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A Dual Employment among Ghanaian University Graduates?

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Abstract

In the midst of the unemployment problem in Ghana, there also prevails dual employment due to individuals' career preferences, inter alia. The paper first looks at 58 out of 121 self-employers who have once in their lifetime engaged in wage employment and then zeroes in on 41 of the 121 who have now combined wage employment with their own enterprises some of whom are officially recognised. These are mostly graduates who have gone through any of the three pre-enterprise learning channels, namely, the Traditional Apprenticeship Training, the Tema Technical Institute (TTI) and the Kwame Nkrumah University of Science and Technology (KNUST) and who have run their own businesses for at least three years in any of the five trade areas, namely ICT, Electrical Installation, Electrical Rewinding, Carpentry & Joinery, and Tailoring & Dressmaking. The paper finally examines 10 case studies of enterprises belonging to the graduates of KNUST by exploring their background characteristics as well as some underpinning factors in explaining the traversal and their simultaneous involvement in both wage employment and self employment and eventual settlement or hopefulness to settle in the latter. The paper concludes that the tendency to have wage employment alongside one's personal enterprises is higher among university graduates than among those with lower levels of education.

Keywords: Dual employment; Wage employment; Self-employment; Own-account worker; Entrepreneur, National service; Education.

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1.0 Introduction

In the opening words of the ILO report on the Global Agenda for Employment, the importance of *decent work* has been stressed that, “Work is central to people’s lives. Not only do many of the world’s citizens depend on it for their survival, but it is also a source of integration into society, self-fulfilment, and hope for future generation. This makes work a key factor in social and political stability” (ILO, 2001:16). Work nevertheless, has eluded many people worldwide, with developing nations and the sub-Saharan Africa in particular being among the worst affected. Among the various age groups too the youth are mostly the victims, some of whom, even the university graduates, find international migration² for greener pastures, though often non-existent, as their last resort.

Even though reliable data³ is very difficult to come by, the employment situation in Ghana is not too good. A cursory look at some urban centers of Ghana, for example, reveals young people who are itching to get jobs to do, gather in front of some companies and at the harbours very early in the morning till evening, but to no avail. Gone are the days when jobs were readily available in Ghana, paper qualification was a ticket to securing jobs and organisations linked up with the Universities and Polytechnics for academically good students who were in their final years to make arrangement regarding recruiting them after their studies. The reality, however, is different over the last few decades; workers are being declared redundant through downsizing, and the situation is being aggravated by the increasing number of youth who are either leaving or dropping out of school and are struggling to enter into the labour market. For example, from 1992 to 1995, there was a decline in the number of people employed in the public and other state enterprises from 9.3% to 6.4% (Ministry of Employment and Social Welfare, March 1998:6). Besides, a total of 188 companies were privatised under the accelerated privatisation programme by 1998 (Government of Ghana, June 2002:21). In 2002, it was reported that, Ghana had over 800,000 public/civil servants (which was considered the second largest in Sub-Saharan Africa) and government might have to reduce it by over 60% (Business and Financial Times, December 16-21, 2002:1).

It is generally accepted that 26% of the population constituting the youth in Ghana, falling within the age bracket of 15 to 35 years; is largely made up of both unemployed and under-employed young men and women. Factors such as the following have been the result of the current situation:

- Introduction of the Junior and Senior Secondary School systems without adequate planning for integration into the trades/vocations and job placement;
- No linkage of education and training to the needs of the important sectors of the economy (i.e. agriculture, Commerce and industry, etc);
- Near collapse of Ghana’s industrial base due to ineffective management of the divestiture process which resulted in the closure of many factories without a structural transformation of the economy to generate alternative jobs for people;
- Shrinking employment opportunities of the public sector coupled with a relatively slow growth of the private sector; and
- Lack of a coherent national employment policy and comprehensive strategy to deal with the employment problems (GOG, March 2006:1)⁴

According to the Minister for Manpower, Youth & Employment, Honourable Joseph Kofi Adda, “Creating employment opportunities to enable the youth engage themselves productively as well as to prepare for

²For example, this study has found that out of the 40 Electrical and Electronics students of the Kwame Nkrumah University of Science and Technology (KNUST) who graduated in 1994, 16 of them are outside the country, with all in USA except one who is in Canada. Also of the 1996 batch made up of 33 graduates, nine are outside the country with seven in the USA, one in UK and the other in South Africa.

³Basing interventions on unreliable data, I believe is a cause of failure of development programmes in Ghana and other developing nations. It is about proper data management is done in the country to serve as useful source of information.

⁴ “Reliable statistics on the exact nature and the levels of unemployment in Ghana are not readily available as the figures vary from agency to agency and are subject to various forms of interpretations” (GOG, March 2006:1).

their future security has been this government's objective and still remains a commitment to providing jobs for the youth of this country" (GOG, March 2006:v)

In a nationwide exercise that was carried out in November 2001 to register the under-employed and unemployed in Ghana, a total of 950,000 people registered. The rationale for the exercise was to identify the unemployed youth in the country and equip them with employable skills for gainful employment. The programme, Skills Training and Employment Placement (STEP), was initiated by the Ministry of Manpower Development and Employment and entailed a set of interventions for skills training, vocational training, job placement and other safety-net interventions. By gender, this figure was made up of 631,722 (66%) males and 318,278 (34%) females. By level of education, the composition was 60% of Middle School/Junior Secondary certificate holders, 17% of GCE/Senior Secondary certificate holders; 8% of People with primary and technical educational background; 2% of Commercial School certificate holders and 1% of HND (Polytechnics) and Degree holders (figures extracted from Daily Graphic, Issue No. 148487, April 3, 2002: 16-17). The figures may be misleading, in that, some and probably most of the youth might not have registered for various reasons that could include their unwillingness to identify themselves with the unemployed and also their perceived uncertainty of any positive outcome of the exercise. The under-representation of the tertiary graduates, for example, does not mean that they do not have the unemployment problem. As Boateng and Ofori-Sarpong (2002) indicate, a characteristic of the Ghanaian labour market is that every year about 230,000 new job seekers enter the job market, with the formal sector absorbing only 2%. Majority of the unemployed are the graduates from the Universities and other tertiary institutions. Mostly, they often leave the country even though they are better off in gaining access to formal sector employment due to educational deepening that has led to the employment of those with high credentials.

Other initiatives that the Government has taken are the National Youth Fund (NYF), the Presidential Special Initiatives (PSI) and various micro-credit schemes to support small-scale enterprises. Notwithstanding, the effort made is without shortcoming: "While the Government's effort have largely been acknowledged as being a step in the right direction, the problem is still persisting and therefore there is the need for a well-coordinated and integrated national programme which will address the youth unemployment problem in a concerted and much more focused manner" (GOG, March 2006:1-2).

In short, avenues for employment are already choked; the public sector hardly employs and a sizeable number of organizations seem to prefer 'casualisation' and contract labour. The joblessness of the youth may also be attributed to the fact that new employment emphasizes experience, high qualification, and highly skilled jobs in relation to technological advancement, which most of the youth do not readily have. As Phan et al (2001:17) point out, "Technology is always moving ahead creating a new wave of redundancies in its work." The reality too is that university graduates have employment preference as Psacharopoulos and Woodhall (1985:93) indicate that unlike other young workers, those with higher education stayed unemployed longer to explore the labour market apparently because they were more selective and had preference for better job-entry opportunities.

1.1 Higher Education

Knowledge-based competition within a globalizing economy is prompting a fresh consideration of the role of higher education in development and growth. Previously it was often viewed as an expensive and inefficient public service that largely benefited the wealthy and privileged. Now it is understood to make a necessary contribution, in concert with other factors, to the success of national efforts to boost productivity, competitiveness and economic growth. Viewed from this perspective, higher education ceases to contend with primary and secondary education for policy attention. Instead, it becomes an essential complement to educational efforts at other levels as well as to national initiatives to boost innovation and performance across economic sectors (Bloom et al, February 2006:i)

Jee-Peng Tan, Education Advisor of the Africa Region

The role of education and higher education in particular in propelling growth in the less developed economies is gaining maximum attention among various governments and other development partners. Hitherto, primary and secondary education, especially the former, was the focus with emphasis placed on universal primary education, an idea which has strongly occupied the MDG agenda. Bloom et al (February

2006:iii), for example, note the neglect of tertiary education in favour of primary education especially by donor institutions in their development assistance to the Sub-Saharan Africa. They find (higher) education critical as “a leading instrument for promoting economic growth” for Africa for climbing out of poverty (Bloom et al, February 2006)³ They justified their assertion in their analysis thus:

Sub-Saharan Africa’s current production level is about 23 per cent below its production possibility frontier.... given this shortfall, increasing the stock of tertiary education by one year would shift out Africa’s production possibility frontier and increase the rate of convergence to that frontier, resulting in a 0.63 percentage point boost to income growth in the first year and an income gain of roughly 3 percent after five years.... It should also be noted that the boost in the rate of convergence that follows from the additional higher education would diminish as Africa reached the theoretical ceiling. (Bloom et al, February 2006:30)

Other benefits of higher education that they enumerated are improvement in technological catch-up; maximisation of potential to achieve economic growth; acceleration of technological diffusion, decrease in knowledge gap and poverty reduction; creation of greater tax revenue; increased savings and investment for a more entrepreneurial and civic society; improvement in a nation’s health; to reduced population growth, improvement in technology and strengthened governance. (Bloom et al, February 2006:1)

In the same vein, Mama (2004) points out the need to collectively turn to intellectual development for the reversal of global dynamics which have generated Africa’s underdevelopment in that, “...the unfulfilled promise of African intellectual development has been a key factor perpetuating Africa’s underdevelopment”. Such an intervention will necessitate “reclaiming and strengthening of African intellectual work for the pursuit of African interests” (Mama, 2004:2).

With respect to Ghana, Palmer (2005) notes the various educational reforms and Commissions that had taken place since time immemorial in a bid to help solve the problem of unemployment and underemployment but to no avail due to factors like the imbalanced nature of education and training system which focused primarily on primary education at the expense of other sub-sectors at the post-basic level. Nevertheless, “Much hope has been pinned on education as the lynchpin of Ghana’s drive for social and economic development” and “higher education reforms have been designed to tilt the balance in favour of science and technology” with the National Council of Tertiary Education targeted to reverse the prevailing arts and science enrolment ratio of 60:40 to 40:60 (quoted UNDP/ISSER, 2001:10).

In conclusion, universal primary education which over the years has gained much attention is necessary but not sufficient; Ghana also needs highly educated people as drivers of growth and development of her economy.

1.2 Self-Employment, Dual Employment and Higher Education Graduates

Entrepreneurship and business creation are ... a growing alternative for young people whose age group often faces a labour market with double digit unemployment rates. Traditional career paths and opportunities are disappearing rapidly. A growing number of young people are taking up the challenge of starting their own business and much is being learned about how the odds for success can be improved through various types of assistance and through the creation of a supportive environment.

Juan Somavia, Director-General of the ILO (ILO, 2001:31)

The previous section dealt with the move towards adopting a holistic view of education by promoting both higher and secondary education alongside primary education for socio-economic development. The current section considers mapping out employment opportunities for university graduates in Ghana. As mentioned in the earlier pages, university graduates are not immune to the unemployment problems despite the contention that they are better off than those with lower levels of education. They are faced with numerous career and employment choices as they leave school and finish their National Service. These include the choice of leaving the country; fishing out for jobs in the private sector or in the extreme public corporation or at worse in the civil service; branching into disciplines different from what they did at the university based on the perception (at times wrong) that they are more lucrative; taking different courses to make them multi-skilled and increase their employability in most paying jobs; dabble in dual employment and in the very extreme gather the courage to plunge into the sea of self-employment.

Even though, the Ghana Government believes in the private sector as an engine of growth and has been taking some pragmatic steps to encourage private businesses, little attention has been given to exploring the possibilities of helping university graduates go into self-employment right after National Service. The vision of the country appears to have been clouded by the problem of the many young ones with low levels of education or school dropouts who are roaming about the streets especially at the urban centers such that the Government's attention has gone off the need to come up with programmes to encourage university graduates to go into self-employment and create the business environment for their businesses to thrive. Entrepreneurship course has been made compulsory in the nation's polytechnics, introduced at the Ghana Institute of Management and Public Administration (GIMPA) and virtually at all the State's universities either as a compulsory or an optional course. These are niceties but if we leave these graduates alone to find their own level the argument that higher education is necessary for growth and employment creation becomes meaningless and an unjustifiable justification for getting international development partners to direct their finance and other support beyond post-basic education and training programmes. The Economic Commission for Africa (ECA) says that fear and ignorance of policy makers, and the apathy of policy recipients are some of the major factors contributing to the gap existing between policy and implementation in business and investment in Africa (Economic Commission for Africa, June 1996: 9). In the same vein, Adjei in his article, "Educational Reforms: Which Direction now?", remarks, "One disturbing feature of the Ghanaian public is that people talk about issues and point out shortcomings of policies but when it comes to finding the way forward to solving the problems, they are hardly forthcoming" (Adjei, 2002:13).

The need to encourage university graduates to go into self-employment has been noted by Bonsu (1992) who felt the need for Ghana to develop enterprising graduates, encourage the graduates either to seek paid employment in the small and medium-sized enterprises or go into it as self-employers. In the opening of her paper, she put the rhetoric questions: "What do Ghanaian graduate from? And what do they graduate into?" (Bonsu, 1992:140) By making reference to Baar and Keating (1985), she points out how as far back as the post-World War II, industrialised nations began to give attention to graduate development programmes unlike in the less developed nation where the idea seemed not to have generated much concern. Her questions, "Need all graduates go into paid employment? If not, how can those keen on developing their own enterprise be supported early enough to take up the challenges of entrepreneurship before becoming attracted to paid employment?" (Bonsu, 1992:142) become pertinent. She points out the need to emphasize "the circumstance, activities, status, and opportunities through which the potential resourcefulness of graduates for development can be activated at the interface of leaving their institutions of higher learning and settling into employment, self or paid" (Bonsu, 1992:145). Boateng and Ofori-Sarpong (2002:22) on their part indicate that looking at self-employment as an alternative employment opportunity for unemployed graduates requires looking at inhibiting factors such as entrepreneurial skills, start-up capital and the employment preferences of the graduates, that is changing their preferences from the public to the private sector, especially small-scale industry. They cite the study findings of work done by Boateng and Bekoe in 2001 which showed that about 78% of students wanted public sector jobs with just 22% indicating preference for the private sector jobs (including self-employment) even though the public sector was employing 40% of new graduates.

