reject.

Theoretical Proposition (5): The skills employers usually demand of employees are in the same domain (cognitive, affective and psychomotor) as shown by empirical evidence.

The empirical evidence shows that the skills employers usually demand of employees are mostly attitudes, first impressions and recommendations which are basically in the affective domain (Barton, 2006). However, the interview of the employers in this current study revealed that the skills employers usually demand of employees are basically in the cognitive domain. The theoretical proposition 5 which says that 'the skills employers usually demand of employees are in the same domain as shown by empirical evidence is rejected because empirical evidence shows that the skills are an embodiment of the affective domain while the employers' data show that the skills are an embodiment of the cognitive domain.

Discussion

In the Agriculture programme, the skills of appreciation had frequency of 51 (22.97%) with the skills of recognisance having the frequency of 50 (22.52%) and that of the skills of awareness being 42 (18.92%). Apart from the skills of understanding that had a frequency of 22 (9.91%) the rest of the skills fell below 6%.

In the Science programme, the three skills, appreciation, recognition and awareness, as observed in the Agricultural programme, were still high as compared to the other skills in the Science programme. For instance, skills of appreciation had a frequency of 47 (21.66%) with the skills of recognition having a frequency of 36 (16.59%) while the skills of awareness 19 (8.76%) fell below those of Agricultural programme.

In the case of the generic skills for the Technical Drawing programme, the skills of appreciation still stood out with the frequency of 31 (17.71); the skills of acquisition 26 (14.86%), however, supersede those of the skills of recognition 24 (13.71%). Again, the skills of application 18 (10.29%) are higher than those of awareness 17 (9.71%). There is therefore a little shift of emphasis on the skills perhaps due to the technical nature of the Technical Drawing programme.

A critical observation of the Home Economic programme revealed yet another drastic shift in the emphasis of skills. The skills of recognition 28 (12.90%) was outstanding. Instead of the skills of awareness 15 (6.91%) and appreciation 15 (6.91%) coming next to the skills of recognisance, those skills of description 22 (10.14%), acquisition 22 (10.14%) and speech 22 (10.14%) of the same values came next.

The skills in the science related senior high school curriculum are mostly an embodiment of the affective domain. This finding is in the same wavelength with Barton's (2006) empirical studies of the seven organisations. Barton found that the skills most employers demand of employees are an embodiment of the affective domain.

The skills that employers demand of employees are at variance with the skills established through empirical studies of Barton's (2006) seven organisations. While the employers in the current study demand skills of the cognitive domain, 66 (59.5%), and the affective domain, 41 (36.9%), the empirical studies reveal most of the skills in the affective domain.

Conclusion

The study was guided by four research questions and five theoretical propositions. The science related senior high school curriculum was found to be dominated mostly with skills of the affective domain as compared with cognitive and psychomotor domains. All the skills in the curriculum were rated as relevant by the employers who were interviewed. It was, however, found that the skills employers demand of employees fell within the cognitive domain as against the affective domain as established by empirical studies. Some of the five theoretical propositions were rejected while others failed to reject.

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