The issue of dual employment has been recognised in some literatures (Long, 2001; Palmer, 2005). Some earlier works on the subject have been done on Ghana but related to farm households which have been cited by Palmer (2005). His references had to do with the livelihood of farm households that have multiple farm, non-farm and off-farm activities and occupations in Ghana which is different from the urban university graduates in dual employment. In talking about occupational pluralism he made reference to Jolliffe's (2004: 290) work on Ghana where Jolliffe found 74% of the farm households with at least a member engaged "in some form of non-farm work". Palmer indicates that "where a household is classified as 'a farming household', or an individual classified as a 'farmer', the diversity of the livelihood for the household or the individual is masked" (Palmer, 2005:20-21). He further made reference to Bauer's work in the early 1950s on Ghana which he quotes as follows:

In the Northern territories of the Gold Coast many farmers spend a substantial part of their time in non-agricultural activities...[in] the colony area of the Gold Coast, the great bulk of the population has other occupations, generally some form of trading, in addition to their main activity [Bauer, 1954:11] (Palmer, 2005:21)

This imperfect specialisation and the importance of secondary activities carried on by members of the household greatly diminish the value and relevance of the conventional occupational classifications of statistical compilations. This fact has not been sufficiently recognized. [Bauer, 1954:12) (Palmer, 2005:21)

According to Palmer (2005:21), the issue now termed as “occupational straddling” was noted by Bauer long before the use of the term and indicates that it was not only farmers that had other occupations. He further points that, “The notion of occupational pluralism, at both the individual and household level, is not new, but is frequently sidestepped in research and policy documents – and, fifty years later, is still not sufficiently recognised” (Palmer, 2005:21)

Long (2001) on the other hand used the term ‘multiple occupation or enterprise’ as feature not only of poor economies but also of some more affluent societies. He defined it as “the simultaneous participation of individuals or groups in more than one branch of economic activity” (Long, 2001:134).

It is intriguing then to look at dual employment in the context of the Ghanaian university graduates as a stepping stone towards becoming fully self-employed. University graduates are equally vulnerable to the problem of unemployment in Ghana. This, therefore, calls for exploring ways of preparing them right from graduation and throughout the National Service period for self-employment with full backing of and support from the government especially.

2.0 Methodology

The study is an exploratory one with focus on finding out the career trajectory of the self-employed graduates from three (3) pre-enterprise learning channels – The Kwame Nkrumah University Science and Technology (KNUST), the Tema Technical Institute (TTI) and the Traditional Apprentice Training (TAT) who have set up their own businesses for at least three (3) years in one of the five trade/industry areas - ICT, Electrical Installation, Electrical Rewinding, Carpentry & Joinery, and Tailoring & Dressmaking. As much as possible, the cohort were selected from people who completed their pre-enterprise learning programme at most 10 years, and in the case of the university graduates, 12 years ago in 2006. Thus, the study is also a tracer one and it relied on sampling frame from the pre-enterprise learning sources. For the KNUST, the congregation brochures from 1994 to 2000 served as the sampling frame from which I got the graduates in ICT and Electrical Installation. For TTI, the principal and the assistant principals of the school provided the list of the graduates who, to their knowledge, did Electrical Installation, Carpentry & Joinery, and Tailoring & Dressmaking. For those from the traditional apprenticeship programme (Electrical Rewinding, Carpentry & Joinery, and Tailoring & Dressmaking.) their ‘masters’ or ‘mistresses’ were consulted for the names of people who have passed out and are working on their own or in dual employment They recollected the names from memory and sometimes with the assistance of serving apprentices and employees.

The study employed the purposeful, quota and the snowball sampling methods in obtaining the respondents. With the assistance of some of the graduates, the university lecturers, masters or mistresses, serving apprentices and employees, the telephone numbers and locations of some of the colleagues or seniors were obtained.

An interview schedule was used in gathering information from 121 out of 160 targeted self-employers who were selected from three (3) cities in Ghana – Accra (the capital city), Kumasi (the second largest city) and Tema (the most industrialised city) which is a few kilometre away from Accra. The graduates from the TTI and TAT were all drawn from Tema and its environs because it was easy to obtain the desired sample size from there. In the case of the KNUST graduates, the sampling was extended from Tema to Accra and later to Kumasi because it was not possible to obtain the sample size from Tema alone.

The main objective of the study is to explore the employment trajectories of the KNUST graduates and examine the factors contributing to the traversal of employment shown in the analytical framework with a view to contributing to policy decisions regarding promotion of self-employment in Ghana and the need for the Government to pay equal if not more attention to university graduates as well.

The paper first looks at 58 (47.9%) out of the 121 self-employers in ICT, Electrical Installation, Electrical Rewinding, Carpentry & Joinery, and Tailoring & Dressmaking who have once in their lifetime engaged in wage employment and then zeroes in on 41 of them, mostly KNUST graduates, who have now combined wage/paid employment with their own self-employed enterprises and examined the differences among them with reference to their background characteristics using non-parametric techniques (e.g. chi-square). In addition, through the use of case studies, the paper examines 10 of the KNUST graduates' career and employment trajectories by examining some underpinning factors in explaining their simultaneous involvement in both wage employment and self employment and eventual settlement or hopefulness to settle in the latter. One of the cases, that concerning Ericus, has also been examined in detail in a more narrative form.

In this study, the term dual employment is defined as one's involvement in both wage employment and self-employment jobs simultaneously. Self-employment concerns working for one's self. A self-employer may be an own-account worker (i.e. working alone without an employee(s) or an entrepreneur (i.e. working with employee(s). In either case, they may or may not have apprentice (s) or people on attachment in addition.

3.1 Analysis Part 1

The analysis is done in two parts. Analysis Part 1 focuses on exploring possible relationship among the groups using descriptive statistics whereas Analysis Part 2 looks in detail the career and employment histories using the case study approach in order to find out how the respondents' enterprises evolved. The 121 graduates are in self-employment and from three learning channels, namely, the Kwame Nkrumah University of Science Technology (KNUST), the Tema Technical Institute (TTI) and the Traditional Apprentice Training (TAT). As presented in Table 1a below, out of this number, a slight majority 63 (52.1%) started working on their own, 16 (13.2%) started with dual employment (that is combination of self and wage employment) and the rest, 42 (34.7%), with only wage employment. Of the 63 (52.1%), 18 (43.9%) have traversed into dual employment now. Contrarily, among the 16 (27.59%), three (3) have traversed into self employment now. Finally, among the 42 (34.7%), 32 (40.0%) of them have gone into self-employment only and the remaining 10 (24.4%) are into dual employment. Thus, at present about a third, 80 (66.1%), of the 121 are involved in only self-employment whereas the rest, 41 (33.9%), are in dual employment. The observed differences are statistically significant (0.000). This is presented in Table 1.

Table 1a: Starting Employment Status by Present Employment Status

Present Employment Status	Starting Employment Status			
	<i>Wage Employment Experience</i>		Self-Employment	Total
	Wage Employment	Dual Employment		
Self Employment	32 (40.0%)	3 (3.8%)	45 (56.3%)	80 (100.0/66.1%)
Dual Employment	10 (24.4%)	13 (31.7%)	18 (43.9%)	41 (100.0/33.9%)
Total	42 (34.7%)	16 (13.2%)	63 (52.1%)	121 (100.0%)

An examination of the difference among the various pre-enterprise learning channels in relation to their involvement in dual employment revealed that, there is a statistically significant difference (0.000) showing that a larger proportion of graduates from the highest level of pre-enterprise learning channels engage in dual employment than those from the lowest level. The reverse also holds for self-employment; a large proportion, 20 (48.8%), of those in dual employment are from the University (KNUST) learning channel, followed by those from the TTI (15 or 36.6%) and finally those from the TAT (6 or 14.6%) (see Table A1 at the Appendix).

Another level of the analysis as shown in Table 1b below indicates that, generally, a larger proportion (10 or 83.3%) of the KNUST graduates started with dual employment and is still in it. However, among those who started as self-employers, a large proportion (5 or 55.6%) is now in dual employment whereas there is no difference in the case of those who started with wage employment; an equal proportion of them are now in either self-employment or dual employment.

Table 1b: Starting Employment Status by Present Employment Status by Pre-Enterprise Learning Channel

Present Employment Status		Starting Employment Status			
		Wage Employment Experience		Self-Employment	Total
		Wage Employment	Dual Employment		
KNUST	Self Employment	5 (50.0%)	2 (16.7%)	4 (44.4%)	11 (35.5%)
	Dual Employment	5 (50.0%)	10 (83.3%)	5 (55.6%)	20 (64.5%)
Tema Technical	Self Employment	9 (90.0%)	1 (25.0%)	19 (65.5%)	29 (65.9%)
	Dual Employment	1 (10.0%)	3 (75.0%)	11 (36.5%)	15 (34.1%)
Apprenticeship	Self Employment	18 (81.8%)	-	22 (99.7%)	40 (87.0%)
	Dual Employment	4 (18.2%)	-	2 (8.3%)	6 (13.0%)

Unlike the KNUST graduates, the situation is slightly different from those from the other learning channels. In the case of those from the TTI, a very large majority (9 or 90.0%) started in wage employment but are now in self-employment. Besides, a large proportion of them who started with self-employment (19 or 65.5%) are still in it. Similar to those who started with dual employment, most them (3 or 75.0%) are still in dual employment. In the case of the Traditional Apprenticeship Training graduates, none of them started with dual employment and the majority of those who either started with self-employment or wage employment are still in it. The observed differences occurred among all the channels are not statistically significant.

By disaggregating the data, it showed that among those involved in dual employment, a large proportion (53.7%) of them are graduates from the university, polytechnic and teacher training with 48.8% of them coming from the university. Those from the technical and senior secondary school/Form 5 constitutes (31.7%) with the former making up the entire number, and finally those from Vocational Institutes/or with Vocational Certificates and those with Basic Education or got to a level of basic education or secondary school but did not complete (14.6%). The observed difference is statistically significant (0.001). (See Table A2 in the appendix).

The next stage looks at comparison of the type of job that the 58 did in wage and self-employment and how that relates to their learning channels. Of the 49 (100.0%) whose job in wage and self employment were the same, majority (20 or 40.8%) of them were from the university (KNUST), followed by graduates from TAT and then technical school (TTI). Of the 7 (100.0%) whose job in either wage or self-employment were different, virtually all (6 or 85.7%) of them were from the TAT, and the rest (1 or 14.3%) from the TTI. None of them came from the KNUST. Lastly, the 2 (100.0%) doing related⁵ jobs were all from the university KNUST. The observed difference among the groups is statistically significant (0.026). Thus, the likelihood of engaging in a job in wage employment which is related to or the same as one's professional job in self-employment is related to the level of education (see Table A3 at the Appendix). This is also confirmed where none of the university graduates did a wage employment job different from that of the self-employment job, though the observed difference is not statistically significant. (See Table A4 at the

⁵ The two university graduates did degree courses in electrical and electronic engineering but they did information technology jobs, which forms part of the university courses, in the wage employment.

Appendix). Furthermore, majority of those who did the same or related jobs were in ICT and Electrical Installation. This observed difference is not statistically significant (0.060). Marsden (1990:12) states that "...modern African entrepreneurs tend to set up business in fields with which they are familiar, either through family upbringing or work experience. They avoid great leaps in the dark" (See Table A5 at the Appendix).

By examining the type of trade whose practitioners have experienced wage employment, the analysis showed that a larger proportion of them are in ICT and Electrical Installation⁶ followed by Electrical Rewinding, then C&J and finally by T&D. These could be due to the insignificant number of large T&D enterprises or Fashion establishments which provide employment in the country. Viewed from another angle, a smaller proportion (25 or 39.6%) of those in ICT, Electrical Rewinding and Electrical Installation did not have wage employment experience than those from the traditional trades (C&J and T&D). The observed difference is statistically significant (0.015). (See Table A6 at the Appendix). Similarly, most of those involved in dual employment are in Electrical Installation (34.1%) and ICT (29.3%). The observed difference is statistically significant (0.001) pointing that involvement in dual employment is trade-related and involved most of those in the ICT and Electrical Installation trades. Boateng and Ofori-Sarpong (2002:2-3) find oversupply of Ghanaian graduates who did arts and humanities and undersupply of those in engineering, accounting, medicine, information technology and management. (See Table A6 at the Appendix).

Regarding gender, overall, there were more males (101 or 83.5%) than females (20 or 16.5%). A larger proportion of the males (40 or 97.6%) got involved in dual employment than females (1 or 2.4%)⁷. Even with self-employment, females still have lower representation. The observed difference between the groups is statistically significant (0.006).

Analysis by the number of years in business showed that, a larger proportion of self-employed businesses which are 3-4 years old tend to belong to the dual employment category, followed by older enterprises, 5-6 years old and finally the oldest, 7-10 years old. The observed difference is not statistically. The trend may have to do with the fact that, most of the university graduates start their employment journey with dual employment

In conclusion, the first employment destinations of the graduates differ and change overtime, with graduates with more years of formal education especially those from the university going into dual employment than those with less number of years. It can also be deduced that, the higher the learning channel, the more likely it is to do the same or related job (normally of the skilled type). This is also so with the trade areas; more of those in ICT and Electrical Installation are more likely to do the same or related job whether in wage employment or self employment than those in other trades – rewinding, tailoring and dressmaking, and carpentry and joinery.

⁶ All the ICT trade practitioners are graduates from the KNUST whereas the Electrical Installation trade is made up of both the graduates from the KNUST and the TTI

⁷ The only female who is in dual employment was a teacher by profession before going to the TTI for a course in Tailoring. After completion, she had to go back to school to continue her job. At KNUST more males were computer science and electrical & electronic engineering than females. For example, from the 1997 congregation brochure, 33 people graduated in electrical & electronic engineering with only 3 being females. From the 2000 congregation brochure those who graduated in computer science were 55 made up of 46 males and 9 females. For electrical & electronics, 44 graduated with 38 being males and 6 females. From the 2002 brochures, 72 graduated in electrical and electronics made up of 61 males and 11 females. For computer science, 121 graduated with 98 being males and 23 females

Employment Creation

The study also looks at the different types of self-employment – entrepreneurs and own-account workers, and their involvement in dual employment. Majority (31 or 75.6%) of the own-account workers⁸ are involved in dual employment. With self-employment too, most (43 or 53.8%) of them are own-account worker. The observed difference is statistically significant (0.033). On one hand, the result is expected since most of the university graduates start with dual employment by using the wage sector as a stepping stone to beef up the private enterprises later. On the other hand, one would have expected more of the entrepreneurs to be in dual employment than the own-account workers since the former needs employees to hold the fort for them when they attend to their wage jobs.

From Table 2 below, all the self-employed KNUST graduates (11 or 100.0%) are entrepreneurs whereas a large proportion of them who are in dual employment now (11 or 55.0%) are own-account workers. Generally, however, close to two-thirds (20 or 64.5%) of the university graduates, whether in self-employment or dual employment are entrepreneurs. The observed difference is statistically highly significant (0.008). In the

Table 2 Type of Self Employment by Pre-Enterprise Learning Channel

		Type of Self-Employment		Total
		Own-Account Worker	Entrepreneur	
KNUST	Self-employment	0%	11 (100.0%)	11 (100.0%)
	Dual Employment	11 (55.0%)	9 (45.0%)	20 (100.0%)
	Total	11 (35.5%)	20 (64.5%)	31 (100.0%)
Tema Technical	Self-employment	17 (58.6%)	12 (41.4%)	29 (100.0%)
	Dual Employment	14 (93.3%)	1 (6.7%)	15 (100.0%)
	Total	31 (70.5%)	13 (29.5%)	44 (100.0%)
Traditional Apprenticeship	Self-employment	26 (65.0%)	14 (35.0%)	11 (100.0%)
	Dual Employment	6 (100.0%)	0%	6 (100.0%)
	Total	32 (69.6%)	14 (30.4%)	46 (100.0%)

case of TTI and TAT, a larger proportion of all those in either self-employment or dual employment are own-account workers. For TTI, the observed difference is statistically significant (0.041).

Being an entrepreneur is as important as the number of people one has been able to employ. Over half (20 or 64.5%) of the university graduates have so far employed 137⁹ people, the minimum number employed being two (2) and the maximum being 19. The entrepreneurs from TTI (13 or 29.5%) have employed 32 people and lastly, those from the TAT (14 or 30.4%) have so far employed 31. These observed differences are statistically significant (0.003).

By trade¹⁰, the 14 (70.0%) entrepreneurs in ICT have employed 103 people, whereas those from Electrical Installation (11 or 37.9%) have employed 44 people and the 12 (40.0%) entrepreneurs in tailoring and dressmaking have employed 25 people. Finally, the 10 (37.0%) entrepreneurs in carpentry and joinery have employed 28 people. The observed differences are statistically significant (0.014). The age of the

⁸ One possible explanation of the high figure of own-account workers in dual employment, which emerged from the discussion with them (mostly the university graduates), is that some employ people on contract to work with when they get jobs, especially big contracts. Of the 10 entrepreneurs, 2 (two) of them have 2 (two) employees each; another two (2) have 4 (four) employees each, another 2 (two) have 5 (five) employees each; 1 (one) has 3 employees, another has 6 (six) employees and another has 7 and another 1 (one) has 10 employees. In addition, 2 of them were having 2 apprentices each and 1 person was having 1 apprentice. One person was also having 2 interns and another person was having 3 interns. Among the own-account workers too, 3 of them had an apprentice each, one of them had 2 apprentices and another person had 3 apprentices. However, none of them had interns by the time the interview was being carried out. The interns spend a few months and leave for school.

⁹ This is excluding the 9 additional hands that Ericus has employed recently.

¹⁰ There is no entrepreneur among those in the rewinding enterprise.

entrepreneurs' enterprises may influence the employment creation of the various trades. Sixty-five per cent (13 or 65.0%) of the ICT enterprises are aged 5 to 6 years. For those in the electrical rewinding and electrical installation, 8 (53.3%) and 16 (55.2%) respectively are aged 3 to 4 years. A large proportion of the tailoring & dressmaking (14 or 46.7%) and carpentry and joinery (11 or 40.7%) enterprises are 7 to 10 years. The observed differences are statistically significant.

Own-account workers constitute bulk of those in both dual and self-employment. Besides, most of the entrepreneurs are university graduates whereas most of those from TTI and TAT are own-account workers. Thus, job creation can be said to be associated more with university graduates (in self-employment) than those from the other learning channels.

Reasons for Self-Employment and Wage Employment

Reasons for going into self-employment have also been explored. Each respondent was to give three most important reasons for going into self-employment and rank them. From the multiple responses, 'Making more money' emerges as the most important reason followed by "independence" and "bringing out creativity". The least was "lack of wage employment". "Making more money" was the first most important of the set of first reasons. Besides, "bringing out creativity" was the first most important of the set of second reasons, and "independence" and "training others" were the first most important of the set of third reasons (See Table B1 at the Appendix)

The first three reasons for self-employment given by the own-account workers somehow differ from those of the entrepreneurs. Among the own-account workers, the most dominant reasons given are "making more money" (18 or 58.1%), "for independence" (16 or 51.6%) and "training others" or "bringing out creativity" (14 or 45.2%). For the entrepreneurs, "job security", "passions for the trade" and "bringing out creativity" (6 or 60.0% in each case) were the first three most important reasons given. Thus, the motivation for going into self-employment of the two groups differs to some extent.

The people who are at present in dual employment were asked for their reasons for going into wage employment.¹¹ All of them gave a reason each with the exception of 9 (100.0%) who gave a second reason. These 9 turned out to be the university graduates. A look at the first reasons indicate that a little over 2/3rds (68.3%) of the respondents have financial motive for taking up the wage employment job, that is to raise additional funds either for themselves or as additional capital to support their self-employment businesses. The next important reason was to gain exposure/experience/professional development (14.4%). The least reasons were "fear of unknown" and "doing the job I started first". For the second set of reason given by the 9 (100.0%) university graduates, a large proportion (7 or 77.8%) of them gave "gaining exposure/experience/professional development" (See Table B3 at the Appendix).

Further analysis of the first set of reasons shows that a larger 'proportion (13 or 46.4%) of the University graduates than any other graduates gave the reason, 'raising income for self/as capital'. This applies also to the reason, 'exposure/experience/professional development' (5 or 83.3%). The observed difference was statistically significant (0.010). (See Table B4 at the Appendix).

In relation to the type of self employment, both the own-account workers (23 or 74.2%) and the entrepreneurs (5 or 50.0%) do not differ regarding their motivation for self-employment in that a higher proportion of each group had a financial motive "raising income for self/as capital". This is with respect to the first set of reasons. The second set of reasons (given only by the university graduates) also showed that, both groups had the same motivation for self-employment – that is for "exposure/experience/professional development". The differences were however not statistically significant.

¹¹ This has nothing to do with which employment type was started first, self-employment or wage employment.

(Dis) satisfaction with Self-employment

Among those in dual employment, a slight majority (17 or 41.5%) of them are at least 'satisfied' with their self-employed businesses. A few (10 or 24.4%) are "fairly satisfied" and a little above a third (14 or 34.1%) are "not satisfied". Their reasons for satisfaction or dissatisfaction are as listed with "limited time given to the job" and "inability to make the business reach the desired level" being the dominant reasons (for dissatisfaction). In all, a little over half of them (22 or 53.7%) gave reasons that were negative* than positive (19 or 46.3%). These negative reasons were given by those who were at least "fairly satisfied" (see Table B1 at the Appendix).

Business Registration Status¹²

In all, 49 (40.5%) of the businesses are "not noted", that is either "registered" at the Registrar General's Department or recognised by the Assembly or/and the Internal Revenue Services (IRS). Of the remaining 72 (59.5%) 44 (36.4%) of them have registered at the Registrar General's Department and the 28 (23.1%) are "noted" by the Assembly or/and the IRS. Among those involved in dual employment, a little more than half (23 or 56.1%) are not noted, a little over a third (13 or 36.6%) are registered at the Registrar General's Department and 3 (7.3%) of them are noted by the Assembly or/and the IRS. The observed difference is statistically significant (0.005).

Most of those in dual employment who have registered their self-employed businesses are those in the ICT (75%) followed by those in the electrical installation (42.9%). A larger proportion of those whose businesses are noted are those in the T & D (50.0%) business. None of those who are in C & J trade has either registered the business or has his business noted. The observed differences among the groups are not statistically significant.

The graduates from the university dominate (70.0%) the proportion of those in dual employment who have registered their self-employed businesses. Besides, all university graduates who have gone into self-employment only have registered their businesses. This is not the case of those with other levels of education. For example, all (100.0%) those with basic education/JSS/MSLC have not even had their businesses noted. A larger proportion (66.7%) of those with NVTI Certificate or attended vocational school has their businesses noted than that of any other group. The observed differences occurred by chance.

Among those in self-employment, a larger proportion of the entrepreneurs (23 or 62.2%) have registered their businesses and 25 (32.4%) have been noted by the Assembly. With the own-account workers, only a few (6 or 14.0%) have registered, 13 (30.2%) noted, and the majority (24 or 55.8%) have neither registered nor been noted. Similar trend pertains to those involved in dual employment. Almost all (9 or 90.0%) of the entrepreneurs have registered with only one enterprise neither registered nor noted. Among the own-account workers, majority (22 or 71.0%) of the business have neither registered nor been noted; 6 (19.4%) have been registered, and the rest (3 or 9.7%) have been noted. These observed differences are statistically significant (0.000). Though the figures appear insignificant, the few entrepreneurs who have not registered their businesses should be an issue of concern as this may have effect on the quality of employment and the nature of contractual agreement struck between the entrepreneur and the employees.

In sum, financial motive is generally found to be the main reason for going into self-employment, followed by "independence" and "bringing out creativity". These motivations somehow differ between the own-account workers and the entrepreneurs, with financial motives being stronger for the former and "job security", "passion for the trade" and "creativity" for the latter. "Lack of wage employment" is the least important reason for going into self-employment, thus raises a lot of concern regarding the often held notion that people go into self-employment because of lack of wage employment. Generally, a larger proportion of those in dual employment are at least fairly satisfied. The reasons, "Limited time for the self-

¹²All businesses are to be registered with Registrar General Department before operation but some businesses have not. Among those which have not some are have been reached by the Tema Municipal Assembly [or the Internal Revenue Service and pay taxes or levies.](#)

employment job” and its related effect, “inability to make the business reach the desired level” are the dominant one for dissatisfaction. Financial motive has been also the main reason for taking up wage employment job among those in dual employment, and both the own-account workers and entrepreneurs. For the university graduates especially, “raising income for self/capital” and “gaining exposure/experience/professional development” are strong. Regarding business registration, the university graduates are least found wanting.

Parental Education Background

The highest level of education of the parents of those in dual employment was also analysed. Among the KNUST graduates, 8 (40.0%) of fathers have tertiary education – polytechnic, first degree, second degree or institute of professional studies. the same proportion of fathers had basic education. Concerning their mothers, about a third (6 or 30.0%) of them do not have any formal education, and a little of a third (7 or 35.0%) have basic education. Among the TTI graduates, about a half (7 or 46.7%) have their fathers with basic education and a quarter (4 or 26.7%) with secondary or vocational education. Regarding their mothers most of (46.7%) had basic education and 6 (40.0%) do not have any formal education. About those from the TAT, most fathers (5 or 83.3%) and mothers (5 or 83.3%) have basic level of education.

Even though, most parents of those from TTI and TAT do not have education beyond the basic level unlike the university graduates, the observed differences are not statistically significant.

Summary

Dual employment was higher among graduates those from the Kwame Nkrumah University of Science & Technology (KNUST) than those from Tema Technical Institute (TTI) and the Traditional Apprenticeship Training (TAT). Specifically, most of those with university education or more years in education find themselves in dual employment and they tend to do the same or related job in wage employment as in self-employment unlike those with less number of years in education who do different jobs. These University graduates are those who did ICT and Electrical Installation. Wage employment within the dual employment has become a transit point for entry fully into self-employment as entrepreneurs especially among the university graduates who also tend to employ more hands than the other graduates.

The findings also showed that most of the University graduates took on wage employment in order to first, raise income for themselves or to support their business as capital and second, to gain exposure or experience or professional development. These findings that graduates take wage employment in order to accumulate savings or to get work experience to either start their own enterprises raises a lot of concerns. The point also seems to be that the tendency to have wage employment alongside personal enterprises is higher among university graduates than among lower level of education. In the words of Palmer, “In order to start a business in the formal sector, entrepreneurs have to traverse numerous, and continuous, barriers. Entrepreneurs need sufficient start-up capital, social and business contacts, an ability to deal with changing information, conform to regulations and deal with other formal institutions such as banks. Those with only basic education would find this hard to do” (Palmer, 2005:89) and Haan (2003:111-112) writing on the informal sector points out that, “It would appear that only few apprentices appear to start their own business immediately upon completing their TAT period.” “A typical career path passes through a number of years of wage employment – in a workshop in either the formal or the informal sector” (Haan, 2003:111-112). However, in this study graduates from the higher formal learning education start with wage employment or dual employment than those from the TAT. This may be due to their age at which they complete the training; they may be too young for people to entrust them with their job. If anything at all, those who conducted themselves well during training will have the chance of being employed by their masters/mistresses. Baah-Nuakoh (2003:132-133) finds that after their training, apprentices worked as paid employees for sometimes in order to gain some experience and accumulate enough savings and may then decide to start their own enterprise. Concerning apprentice “Therefore, the informal sector can serve as a fertile training ground for indigenous entrepreneurs who may later want to graduate into the formal sector”

(Baah-Nuakoh, 2003:132-133). But as has been pointed out by this paper, the few apprentices in dual employment also end up as own-account workers in full time self-employment

Different reasons may be given to this. One reason could be that graduates from the lower levels of education have a few opportunities to gain wage employment because of their trade areas – tailoring & dressmaking, carpentry & joinery and electrical rewinding – than the university graduates. Also, the market in the ICT and electrical engineering is still booming in Ghana especially as people and organisations have and are becoming more and more aware of their importance, it appears easy for one to go into them. Findings by Boateng and Ofori-Sarpong (2002:2-3) indicate that there is oversupply of Ghanaian graduates who did arts and humanities, but undersupply with those in engineering, accounting, medicine, information technology and management. Another reason could be that the University graduates want to go fully into self-employment ‘big’ or with all seriousness which will require having at least some necessary resources in place and therefore need funds to set themselves up as an enterprise. Palmer (2005:89) finds that creation in the private economy of Ghana is done by majority of people with post-basic education and training.

Concerning the reasons for self-employment, ‘making more money’ emerges as the most important reason followed by “independence” and “bringing out one’s creativity”. The least was “lack of wage employment” which raises a lot of concern regarding often held notion that people go into self-employment because of lack of wage employment. However, among those in dual employment, a slight majority (17 or 41.5%) of them are at least ‘satisfied’ with their self-employed businesses. A few (10 or 24.4%) are “fairly satisfied” and a little above a third (14 or 34.1%) are “not satisfied”. Their reasons for satisfaction or dissatisfaction are “limited time given to the job” and “inability to make the business reach the desired level” being the dominant reasons (for dissatisfaction). In all, slightly a larger proportion of them gave reasons that were negative (22 or 53.7%) than positive (19 or 46.3%). These negative reasons were given by those who were at least “fairly satisfied” with their businesses.

A larger proportion of the university graduates who are involved in dual employment enterprises have registered their self-employed businesses likewise all those in self-employment only. In other words, the University graduates tend to register their enterprises.

Finally, most graduates from the TTI and the TAT have basic level of education unlike those from the KNUST the observed differences are not statistically significant.

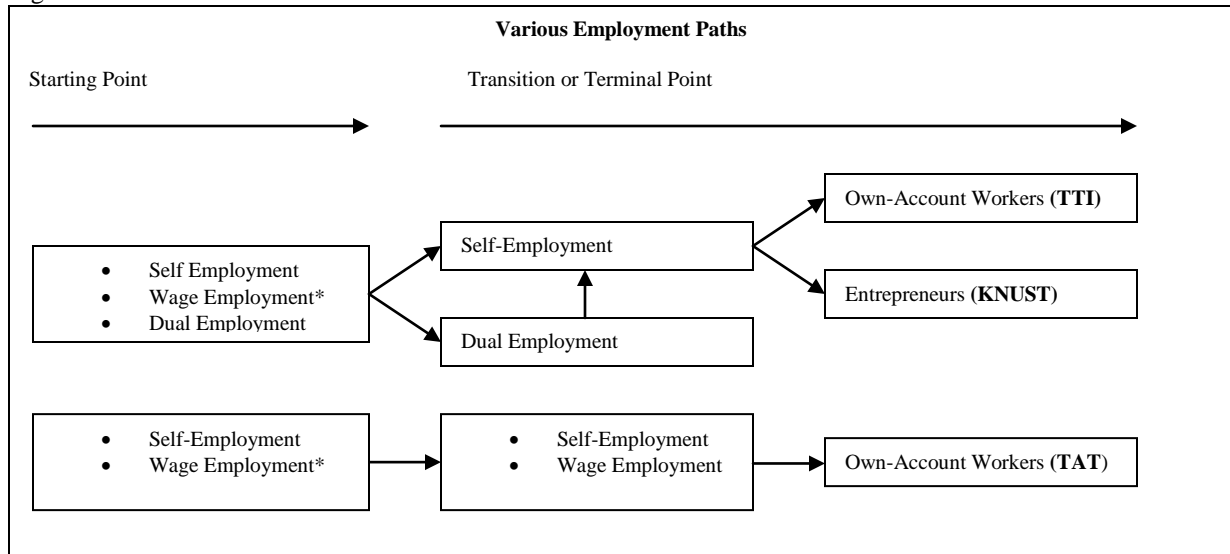
Employment Paths¹³

From the analysis, it can be established that the employment paths of the three groups of graduates with respect to their pre-enterprise learning channels and their motivation for self-employment differ. Two employment paths can be established. One for those from the formal learning channels (KNUST and TTI) and those from the informal learning channel (TAT).

¹³ This path is still under construction and will be improved upon probably by using the Capabilities and the Sustainable Livelihood Approaches.

Various structures may enable or constraint the job and/or business decisions of these individual actors to opt for the paths that they follow. This sets the stage for the analysis in Part 2.

Figure 1



Author's Construct

*Starting with wage employment is virtually negligible for TTI and TAT graduates. Also, among the TAT graduates, negligible number of them actually starts with self-employment and then goes into dual employment

3.2 Analysis Part 2

The analyses above have shown that of all the graduates from the three pre-enterprise learning channels with different levels of education, the tendency to be involved in dual employment was high among the University graduates (KNUST). Analysis 2, presented in a matrix is a synoptic presentation of key features of case studies by looking at the processes and the factors accounting for or contributing to the traverse into wage employment, dual employment and self-employment of 10 enterprises of the KNUST graduates.. Six of the 10 are in dual employment and 4 have gone through dual employment and finally settled into self-employment. Besides, Ericus’s case has been presented in a narrative account, tracing his career history in order to bring out other insightful issues.

	<p>Ericus</p> <p>I had a very high quest for how machines and systems work to the extent that I became very destructive. I remember asking how human beings could enter radio and talk all day. Since nobody could fully satisfy my curiosity I ended up destroying the radio. ...My parents had to declare anything electrical, electronic and mechanical for safe keeping.</p> <p>My science teacher at the University Primary School had a difficult task explaining to my level of understanding why the propeller could not rotate at the same speed in water as in air...By the time I got to Secondary School Form 5, I could repair televisions, videocassette recorder and could construct audio power amplifiers, pre-amplifiers, graphic equalisers, loud speakers, electronic lighting system, transmitters and simple radios. I developed from a destructive child to a productive young boy.</p>
Background	<p>These opening sentences depict Ericus’s career aspirations from around the age of 3 in 1971 to his present career destination, a journey driven first and foremost by his technical capabilities which won him the admirations of people and institutions he came into contact with in life. Although born into somehow an educogenic family, he did not enjoy much from his father’s educational and professional attainments for his competence development, a deficiency that has to be made up for by others who acted in loco parentis.</p>
Childhood Creativity	<p>Ericus was born in 1967. He is an entrepreneur with 13 employees at present. He registered his Company – MAFEC – soon after completing his University Diploma at the University of Science and Technology (UST), now KNUST. The business focuses on PLC/Controllers, Automation (Process Control Engineer) Instrumentation, Power Utilisation, Protection & Control, Electronics, Drives, Telecommunication and Training.</p>
Broken Home	<p>In his formative years, he started making some toys e.g. he construction a motor cycle with its supporting frame mad of binding wires, the tyres made of empty “robb” containers, the headlight made of a ‘pepsodent’ container head with plastic cover and the body of the cycle out of the aluminium foil used to make the ‘pepsodent’ container. This happened when he was with his parent at an age of 7 or 8 years. Through this the parent identified his technical capabilities and resolved to let him pursue technical education in future.</p>
Broken Home	<p>Ericus enjoyed the parental care until he reached the age of 14 by which time he was in Primary 7when the parent’s marriage broke up. Life for him turned sour when he had to stay with the father and the step mother due to what he claimed ‘being treated more or less like a houseboy’. Nevertheless, from his stay with them the step mum’s senior brother who was a civil engineer by profession took interest in his works and started monitoring his technical progress although did not support him financially. He was not cut off completely from his biological mother and he visited her during school holidays where he learnt from a lot of virtues – human relations, hardworking,</p>

<p>Secondary School Days and Economic Activities</p>	<p>patience, understanding, and honesty, as well as the need to be creative – important behaviours which later on helped him in his life and work. As the saying goes, “<i>Oba k_o awar’ a, <u>o</u>dze ne na k_o”</i> literally translated as “A woman goes into her marital home accompanied by the skills she acquired from her mother”.</p> <p>During his secondary school education from Forms One to Five, the mother was taking good care of him, encouraged him to learn more about engineering and the maternal auntie also supported him financially in that direction. Up to somewhere 1985/86, the mother was involved in an accident and could not support him any longer. No financial support also came from anywhere. Living circumstances forced him to be fending for himself. While at the Tema Secondary School he made lighting system e.g. disco lighting systems, amplifiers and speakers for sale at the Tema Community One market where electrical components were sold. It was on one of the occasions that the owner of the She Club in Tema pumped on him and found his product to be of good quality and therefore requested one to be installed at the Club. His association with the Club intensified as he continued doing electrical and electronics jobs from. The distance between the school and the Club was a walking one and that made it easier for Ericus.</p> <p>After Secondary Form 5, he wanted to spend the holidays with the mum but the dad kicked against the idea and instead introduced him to his friend who was then a Director of Aviation to take him for an attachment. Though a trainee there, he was assigned jobs as if he was a fully qualified staff. He was also given a lot of private jobs that generated a lot of income for him and out of which he bought soldering iron and a drilling machine which he added to a multimeter he made out of a scrapped galvanometer at the workshop. While there too he designed an amplifier and some Churches which used to send theirs there for repairs found his designs better and developed interest in them.</p> <p>He furthered his studies to the Sixth Form at the Koforidua Secondary Technical School and had to depend on the skills that he had developed to continue fending for himself. At that time he was able to repair TV and radio sets, watches and generally, all about electrical and electronics. He also repaired students’ electrical irons etc for a fee.</p>
<p>1st National Service</p>	<p>After the Advanced level, he did his first National Service at the then National Energy Board, now Ministry of Energy as Enumerator on improved charcoal stove project. He combined it with design, construction, installation and maintenance jobs for individuals and some few firms. At the end of the service, he had acquired some skills on scientific data gathering and some level of analysis and field works.</p>
<p>Polytechnic Education</p>	<p>At the end of the Service, he branched to Polytechnic because he could not obtain the grades that could take him straight for a degree course in electrical engineering at the University. Besides, the Diploma at the University required an Advanced Level grades and subject combinations that he was not having. Over there, he gained more knowledge and confidence and could do more theoretically and practically; he could design a lot of simple systems from <i>first principles</i> without copying circuit diagram from books and magazines. His curiosity for mechanical systems was satisfied and he saw tremendous improvement in his electro-mechanical designs and construction.</p>
<p>2nd National Service</p>	<p>After the Polytechnic and his final National Service as a physics tutor at the Likpe Secondary School, he gained an admission to the KNUST to pursue a Diploma in electrical/electronic engineering and at one time the university posted him to the Mechanical Lloyd for an attachment during holidays. The treatment meted out to him, according to him was not the best. He was made to wash and clean things by the</p>

<p>University Diploma and Business Registration</p>	<p>people that he was to report to. “It got to a point I felt I had to prove a point that though I might look like a trainee alright but was actually an expert. So I decided to take up the challenge to design a prototype in order for them to stop dealing with me that way”. He demonstrated his designs to the surprise of management who encouraged him to continue. After proving that he was not a novice, the management made him lead engineering projects. He gained a lot of exposure in all aspects of auto electrical problems.</p> <p>During the University Diploma, he joined the Engineering Students Association as an active member and benefited a lot through networking. He became very close to his seniors, juniors and his own mates. They also formed electronic and electrical engineering clubs within the Association and held exhibitions during which Ericus exhibited his own designs, thereby making his seniors appreciate his capabilities so much so that they solicited his guidance during their project works. It was through this that he became close to Etwire, a senior of his, who also has a similar business.</p> <p>Ericus registered his business after his University Diploma. Though he was more interested in engineering design and construction, his close relationship with the customers made him gradually changed his focus to satisfying the customers’ needs more than the engineering challenges which were becoming interesting to him.</p> <p>“Behind every successful man is a woman”, so goes the adage. The wife, a graduate in the Arts (English Language etc) at the University of Ghana helped him in his write ups. With some initial coaching, she was able to test the products (e.g. fridge protectors) for him. While running the business in Accra, he also started his degree programme at the UST in Kumasi. He was producing fridge and air-condition protectors and stabilisers for sale in Accra and has to be covering a journey of about three hours. The brother-in-law, the wife’s senior brother assisted him by putting his car at his disposal for rounds from Accra to Kumasi. In addition, provided him an office space in Accra where he has his business transactions.</p>
<p>Education and Industry Linkage</p>	<p>In the third year of his degree course at the University, one Mr Abelho who was then the Country Manager of AB&B went to the campus to meet the head of the Electrical Engineering Department and demanded for first class students for attachment programme and also to help undertake a project in his company in Accra. According to Ericus, though he was not among the first class students, he was the first to be picked because of his practical skills. At an interview with Mr. Abelho in Accra, he made Ericus work under him and that started a relationship between them.</p> <p>The Management of AB&B after ascertaining his capability assigned a lot of projects to him and was so pleased with his performance that they gave UST free PLC and Variable speed drive. They also fully sponsored his degree project, which was automating a generator set and transfer switch, using PLC. “AB&B deals in all kinds of electrical products and I seized the opportunity to be abreast with new technology. They also gave me a free hand in PLC, control variable speed drive and instrumentation projects”.</p> <p>In addition, Mr Abelho, worked it out for him to join them every holiday and also negotiated with Ericus the possibility of either joining them when he finished the UST or taking subcontract on condition that he was able to restructure his private company.</p>
<p>Competition over Competence</p>	<p>By the time he completed the university another organisation – Iran Bro also competed for him around the same time but he had preference for AB&B because of the challenging nature of their job. However, the first offer could not materialise because the mismanagement at the place did make it prudent to be employed there and take over the headship of the Engineering Team as was initially agreed on; he</p>

<p>Role Model and Mentor</p>	<p>therefore opted for the second offer.</p> <p>The step mum’s brother, a mentor and role model, as usual had advised him to come out with products that were of necessity and customers would find inevitable. Ericus had produced an Automatic Water Control System after his Diploma and through introduction by the step-mum’s brother, Mr Ashia, to two engineering colleagues and partners in a solar energy company, they tested him on solar technology, equipment design, and systems integration and then offered him a spacious office free of charge but on condition that he would accept free shares in their company to become a partner and serve as their technical director whilst pursuing his own private business for AB&B. In addition, he received some monthly allowances. He also introduced him to some consultants to demonstrate his product to them. That was the time that the Ghana Government was very much concern about the Adenta water problem but the sanitary engineering of the project were not able to deliver the water because of some hitches. Ericus explained his approach to one of project engineers who found it useful and in turn introduced him to the services engineers to explain to them as well. They showed interest and according to Ericus wanted to take his blueprint and bypass him to execute on their own and therefore declined to give it to them.</p>
<p>Association and Networking</p>	<p>He joined the Ghana Institute of Engineers (GHIE) after the degree course at the University but he did not find the Association helpful because of the seeming apathy there and also the large number of people who were members. “You hardly get the sort of help you want. I got some journals but social networking was nil. It is this time that it has been re-orgnised and the chances of benefiting in future are there”. To him, he has rather benefited from the Ghana Solar Energy Society because of the ongoing exchange of ideas.</p> <p>He also exchanged ideas with his friends like Etwire and Bonsu. Some of the difficulties they encountered in their work actually challenged him to learn more. Etwire was a member of the Club at the university and was working with the Mobitel after University before setting up his own enterprise. Mobitel had serious problems with its rectifiers and through his recommendation management contacted Ericus for solution on condition that he would meet a required standard – have a workspace. The brother-in-law came to his aid and offered his building to enable him take up the job.</p>
<p>Workspace</p>	<p>As the years rolled on, he rented a building in Accra through a friend for \$170 a month. This friend’s friend had rented a whole property from a Lebanese landlord and was having difficulty with payment so he introduced Ericus to him and the three shared the premises. However, just recently (2006) the landlord started putting up a structure on the existing one without employing a structural expert and the walls started developing some cracks. For security reasons, Ericus had to vacate the premises.</p> <p>Accompanied by his wife, they combed the whole of Accra looking for any suitable property to rent and finally found one in Achimota at a new filling station. The second floor to this building was under construction and Ericus had to complete it by designing it to suit his business’s purpose. All together, he had to pay C120million including a 10-year good will of C60m which he raised from his own business proceeds. He has made some investments with some financial institutions and uses some to finance his projects. Any money he withdraws is setoff against this investment. As such he has never borrowed or attempted to borrow from the banks.</p> <p>Through his association with the elderly like Mr. Ashia, he learnt a lot from their mistakes and their good practices. As a result he became very cautious in his dealing with banks because of their unattractive interest rates. He also became cautious of customers who did not settle their debts. “If I find that you are not being professional</p>

<p>Enterprise Strategies and Performance</p>	<p>in your dealings, I stand aside for you to try others. If you later on find out that you need my services, then you come back; I believe in principles”.</p> <p>This new building is very appropriate because currently his operations have changed and need a bigger place. Now they are absorbing all the engineering services of Coti for the whole of Greater Accra Region by taking up all the engineering and other related works for them. This has also increased the workers’ numerical strength from 4 to 13. The owner of the filling station has struck a deal with them to fuel his 6 cars. Besides this building, he has also gotten a workshop nearby belonging to one of his worker which he took over on better terms – for Ericus to complete and use.</p> <p>According to Ericus, his business has survived as a result of the niche that he has carved – developed a product (or service) that makes him compete with expatriates. Their strength and uniqueness lie in their ability to handle engineering problems that would normally require the intervention of expatriates. “Our confidence over the years has been sustained by the quality and timely delivery of our product and services to our valued clients, which have kept them in business and saved most of them from spending hard earned cash on foreign experts”</p> <p>Assessment of the business performance revealed that he is “Satisfied” with the business. The reason being that after operating in 10 years, they have exceeded their target – in terms of number of clients and customer satisfaction and subsequently the clients have been receiving recommending him to prospective ones. In addition, they experienced an increase in the number of his employees; interns; and profit.</p> <p>Business Challenges (ordered):</p> <ul style="list-style-type: none"> • Problem of availability of components and equipment readily in stock; • High tax level – not making us competitive; • Inefficiency of utility system – electricity, water and postal services <p>Business Success indicators (ordered):</p> <ul style="list-style-type: none"> • Increase in the number of customers or increase in volume of work. • Increase in income or volume of sale or profit. • Business expansion – acquisition of fixed assets e.g. machines workshops. <p>Reasons for going into self-employment (ordered):</p> <ul style="list-style-type: none"> • Passion for the trade and interest • Bring out my own creativity • Train others <p>Practices and Creativity:</p> <p>To this, Eric has this say,</p> <p style="padding-left: 40px;">Right from the first principle, we learn that energy cannot be created or destroyed; it can only be transferred from one form to the other. So I have been laying emphasis on those fundamental principles. So right from the fundamental principles I realise that before any electrical gadgets will fail, there must be an excessive energy to cause the damage, and that excessive energy electrical energy will be transferred into heat. So it make me device a means of identifying potential problems before they even become a problem in the industry. One of my tools is a thermal gun, used to read temperature which I came up with, using my fundamental principles to monitor electrical and mechanical devices. It made troubleshooting in the industry very fast. With this device, I am able to assess a situation in a big factory within 15 minutes.</p>
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Some useful comments made by him are quoted below:

With manufacturing, I had to compete with most Chinese products, even imitation. You also need a lot of capital to go into manufacturing. The items are cheaper than the component parts we buy. In the services, I only need the state-of-the-art tools and skills. For now, I concentrate on customised manufacturing – parts to help organisations make their equipment operational, especially where the need to import the parts has serious downtime implications. Also we have huge marketing problems. People have the notion that made-in-Ghana goods are not good.

I marketed a company and I started manufacturing products that even outclassed those from the advanced nations. I also targeted top managers by allowing them try my products in their homes and compare with those imported e.g. switch protectors. So the managers got to know the performance of the product which competed with the imported ones, so they had gained confidence in me – which at first was difficult for them to believe.

I am against employing a family member. If I have one, I will rather send him or her to a colleague to employ because in Ghana, our understanding of family is different – extended system where the family members have so much influence. If you employ them some of them misbehave. If you want to deal with them professionally, then the family interferes with the business which should not be the case. Though, I have never had a personal experience, my step-mother's senior brother – a consultant – has given me his idea. A family member must understand that business issues must be dealt with at the office and not home and that I should not be reported to my uncle to come in. If it is my own children, then I can call a spade a spade and there will be no one to interfere.

Synoptic Presentation of Key Features of Case Studies of 10 KNUST Graduates

Name	Enterprise – Registration & Focus	Career Aspiration & Destination Pre-University & Opportunity	Attachment & Opportunity	National Service & Opportunity	Wage Employment & Opportunity	Self Employment Business, Social & Family Networks & Support	Parental Background
<p>Ericus</p> <p>Born in 1967.</p> <p>He is in self employment</p> <p>An entrepreneur with 4 employees</p>	<p>MAFEC</p> <p>Registered the business soon after completing his University Diploma.</p> <p>Focus is on Automation (PLC/Controllers), Instrumentation, Power Utilisation, Protection & Control, Electronics, Variable Speed Drives, Telecommunication & Training.</p> <p>But he started by producing custom-made stabilizers, fridges, freezer and air-conditioner protector for companies and individuals</p> <p>Started the business with simple tools he was using while schooling e.g. power analyser, mega, oscilloscope, signal generators, thermal gun et. He has acquired in addition 2 lap top computers, one desk top computers, a printer and a small generator.</p> <p>First started operating from his house and used communication center to make and receive his business calls. Then got a free office from through ABB, then rented two rooms for \$170 a month in Accra.</p>	<p>Eric aspired to be an engineer and ended as such. This aspiration began in 1971 when he was barely 3 years old. He had a very high quest for how machines and systems worked to the extent that he became very destructive – dismantling gadgets to find out how they were made.</p> <p>Repaired television sets, video-cassette recorders, constructing audio power amplifiers, pre-amplifiers, graphic equalisers, loud speakers, electronic lighting system, transmitters, and simple radios during GCE ‘O’ Levels to raise some money to support himself.</p> <p>Had attachment at the Ghana Civil Aviation Authority Radio Workshop after GCE ‘O’ Level. He was given private jobs in addition to raise some money for himself</p> <p>First he went to the Polytechnic to do OTD – Electrical and Mechanical; then University Diploma and Degree in Electrical & Electronic Engineering)</p>	<p>Had internship with Lloyd during University Diploma holidays</p> <p>He gained a lot of exposure in auto electrical from there</p> <p>Had internship also with the AB&B Ghana Limited during University Degree holidays. AB&B fully sponsored his project.</p>	<p>Started working in designing, construction, installation & maintenance jobs for individuals during 1st National Service with National Energy Board</p>	<p>Met Mr. Ashiagbor and his colleagues at a Solar Energy Company who made Eric a technical director, gave him free shares and monthly allowance; a free office space for him also to do his private job for AB&B.</p> <p>Eric had another wage employment opportunity to be employed at Irani Brothers Limited turned the offer down. This company is one of his biggest clientele</p>	<p>Started generating money right from secondary education through some repair and construction of electrical and electronics works he was doing</p> <p>The step mother’s brother and Mr. Ashiagbor monitored his technical progress</p> <p>Soon after registering his business, a friend at Mobitel alerted him of problems with their rectifiers. To meet a required standard to undertake the job, a brother-in-law offered him his building</p> <p>One Mr. Albeho – then ABB Country Manager made him work with them during University holidays</p>	<p>His father had master’s degree</p> <p>The mother had vocational /secondary</p> <p>Both started as wage earners and later as self employers</p>
<p>Kweku Asmah</p> <p>Born in 1971</p> <p>He is in Self employment</p> <p>An entrepreneur with a staff strength of 13</p>	<p>Process and Plant Automation Ltd.</p> <p>Registered in 2003</p> <p>Focus is on industrial automation; instrumentation and control services and projects; and electrical engineering services.</p> <p>He started with an employee, an amount of C350000, a desktop and a laptop computer, a colour printer, a few electrical tools e.g. multi-meter, screwdrivers and pliers. Now has in addition, calibrating instruments, test instruments, flow meters, PLC, 2 scanners, a photocopy machine, and a fax machine and a few vehicles.</p> <p>Operates in a 3-bedroom rented building converted into 3 offices, 2 store rooms, and a training room.</p>	<p>Asmah initially thought of following the medical profession of some of his uncles as a medical doctor. This changed because of subject combination during advanced level.</p> <p>He ended up in electrical and electronic engineering, a career he had a strong flair for during his childhood days and was practising on.</p>	<p>Had internship during University holidays with Soundz Advice where he learnt to repair electronic gadgets</p>	<p>Did the National Service after University degree at Oman Fofor, an IT firm where he did repairs.</p> <p>He turned down the offer to be employed there after his Service and rather worked on his own for 10 months</p>	<p>Whilst working on his own he was employed at National Cash Register (NCR) Customer Service Engineer for 2 years but got another job at Unilever Ghana Ltd for 4.5 years 1st as an Instrumentation Engineer and later as an Engineering Services Manager. He stopped his private job when at Unilever because of the exigencies of the work which took much of his time</p> <p>Opportunity came at Unilever for someone to represent Rockwell Automation, an American Company to promote their business in Ghana as its distributor and system integrator. Asmah accepted it and resigned from Unilever</p>	<p>When working on his own after Omam Fofor, most of his customers who were his friends helped the business to collapse because they were buying on credit and did not settle their indebtedness</p>	<p>The Father had master’s degree and mother first degree.</p> <p>Both parents are wage earners</p>

Name	Enterprise – Registration & Focus	Career Aspiration & Destination Pre-University & Opportunity	Attachment & Opportunity	National Service & Opportunity	Wage Employment & Opportunity	Self Employment Business, Social & Family Networks & Support	Parental Background
<p>Francis Adjei-Mensah</p> <p>Born in 1968</p> <p>He is in dual employment</p> <p>An entrepreneur with 7 employees, 4 apprentices and 2 trainees on internship programme</p>	<p>Juaben Adjei Business Center</p> <p>Registered business</p> <p>Focus is on computer applications – hardware and programming.</p>	<p>Did GCE 'O' and 'A' level physics, mathematics and geography to be in the military due to his admiration of some top military personnel in the country.</p> <p>He went to KNUST to do Diploma in Data Processing. He applied to enrol in the military but he was disqualified. He later on went back to the KNUST to pursue a Degree course in Computer Science after working for sometime.</p>		<p>Did 2 years Service as a teacher in the basic school after Advanced level studies. Did final Service as a Service Coordinator in Amansie West District</p>	<p>Employed after final Service first at BAE-Com Ltd - as a computer instructor and later a manager for 2 years. Here, he learnt DOS programmes e.g. lotus, WP, publisher, quarto pro, Dbase III-IV, word star etc.</p> <p>The self-employment interest started here when he started writing manuals on computer lessons for sale for himself.</p> <p>He later on joined Interoc Ghana Ltd, a mining firm where he worked as a System Analyst or Programmer for 6 years until the Company finished its surface mining contract in Ghana</p>	<p>Some clients of BAE-Com Ltd introduced him to Interoc Ghana Ltd.</p> <p>Started his own computer school, trained 2 brothers to man it whilst he shuttled between Interloc Ghana Ltd and his private job.</p> <p>Brothers had wage employment and left his private business so he trained a young man to ran the business and he started his degree course at the KNUST, shuttling between school and private business</p>	<p>The father had a basic education and is in dual employment;</p> <p>The mother had no formal education is an own-account worker</p>
<p>Enoch Currie-Arthur</p> <p>Born in 1973</p> <p>He is in self-employment</p> <p>An entrepreneur with 3 employees</p>	<p>Whitsuns Computer Sytems</p> <p>Registered the business</p> <p>Started operating in a room of his apartment as an office for 2 years and with one (1) desktop computer. With no printer, he did his printing work at the Busy Internet Café, a communication center.</p> <p>He later converted his 3-bedroom boys quarters attached to his rented premises for accommodation into an office and charged it to the company every month. He now has 6 desktop and 3 laptop computers, one photocopier, and colour printers.</p>	<p>Aspired to become an accountant and did accounting at the Advanced level and started the Institute of Professional Studies but did not find the accounting challenging.</p> <p>His ability to programme the calculator of his Advanced level teacher made the teacher advised him to read Computer Science at the KNUST which he did</p>	<p>Had 10 months internship training at the Bentsi-Enchill & Letsa Data Center when the Universities were on strike. He also worked with them during holidays.</p>	<p>He served his National Service</p>	<p>He worked with the Bentsi-Enchill & Letsa Data Center for 2 years before going on his own. Whilst there a client requested for a software development which the Organisation could not deliver because it necessitated changing its structure. "I went the backdoor to offer the service to the client. The transaction called for registration of my business, issuing of invoices and cheque transactions. This compelled me to set up the business at the time".</p>	<p>Was an own-account worker whilst still in wage employment but later resigned and concentrated fully on his self employed job.</p>	<p>The father had a basic education, the Middle School Leaving Certificate</p> <p>The mother had no formal education.</p> <p>Both are own-account workers.</p>

Name	Enterprise – Registration & Focus	Career Aspiration & Destination Pre-University & Opportunity	Attachment & Opportunity	National Service & Opportunity	Wage Employment & Opportunity	Self Employment Business, Social & Family Networks & Support	Parental Background
<p>David Oppan</p> <p>Born in 1974</p> <p>He is in dual employment</p> <p>An entrepreneur with 2 employees</p>	<p>IT Planet Consult</p> <p>Registered the business 8 years after being in existence</p> <p>Focus is on graphic design, web development, software development, sales, and training and consultancy.</p>	<p>David had an aspiration to be an aeronautic engineer but could not gain admission to any University abroad so ended up at KNUST to pursue a degree in Computer Science</p>	<p>Had 3-month attachment with Ananse Systems during University holidays. The immediate boss had his private business besides and that was David's source of motivation to go into self employment.</p> <p>He also understudied someone in Noggins Ltd, a private IT firm in his sophomore after classes</p>	<p>He did his 1st National Service after 6th Form as a teacher in a Junior Secondary School.</p> <p>He did the final Service after KNUST Juaso District Assembly</p>	<p>Had wage employment first at SAG Systems as a software developer and deputy manager.</p> <p>He later left for SOS Hermann Gmeiner International College as an IT tutor to date</p>	<p>The mother got him a desktop computer and a printer in his sophomore with which he started a private business on campus focusing on computer graphics & desktop publishing, type setting, photocopy and comb binding.</p> <p>The younger brother who was with him during the final National Service assisted him in running the business</p>	<p>Both parents had polytechnic education and are into wage employment</p>
<p>Martin Awuah</p> <p>Born in 1967</p> <p>He is in dual employment</p> <p>An own-account worker</p>	<p>Marmic Electrical Engineering Services</p> <p>Registered the business with a friend as a partner but not a limited liability company</p> <p>Focus is on maintenance and installation of machinery</p>	<p>His aspiration was to be an electrical engineer through the inspiration he had when he understudied master craftsman staying in his neighbourhood where he learnt to repair household electrical gadgets, and did house wiring and electrical installation during secondary schools holidays. Thus, his pursuit of electrical and electronics degree at the KNUST</p>	<p>Had internship with the Nestle Ghana Ltd whilst at the KNUST</p>	<p>Did 1st National Service after 6th Form as a teacher in a Junior Secondary School & final one after KNUST at the 49 Engineer Regiment, Ghana Armed Forces at the electrical section</p>	<p>Worked with X'cel Engineering Services – a consultancy firm for 4 months whilst waiting for the final National Service Postings. The interest in self employment was born in this organisation.</p> <p>Worked with the Bank of Ghana (Computer Services Department) for 2 years after final Service. While there, assisted his partner in their private business after close of work and on weekends. Lack of due recognition by the Bank made him end them in his 4th year</p> <p>Employed again at Promasidor Ghana Ltd and later Fan Milk Ghana Ltd as an Electrical Engineer</p>	<p>Following his interest in self employment, he started a business with a friend using the latter's basic tools like screw driver, multi-meter, set of pliers, etc.</p> <p>They hired other tools like drilling machine and mega for their work.</p> <p>In their 3rd year of operation, he broke up with his friend and his came to a standstill.</p> <p>His portion took off again about 4 years ago In 2006.</p> <p>He contracts people to work with when he gets a contract</p>	<p>The Father had a basic education up to the Middle School Leaving Certificate and is in wage employment</p> <p>The mother had no formal education and is an own-account worker</p>

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<p>Kofi Amosah</p> <p>Born in 1970.</p> <p>He is in dual employment</p> <p>An own-account worker</p>	<p>The business is not yet registered</p> <p>Focus is on system integration e.g. instrumentation and controls.</p>	<p>Had an aspiration to be an electrical engineer when he met an employee of the Electricity Corporation of Ghana doing an installation work as his private business.</p> <p>The man who advised him to pursue Electrical & Electronics degree course at KNUST after his Advanced level education which he did</p>	<p>During the University holidays, he had 2 months internship programme with the Facol Roads Ltd where he learnt about signalling and systems (Traffic Light)</p>	<p>Did his 1st Service at the Swedru Secondary School at the science laboratory.</p> <p>He did the final Service with the Volta Aluminium Company (Valco)</p>	<p>Valco employed him soon after the Service as a Specialist Electric Engineer.</p> <p>Through Valco, he has been able to get into contact with some clients for his own enterprise</p>	<p>He started doing his private job whilst still at Valco but on low profile until Valco was shut down due to change of ownership structure and energy crisis and he went fully into his private business. When things normalised at Valco he was recalled and has since been doing the two jobs.</p>	<p>The father had a basic education, started as a wage earner and later into self employment.</p> <p>The mother had a basic education and is an entrepreneur</p>
<p>Benedictus Atitsogbui</p> <p>Born in 1970.</p> <p>At the time of the interview he was in dual employment but has now into self employment only</p> <p>An entrepreneur with 5 employees</p>	<p>RayCom Technologies Ghana Ltd.</p> <p>Registered the business when it was 3 years old and he was working with the World Bank</p> <p>Started operating the business from his room, then to a rented single room for \$100 a month and now in a rented building for \$250 a month which has as a store, a laboratory, an office for meetings and a technical room etc.</p> <p>Started with basic tools such as prier, punch tools, crimping tool, cutters, hacksaw etc for 4 years. Now he has 4 computers and other office equipment.</p> <p>Focus is on provision of services such as internet/intranet connectivity and services; wired & wireless LAN and WAN, telephony and PABX integration, VoIP, IP surveillance. Also provides consultancy services regarding procurement of hardware and software applications</p>	<p>He had a strong mathematics background at the secondary school and itched to do computer engineering which was not offered at the University.</p> <p>He rejected the offer of admission for computer science in favour of Electrical and Electronic Engineering degree</p> <p>He purchased books and read about computer engineering his own.</p>	<p>Had 3 months internship during the University holidays with the Unilever Ghana Ltd. There he developed the dislike for wage employment because those with technical background were not recognised</p>	<p>Did his 1st Service as a teacher at Keta Secondary School. He got the idea to pursue Electrical and Electronic Engineering at the University from a friend he met here</p> <p>He had the 2nd Service at the KNUST as a Teaching Assistant at the Electrical Department.</p>	<p>After 2nd Service at the KNUST, he got employed at the Giant International Organisation for 6 months as a Communication Systems Engineer and left to work with the World Bank as an IT Analyst for 6.5 years.</p>	<p>Started doing part-time teaching at the Polytechnic while he was a student at the University. During his Service on campus, he started undertaking sub contracts through the initiative of a former lecturer who advised him to go into self employment.</p> <p>He started the self employed business whilst still with the World Bank, which was facilitated by the goodwill with the client that he had in his sub contract jobs when at KNUST</p> <p>He gets a friend and a few technicians to assist him when he gets contracts.</p> <p>One of his 5 employees is his brother whom he considers very reliable</p>	<p>The parents had basic education.</p> <p>The father is in dual employment and the mother, an own-account worker</p>

Name	Enterprise – Registration & Focus	Career Aspiration & Destination Pre-University & Opportunity	Attachment & Opportunity	National Service & Opportunity	Wage Employment & Opportunity	Self Employment Business, Social & Family Networks & Support	Parental Background
<p>Sani Alhassan Mahama</p> <p>Born in 1972</p> <p>He is in dual employment</p> <p>An own-account worker</p>	<p>Smart Systems</p> <p>The business was 4 years old in 2006 and not yet registered.</p> <p>Focus is on software development, training and consultancy</p>	<p>Initially, he wanted to become a medical doctor but his weak performance in GCE ‘O’ Level Chemistry and fear of the sight of blood of their goat which was operated upon made him decide to become a lawyer and therefore did arts at the Advanced Level.</p> <p>In the course of his studies, a friend’s brother advised him to do computer science at the KNUST. This made him and the friend drop one of the arts subject, Islamic, and substituted with mathematics to enable them pursue a Degree in Computer Science</p>	<p>During one of the University holidays, he had 2 months internship programme with the Volta River Authority where he learnt about data entry</p>	<p>He did his 1st Service as a teacher at a Senior Secondary School in Yendi.</p> <p>He did the 2nd Service at Valco and was responsible for trouble shooting PCs, system administration and programming. It was here that he developed interest in ICT as a career.</p>	<p>After the University, whilst waiting for the final Service postings, he was employed by the Ghanaian-Danish Community Programme (GDGP) at the secretariat section.</p> <p>Valco employed him after his Service with them</p>	<p>In his 3rd year at the Valco, he started designing and developing information management software for organisations as his private job.</p> <p>Valco was shut down and the workers were paid off. With some of his benefits, he bought a Pentium 3 for the software development business.</p> <p>For lack of confidence to go fully into his private business he started looking for job in addition even though the private business was booming with encouraging number of clients. Incidentally, Valco was revived and was re-employed, doing the same ICT-related job – administering Celtrol Software for aluminium reduction process and programming.. He is also the safety coordinator for the technical department</p>	<p>The Father had University Diploma and the mother, a master’s degree.</p> <p>Both parents are in dual employment</p>
<p>Ibrahim Jibriru Husseini –</p> <p>Born in 1981</p> <p>An own-account worker</p>	<p>The business was 5 in 2006 but has still not been registered</p>	<p>He wanted to become either a game programmer or a computer engineer due to his flair for computer games since childhood.</p> <p>He intended doing Computer Engineering at the KNUST but since the University was not offering that, he went in for a degree in Electrical/Electronics engineering</p> <p>He did an online distance education with the Institute of Electrical & Electronics Engineers (IEEE) during his University education.</p>	<p>He had 3 months internship with the Network Operating Center of the KNUST during University holidays where he had a lot of exposure – training in cabling, fiber termination, very small aperture terminal (VSAT) server configuration, switch configuration and network management.</p> <p>He had another 3 months internship with the Ghana Telecom Company and was responsible for the management of subscribers and telephone circuits, creation, elimination, modification, inquiry of subscriber lines, supervision of lines, and observation of alarms, location failures, reconfiguration, resetting and restarting of tests.</p>	<p>He did his Service with the KNUST as a network administrator</p>	<p>After the Service, he still worked on his little projects and got employed at the Continental Commodity Trading Company (CCTC) Ghana Ltd for one (1) year, left for UK to work as a show control assistant at QVC Shopping Channel for about 10 months and returned to Ghana</p>	<p>He started his small business during the Service at the KNUST using his expertise, cable testing tools and cable laying tools.</p> <p>He is now going through some professional course and so freelance doing his private business</p>	<p>The father had a master’s degree and is in wage employment</p> <p>The mother had no formal education and is an entrepreneur</p>

3.2.1 Some Major Key Features of the Case Studies

From the case studies and history the following key features, among others, have emerged.

Business Registration

Generally, self-employed businesses were registered some years later after starting to operate. This may be due to the way they evolved, as try-and-error. A few registered it immediately especially when registration becomes a condition for gaining contract. Some have not yet registered.

The businesses did not start as fully-fledged; some started with basic tools and built on them. Some started operating in their houses/rooms before renting premises exclusively for the business.

Career Aspirations

None of them benefited from any career counselling programme. Decisions to pursue a particular programme leading to an aspired trade mostly came as serendipity by bumping on a friend, an elderly person executing their private jobs who gave somehow casual advice. Some of the aspirations had to change before entry into the university because of unavailability of the course(s). Some people in ICT businesses wanted to pursue Computer Engineering at the KNUST but because it was not offered, they took up Electrical and Electrical Engineering Degree Courses which they preferred to Computer Engineering. They read more about Computer Engineering on their own – by searching the website. In short, most of the career aspirations ended up in their present career destination after winding for sometime.

Internship or Attachment Programmes

With the exception of a few people who had attachment after secondary school education, virtually all of them had some months (mostly maximum of three months) of internship during the university holidays. The programme offered them a lot of practical exposure. Some bosses they met served as mentors for them. Some had the decision to go into self-employment from some of the bosses who were in dual employment. Generally the experiences were positive except one person who claimed he was not recognised.

Boateng and Ofori-Sarpong (2002) also found job attachment programme with the industry very critical as it can equip the graduates with skills and experience that will assist them in their career decisions.

National Service

The National Service especially the second and the final one which is normally done after tertiary education offered most of them a lot of varying experiences. Some through the Service were able to bring their creativity to bear, others had self-employment opportunities and some were also employed by the various organisations. Through the Service, some people “have stumbled upon golden career opportunities” How best the experience of graduates from the Service could be used to improve upon the Scheme was of concern to Bonsu (Bonsu, 1992:151)

Wage Employment

The wage employment offered practical experience to them. Some stumbled on opportunities to start their own enterprises either in addition or as full-time employment. Also, once employed, it appears their employability increases and they easily switch jobs.

Social Networks

Social networks of friends especially helped some of the graduates in different in their careers. This took the form of gaining contact with some large establishments for employment and even for guidance and assistance to start one's own business. Some relied on friends to help them in their self-employed businesses to start or stand. One had a bitter experience where friends with whom he was transacting his business helped the business to collapse when they defaulted. His clients became a backbone for him when he actually set up his self-employed business fully. One person, through a lecturer friend started getting contracts when he was doing his National Service at the University. According to Long (2001), "An understanding of the processes by which people spin new webs or relationships, shake off old ones, or remain trapped in highly involuted networks remains central to the analysis of careers" (Long, 2001:136).

Long (2001) found social networks as a factor that contributes to giving direction to economic carriers as well as influencing decisions regarding combination or switching between economic activity branches. According to him,

New economic investments emerge out of a set of social investments in personal relations, which themselves generate new or modified sets. A person's ability to combine different branches of economic activity and to develop certain entrepreneurial careers is thus crucially affected by the content of existing personal networks. Such networks are significant not only because they may provide access to essential resources such as capital or labour, but also for the flow of information and for the support they may offer for various course of action. Certain aspects of a person's network may be pre-selected by family and community background, but other aspects must be developed from scratch such as those based on friendship or occupational criteria (Long, 2001:135).

Some of the networks occurred in school and trade associations which some utilised to their advantage. Unfortunately, a group like 'old-boy-ism' for example, is often associated with negative connotation – corruption.

Family Network and Education

Most parents with high level of education had wage employment experience, and a few in dual employment whereas those with no formal education and also those with basic education were mostly in self-employment. It is not clearly evident from the educational background of the parents contributed to the employment trajectories. In the case of Ericus, the only help was the introduction the father made with the friend at the Ghana Civil Aviation Authority. The father's background might seem to him a curse than a blessing.

Family stability and resources are critical for the development of its members. Family network is very vital as some relied on their siblings to support them in running their businesses. One person's mother had to assist him to buy computer for income-generating jobs with which he started doing whilst at the University. In the absence of welfare system in Ghana and effective social welfare policies, the role of the extended family members become very crucial. Ericus, for example, had assistance from the maternal auntie, the brother-in-law and the step-mother's brother. Hypothetically, reliance of well-managed extended family system may be somehow better than other social networks.

Technical Education

The structure of technical education made people like Ericus spend too many years at school – basic level education – GCE Ordinary Level – GCE Advanced Level – Polytechnic – University Diploma and finally University First Degree. A related issue is an important course like Computer Engineering which some of the students preferred to their second choice, electrical and electronics engineering, and far better than computer science, but was not offered; they had to branch to electrical and electronics engineering but finally settled in ICT jobs.

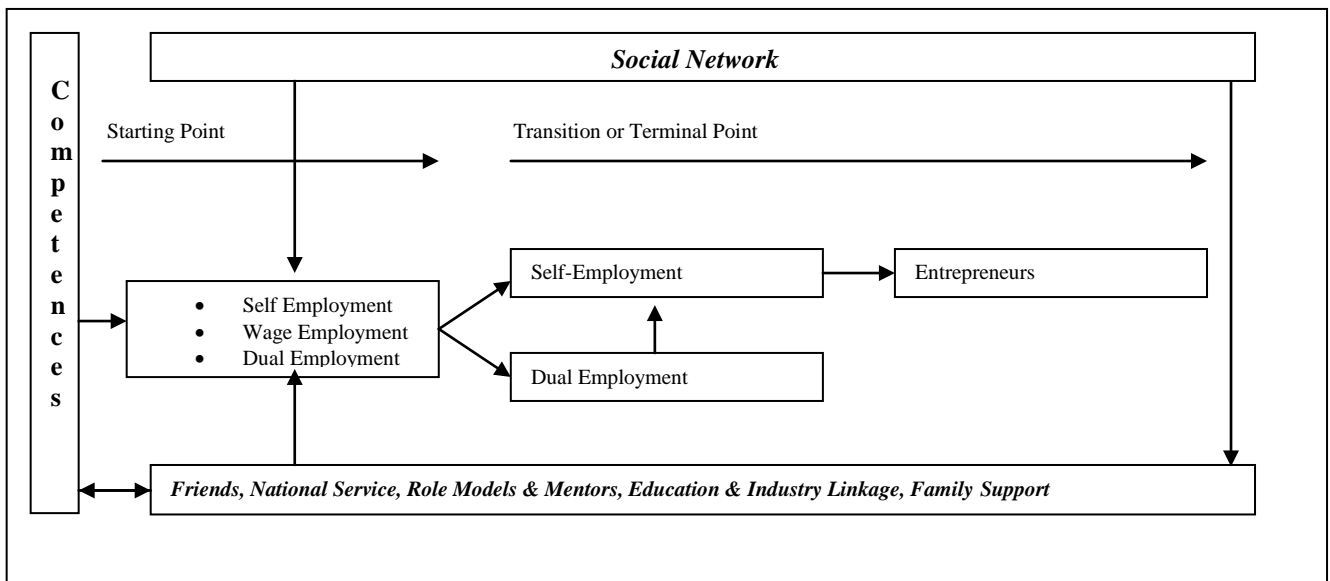
Technical Competence

Individuals' competences cannot be overlooked. The graduates have had to rely on what they had acquired from both the pre-enterprise and enterprise learning channels to exert themselves and to make a difference. Networking, for example, is good but how many people or institutions want to associate themselves with morons?

3.3 Analytical Framework of the University Graduates

From the Analyses Parts 1 and 2, it can be concluded that, the employments paths of the graduates have been influenced, apart from their own human capital (competences), by other contextual factors, which have been shown in the figure 2 below:

Figure 2: Analytical Framework of KNUST Graduates



Author's Construct

Findings and Policy Implications

Increasing the self employability of the graduates from post-basic education and training especially those from the universities will have trickle down effect of generating more wage employees and self employers who are skilled enough to be on their own, possibly as a way of reducing the TAT system with its less impact. Thus, the propensity of university graduates' small enterprises giving birth to new and skilled self employers compared with those from the TAT is higher. From Killick (1993), "Educated people will understand more of their environment and how they can take advantage of it. They will be more knowledgeable about changing opportunities and more self-confident about being able to take advantage of them. It is from this group that most modernization is likely to originate. This is the group that may then come to serve as exemplars to the rest of the population..." (Killick, 1993:53) The study, inter alia, makes the following conclusions and recommendations.

Dual employment among University graduates is a reality in Ghana. It largely serves a useful purpose of helping the graduates explore their employment careers, get resourced and developed themselves for eventual settlement into self-employment.

The ICT and Electrical & Electronic Engineering fields are grey areas for entrepreneurship promotion among University and tertiary graduates in general. Thus, they have implications for directing or redirecting the focus of programmes mounted by existing universities and would-be ones as well as the curriculum itself.

Education and industry linkage also becomes critical in this respect, where internship programmes for students need to be well-blended with the university curricula for practical exposure, career and professional development of students

Career counselling services in schools must be given due attention in basic schools for directing students in exploring and developing their talents.

Most University graduates had parents with higher level of education than those from the other learning channels but the differences were not statistically significant. In other words, parents' educational background may not have contributed to the graduates' decision to become a dual employer or a self employer although the parents might have used their educational background to push their wards to the university level of education.

The National Service Scheme and the Internship programmes actually expose the graduates to wage employment. Through them, some establish acquaintances which help them secure wage employment at least by the time they finish school. It is also possible that the exposure they get there contribute to their career decisions of not making wage employment a life-long one.

University graduates make a difference in being job creators. They may even do better than the status quo if the factors that constrained them and make them traverse from one job to another or combine them are reduced or eliminate. For example, graduates working in an incubator may help.

The creation of an enabling business environment is to be seen as a prerequisite for promoting entrepreneurship especially among the youth or (University) graduates; in fact, it should never be an afterthought. From this study, the graduates acquired some business competences, raised income for business resources and even registered their businesses by going through different stages and hurdles though positive to a large extent, some of which were avoidable anyway if proper measures are in place to encourage those interested in self-employment to take off easily. According to the ILO (2003), "A policy and legal environment that lowers the cost of establishing and operating a business, including simplified registration and licensing procedures, appropriate rules and regulations, and reasonable and fair taxation, will help new entrepreneurs to start in the formal economy and existing informal business to enter it" (ILO, 2003:48)

Last but not least, social interactions with family members (both the nuclear and the extended), friends, trade and other associations, experienced business people and business establishments, among others, have serious positive and negative effects on one's career aspirations and employment decisions and destinations. They influence directly and indirectly the kind of learning one acquires from school as well as the use into which the learning is put.

Appendices

Table A1: Employment Status by Pre-Enterprise Learning Channel

	Pre-Enterprise Learning Channel			
	KNUST	TTI	TAT	Total
Self Employment	11 (13.8%)	29 (36.3%)	40 (50.0%)	80 (100/66.1%)
Dual Employment	20 (48.8%)	15 (36.6%)	6 (14.6%)	41 (100/33.9%)
Total	31 (25.6%)	44 (36.4%)	46 (38.0%)	121 (100.0%)

Table A2: Employment Status by Highest Level of Education

	Highest Level of Education						Total
	University/ 1 st & 2 nd Degrees	Teacher Training Polytechnic	Technical	SSS/ Form 5	NVTI/ Voc. Training	Basic/ JSS/MSLC/ETC	
Dual Employment	20 (48.8%)	2 (4.9%)	13 (31.7%)	0 (0%)	3 (7.3%)	3 (7.3%)	41
Self-Employment	11 (13.8%)	4 (5.0%)	29 (36.3%)	9 (11.3%)	8 (10.0%)	9 (23.8%)	80
Total	31 (25.6%)	6 (5.0%)	42 (34.7%)	9 (7.4%)	11(9.1%)	22(18.2)	121

Table A3: Wage and Self-Employment Job Type by Pre-Enterprise Learning Channel

Job Type	Pre-Enterprise Learning Channels			
	KNUST	TTI	TAT	Total
Same	20 (40.8%)	13 (26.5%)	16 (32.7%)	49 (100.0%)
Different	0	1 (14.3%)	6 (85.7%)	7 (100.0%)
Related	2 (100.0%)	0	0	2 (100.0%)
Total	22	14	22	58

Table A4: Wage and Self-Employment Job Type by Highest Level of Education

Job Type	Highest Level of Education						Total
	University/ 1 st & 2 nd Degrees	Teacher Training Polytechnic	Technical	SSS/ Form 5	NVTI/ Voc. Training	Basic/ JSS/MSLC/ETC	
Same	20 (40.08%)	4 (8.2%)	12 (24.5%)	1 (2.0%)	7 (14.3%)	5 (10.2%)	49
Different	0 (0.0%)	0 (0.0%)	2 (28.6%)	2 (28.6%)	1 (14.3%)	2 (28.6%)	7
Related	2 (100.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	2
Total	22	4	14	3	8	7	58

Table A5: Wage and Self-Employment Job Type by Trade Type

Job Type	Trade Type					Total
	ICT	Elec. Rewinding	Elec. Installation	T&D	C&J	
Same	13 (26.5%)	9 (18.4%)	13 (26.5%)	5 (10.2%)	9 (18.4%)	49 (100.0%)
Different	0 (0.0%)	2 (28.6%)	0 (0.0%)	3 (42.9%)	2 (28.6%)	7 (100.0%)
Related	0 (0.0%)	0 (0.0%)	2 (100.0%)	0 (0.0%)	0 (0.0%)	2 (100.0%)
Total	13	11	15	30	11	58 (100.0%)

Table A6: Wage Employment Experience by Trade Type

	Trade or Industry					Total
	ICT	Elec. Rewinding	Elec. Installation	T&D	C&J	
Wage Employment Experience	13 (22.4%)	11 (19.0%)	15 (25.9%)	8 (13.8%)	11 (19.0%)	58 (100%)
No Experience	7 (11.1%)	4 (6.3%)	14 (22.2%)	22 (34.9%)	16 (25.4%)	63 (100)
Total	20	15	29	30	27	121

Table A7: Employment Status by Trade Type

	Trade or Industry					Total
	ICT	Elec. Rewinding	Elec. Installation	T&D	C&J	
Dual Employment	12 (29.3%)	6 (14.6%)	14 (34.1%)	2 (4.9%)	7 (17.1%)	41 (100%)
Self-Employment	8 (10.0%)	9 (11.3%)	15 (18.8%)	28 (35.0%)	20 (25.0%)	80 (100%)
Total	20	15	29	30	27	121

Table B1: Reasons for Satisfaction or Dissatisfaction with Self Employed Business

	N	%
Limited time for the job*	7	17.1%
Not reached the desired level - expansion - employees, machines, profit level; at infant stage*	7	17.1%
Limited market - not getting much jobs; fluctuation *	5	12.2%
Independence; freedom to operate; have my own job; future job security	4	9.8%
Good turnover; number of customers is encouraging	4	9.8%
Challenging and or rewarding - professional development	3	7.3%
Solve customers problem; interest in the job, job satisfaction	3	7.3%
Able to take care of myself	3	7.3%
Income is better than from wage employment	2	4.9%
Limited tools*	2	4.9%
Slow growth *	1	2.4%
Total	41	100.0%

Table B2: Reasons for Satisfaction or Dissatisfaction with Self-Employed Business by Satisfaction Level

	Fully Satisfied	Satisfied	Fairly Satisfied	Not Satisfied	Not Satisfied At All	Total
Limited time for the job	0	0	2	4	1	7
Not reached level e.g. expansion, employees, machines, profit level; at infant stage;	0	0	4	3	0	7
Limited market - not getting much jobs; fluctuation	0	0	1	4	0	5
Independence; freedom to operate; have my own job; future job security	2	2	0	0	0	4
Good turnover; number of customers is encouraging	1	1	2	0	0	4
Challenging and or rewarding – professional Development	0	3	0	0	0	3
Solve customers problem; interest in the job, job satisfaction	3	0	0	0	0	3
Able to take care of myself	1	2	0	0	0	3
Income is better than from wage employment	1	1	0	0	0	2
Limited tools;	0	0	0	2	0	2
Slow growth	0	0	1	0	0	1
Total	8	9	10	13	1	41

Table B3: 1st and 2nd Reasons for Wage Employment

	1 st Reason	2 nd Reason
Raise income for self/as capital	28 (68.3%)	1 (11.1%)
Exposure/experience/ professional development	6 (14.6%)	7 (77.8%)
Strategy to attract customers or gain contact/recognition or boost up CV	3 (7.3%)	1 (11.1%)
Fear of unknown;	1 (2.4%)	
For secured pension	2 (4.9%)	
Doing the job I started first	1 (2.4%)	
Total	41 (100.0%)	9 (100.0)

Table B4: 1st Reason for Wage Employment by Highest Level of Education

	Highest Level of Education						Total
	University/ 1 st & 2 nd Degrees	Teacher Training Polytechnic	Technical	SSS/ Form 5	NVTI/ Voc. Training	Basic/ JSS/MSLC/ETC	
Raise income for self/as capital; job satisfaction; 1st job	13 (46.4%)	1 (3.6%)	11 (39.3%)	0 (0.0%)	2 (7.1%)	1 (3.6%)	28 (100.0%)
Exposure/experience/ professional development	5 (83.3%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (16.7%)	6 (100.0%)
Strategy to attract customers or gain contact	1 (33.3%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (33.3%)	1 (33.3%)	3 (100.0%)
Fear of unknown;	1 (100.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (100.0%)
For secured pension	0 (0.0%)	0 (0.0%)	2 (100.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	2 (100.0%)
Doing my old job	0 (0.0%)	1 (100.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (100.0%)
Total	20	2	13	0	3	3	41

The observed difference is statistically significant (0.010)

Other Tables

Employment Status by Gender

	Male	Gender Female	Total
Dual Employment	40 (97.6%)	1 (2.4%)	41 (100.0%)
Self Employment	61 (76.3%)	19 (23.8%)	80 (100.0%)
Total	101 (83.5%)	20 (16.5%)	121(100.0%)

Employment Status by Age of Respondents

	Age of Respondents			Total
	23-29 years	30-34 years	35-46 years	
Dual Employment	15 (36.6%)	9 (22.0%)	17 (41.5%)	41 (100.0%)
Self Employment	30 (37.5%)	36 (45.0%)	14 (17.5%)	80 (100.0%)
Total	45 (37.2%)	45 (37.2%)	31 (25.6%)	121

Employment Status by Age of Self-Employed Business

	Age of Self-Employed Business			Total
	3 – 4 years	5 – 6 years	7 – 10 years	
Dual Employment	18 (43.9%)	14 (34.1%)	9 (22.0%)	41 (100.0%)
Self Employment	27 (33.8%)	25 (31.3%)	28 (35.0%)	80 (100.0%)
Total	45 (37.2%)	39 (32.2%)	37 (30.6%)	121 (100.0%)

Reasons for Self –Employment

	1 st Reason	2 nd Reason	3 rd Reason	Multiple Responses
Make more money	9 (22.0%)	8 (19.5%)	6 (14.6%)	23 (18.7%)
Bring out creativity	8 (19.5%)	8 (19.5%)	4 (9.8%)	20 (16.3%)
For independence	6 (14.6%)	6 (14.6%)	8 (19.5%)	20 (16.3%)
Passion for and interest in trade	7 (17.1%)	6 (14.6%)	6 (14.6%)	19 (15.4%)
Train others	4 (9.8%)	5 (12.2%)	8 (19.5%)	17 (13.8%)
Job security	3 (7.3%)	7 (17.1%)	5 (12.5%)	15 (12.2%)
Time for self and family	2 (4.9%)	1 (2.4%)	3 (7.3%)	6 (4.9%)
Negative wage employment experience	2 (4.9%)	-	-	2 (1.6%)
Lack of wage employment	-	-	1 (2.4%)	1 (0.8%)
Total	41	41	41	

1st Reason for Self –Employment by Pre-Enterprise Learning Channel

	KNUST	Pre-Enterprise Learning Channel		Total
		TTI	TAT	
Make more money	6 (66.7%)	2 (22.2%)	1 (11.1%)	9 (100.0%)
Bring out creativity	4 (50.0%)	3 (37.5%)	1 (12.5%)	8 (100.0%)
For independence	3 (50.0%)	3 (50.0%)	0	6 (100.0%)
Passion for & interest in trade	4 (57.1%)	3 (42.9%)	0	7 (100.0%)
Train others	1 (25.0%)	1 (25.0%)	2 (50.0%)	4 (100.0%)
Job security	2 (66.7%)	1(33.3%)	0	3 (100.0%)
Time for self & family	0	2 (100.0%)	0	2 (100.0%)
Negative wage employment experience	0	0	2 (100.0%)	2 (100.0%)
Lack of wage employment	0	0	0	0
Total	20	15	6	41

1st Reason for Self –Employment by Highest Level of Education

	Highest Level of Education						Total
	University/ 1 st & 2 nd Degrees	Teacher Training Polytechnic	Technical	SSS/ Form 5	NVTI/ Voc. Training	Basic/ ISS/MSLC/ETC	
Make more money (100.0%)	6 (66.7%)	0	2 (22.2%)	0	1 (11.1%)	0	9
Bring out creativity (100.0%)	4 (50.0%)	0	3 (37.5%)	0	0	1(12.5%)	8
For independence	3 (50.0%)	1(16.7%)	2 (33.3%)	0	0	0	6(100.0%)
Passion for & interest in trade	4 (57.1%)	1 (14.3%)	2 (28.6%)	0	0	0	7(100.0%)
Train others	1 (25.0%)	0	1 (25.0%)	0	1(25.0%)	1 (25.0%)	4 (100.0%)
Job security	2 (66.7%)	0	1 (33.3%)	0	0	0	3 (100.0%)
Time for self & family	0	0	2 (100.0%)	0	0	0	2 (100.0%)
Negative wage employment exp.	0	0	0	0	1(50.0%)	1(50.0%)	2 (100.0%)
Lack of wage employment	0	0	0	0	0	0	0
Total	20	2	13	0	3	3	41 (100.0%)

Employment Status by Registration Status

	Registration Status				Total
	Not Noted	Registered at Registrar General	Recognised by Assembly/IRS		
Dual Employment	23 (56.1%)	15 (36.6%)	3 (7.3%)		41 (100.0%)
Self Employment	26 (32.5%)	29 (36.3%)	25 (31.3%)		80 (100.0%)
Total	49 (40.5%)	44 (36.4%)	28 (23.1%)		121 (100.0%)

Trade by Registration Status of Self Employed Business

		Registration Status				Total
		Not Noted	Registered at Registrar General	Recognised by Assembly/IRS		
ICT	Dual Employment	3 (25.0%)	9 (75.0%)	0 (0.0%)		12
	Self Employment	0 (0.0%)	8 (100.0%)	0 (0.0%)		8
	Total	3	17	0		20
Rewind	Dual Employment	4 (66.7%)	0 (0.0%)	2 (33.3%)		6
	Self Employment	1 (11.1%)	3 (33.3%)	5 (55.6%)		9
	Total	5	3	7		15
Elec. Inst.	Dual Employment	8 (57.1%)	6 (42.9%)	0 (0.0%)		14
	Self Employment	7 (46.7%)	7 (46.7%)	1 (6.7%)		15
	Total	15	13	1		29
T & D	Dual Employment	1 (50.0%)	0 (0.0%)	1 (50.0%)		2
	Self Employment	7 (25.0%)	6 (21.4%)	15 (53.6%)		28
	Total	8	6	16		30
C & J	Dual Employment	7 (100.0%)	0 (0.0%)	0 (0.0%)		7
	Self Employment	11 (55.0%)	5 (25.0%)	4 (20.0%)		20
	Total	18	5	4		27

Highest Level of Education by Registration Status of Self Employed Business

		Registration Status			
		Not Noted	Registered at Registrar General	Recognised by Assembly/IRS	Total
Bachelor/ Masters	Dual Employment	6 (30.0%)	14 (70.0%)	0 (0.0%)	20
	Self Employment	0 (0.0%)	11 (100.0)	0 (0.0%)	11
	Total	6	25	0	31
Teacher Trg/Poly	Dual Employment	2 (100.0%)	0 (0.0%)	0 (0.0%)	2
	Self Employment	1 (25.0%)	3 (75.0%)	0 (0.0%)	4
	Total	3	3	0	6
Technical	Dual Employment	11 (84.6%)	1 (7.7%)	1 (7.7%)	14
	Self Employment	14 (48.3%)	7 (24.1%)	8 (27.6%)	29
	Total	25	8	9	43
SSS/GCE	Dual Employment	0 (0.0%)	0 (0.0%)	0 (0.0%)	0
	Self Employment	3 (33.3%)	2 (22.2%)	4 (44.4%)	9
	Total				
NVTI	Dual Employment	1 (33.3%)	0 (0.0%)	2 (66.7%)	3
	Self Employment	1 (12.5%)	3 (37.5%)	4 (50.0%)	8
	Total	2	3	6	11
Basic/JSS/ MSLC	Dual Employment	3 (100.0%)	0 (0.0%)	0 (0.0%)	3
	Self Employment	7 (36.8%)	3 (15.8%)	9 (47.4%)	19
	Total	10	3	9	22

Trade by Self-Employment Type by Number of Employees

Trade	Own- Account Workers	Entrepreneurs														Av. Employees	Av. Age
		Number of Employees															
	0	1	2	3	4	5	6	7	8	9	10	12	19	Total			
ICT	6 (30.0%)	0	1 (5.0%)	2 (10.0%)	0	3 (15.0%)	0	3 (15.0%)	1 (5.0%)	0	2 (10.0%)	1 (5.0%)	1 (5.0%)	20 (100.0%)	103/14		
Rewinding	15 (100.0%)	0	0	0	0	0	0	0	0	0	0	0	0	15 (100.0%)	0		
Electrical Installation	18 (62.1%)	2 (6.9%)	1 (3.4%)	2 (6.9%)	3 (10.3%)	0	1 (3.4%)	1 (3.4%)	0	1 (3.4%)	0	0	0	29 (100.0%)	44/11		
Tailoring & Dressmaking	18 (60.0%)	6 (20.0%)	3 (10.0%)	1 (3.3%)	1 (3.3%)	0	1 (3.3%)	0	0	0	0	0	0	30 (100.0%)	25/12		
Carpentry & Joinery	17 (63.0%)	4 (14.8%)	1 (3.7%)	2 (7.6%)	1 (3.7%)	1 (3.7%)	0	1 (3.7%)	0	0	0	0	0	27 (100.0%)	28/10		
Total	74 (61.2%)	12 (9.9%)	6 (5.0%)	7 (5.8%)	5 (4.1%)	4 (4.1%)	2 (1.7%)	5 (4.1%)	1 (0.8%)	1 (0.8%)	2 (1.7%)	1 (0.8%)	1 (0.8%)	121 (100.0%)	200		

P = 0.014

Pre-Enterprise Learning Channel by Self-Employment Type by Number of Employees

Trade	Own- Account Workers	Entrepreneurs													Total	Av. Employees	Av. Age
		Number of Employees															
	0	1	2	3	4	5	6	7	8	9	10	12	19				
KNUST	11 (35.5%)	0	1 (3.2%)	2 (6.5%)	3 (9.7%)	3 (9.7%)	1 (3.2%)	4 (12.9%)	1 (3.2%)	1 (3.2%)	2 (6.5%)	1 (3.2%)	1 (3.2%)	31 (100.0)	137/20		
Tema Technical	31 (70.5%)	4 (9.1%)	3 (6.8%)	4 (9.1%)	1 (2.3%)	0	1 (2.3%)	0	0	0	0	0	0	44 (100.0%)	32/13		
Traditional Apprenticeship	32 (69.6%)	8 (17.4%)	2 (4.3%)	1 (2.2%)	1 (2.2%)	1 (2.2%)	0	1 (2.2%)	0	0	0	0	0	46 (100.0%)	31/14		
Total	74 (61.2%)	12 (9.9%)	6 (5.0%)	7 (5.8%)	5 (4.1%)	4 (3.3%)	2 (1.7%)	5 (4.1%)	1 (0.8%)	1 (0.8%)	2 (1.7%)	1 (0.8%)	1 (0.8%)	121 (100.0%)	200		

P = 0.003

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