Aligning University-Industry Partnership in Africa to Employability of Graduates

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Abstract: This paper examines University-Industry collaboration in Africa as a tool for engendering graduate employability. It reviews perspectives on university education in Africa in the context of fulfilling the needs of industry through appropriate human capital development strategies. It outlines the challenges of African industries in respect of their collaboration with academia to foster employability of graduates. Available literature showed that the two institutions operate almost in isolation at a level of cooperation that is insignificant to guarantee employability of graduates on an appreciable scale. Beyond the pure teaching and research functions of academia and the profit goals of industry, the paper sheds light on workable employability strategies that can be adopted by the two institutions with support of government to create a win-win situation for universities and industry as well as guarantee employability of graduates.

Keywords: Universities, Industry, Collaboration, Graduates, Employability, Government

I. INTRODUCTION

In the last couple of decades, Universities across Africa have initiated certain programmes and policies that seek to synergise their expertise with the corporate world in an attempt to address the socioeconomic needs of their respective countries. In Ghana for example the 2010-2020 education strategic plan of the ministry of education (MoE) highlights a number of actions intended to increase the relevance of tertiary education to national needs (MoE, 2012). Among other outcomes, the document lays emphasis on building competencies in technical and vocational occupations, acquisition of industry-specific skills, career orientation for students, entrepreneurial training, client based staff performance appraisal, incentives for those that create value for the beneficiaries of tertiary education and above all, collaboration between industries and tertiary educational institutions. The intent of the document suggests the existence of shortfalls in the tertiary education enterprise that call for formulation and implementation of programmes and policies driven by the current needs of industries. Available studies conducted on tertiary education and industry in some African countries show a mismatch in objectives and expectations between industries and tertiary institutions (Adeoji, 2009, Thoruwa, 2013). According to Tumuti, Wanderi & Lang’at-Thoruwa (2013), the misalignment of objectives underscores the inability of the two sectors to collaborate effectively. Against this backdrop of limited collaboration with industry, it is not strange that many tertiary education students are unable to acquire industry specific skills in the course of their training (Biney, 2015). In view of this scenario it is imperative to examine the partnership between universities and industry for the purpose of identifying what universities can do to turn out graduates that meet the national employment needs of industries. A review of some perspectives on university education and industry is critical to understanding the partnership between the two entities.

Perspectives on University Education

Prior to the 1990s, universities in a lot of developing countries were distant away from the socioeconomic needs of their nations (Jamal, Haradhan & Rajib, 2012). In Africa, they were labeled ivory towers, academic empires and exclusive communities because they produced research results and graduates that were incapable of addressing the social, economic and technical challenges of their societies (Yusuf, Saint & Nabeshima, 2009). In Ghana, it is perceived that most courses in tertiary institutions are not addressing the needs of the labour market. Rather tertiary schools turn out unskilled, semiskilled and unemployable graduates into the world of employment (Bawakyillenuo, Akoto, Ahideke and Aryeetey 2013). According to Gondwe and Walenkamp (2011), the skills mismatch between industry and tertiary education is evident by the number of graduates who are unable to gain employment after school. Boateng and Ofori-Sarpong (2012) blames the situation on the lukewarm interaction between universities and corporate entities. The weak relationship on one hand is probably the result of the focus of universities since their inception as centres for teaching, long term research and publication of research findings irrespective of their economic and commercial relevance. Secondly, there is lack of a comprehensive policy framework that integrates the industrial sector with the tertiary education sector (Bawakyillenuo, et al, 2013). Beside their traditional mission of teaching and research, Perkmann, and Walsh. (2007) are of the view that universities must take on entrepreneurial and developmental roles in addressing the social and economic challenges of society. Since firms have entrepreneurial orientation and are mostly driven by economic and commercial gains, it is apparent why their collaboration with universities is very weak.

Perspectives on Industry

Many of the firms in Africa are either small to medium enterprise or subsidiaries of parent companies in developed
countries (Munyoki et al, 2011). Like all other firms, so long as they operate to maximise value, first for their shareholders and perhaps for other stakeholders (Vilanova, 2007), their financial resources are strictly deployed into ventures that have the capacity to guarantee sustainability and yield dividends to shareholders in the short to medium term. In this regard, many African firms, by virtue of their size and capacity prefer ready-made knowledge, expertise and technology that can guarantee immediate returns on investment (Sparks, and Barnett, 2010). This reality about African industries is incongruent with the goals of academia with respect to knowledge creation, adoption and use. Apparently, African firms facing keen competition from bigger international companies and at the same time, lacking adequate government support for growth and sustainability (Abor and Quartey, 2010) have no choice than to seek quick fix knowledge and expertise that would enable them to compete favorably and maximise returns for their shareholders. Apparently, African firms remain aloof from higher education owing to the cost of partnership which is perceived to outweigh the immediate gains.

**University-Industry Partnership**

University Industry partnership (UIP) is the interaction between any parts of the higher educational system and industry for the purpose of exchange of knowledge and technology Bekkers and Bodas Freitas (2008). For industry, the need to collaborate stems from the fast pace of technological change, reduced product life cycle and keen competition (Wright, Clarysse, Lockett, and Knockaertd, 2008). Universities on the other hand are under pressure to collaborate with industry due to increasing demand for the relevance of their mission to solving societal problems particularly with respect to producing knowledge and skills required for industrial development (Blumenthal, 2003; Philbin, 2008). These inducements require both firms and industry to complement each other in addressing social and economic challenges (Perkmann, Tartari, Mckelvey, Autio, Brostro, and D’este (2013), with employability of graduates as a prime objective. This means that while firms require competent talents and advanced knowledge from academia to complement industry technology and expertise, academia requires access to industry practices and technology as well as funding for academic activities that will produce enduring solutions to the challenges confronting industries. In as much as empowerment of higher education graduates for gainful employment and national development is a major spin-off of such partnership, the barriers severing the effective collaboration of the two entities need to be eliminated. According to Dooley and Kirk, (2007) and Singer and Peterka (2009), such barriers include lack of trust between industry and academia, cultural differences, the bureaucratic nature of higher education, difference in occupational norms and insufficient rewards for higher education researchers and faculties.

**Motivation for Universities**

According to Liu and Jiang (2001); Laukkanen, (2003); and Rene and Heinrich, (2006), universities seek collaboration with industry if the relationship can accrue benefits like:

1. Easy access to industry information and applied knowledge with positive impact on academic research and teaching.
2. Royalty payments to universities for knowledge shared with industry.
3. Employment for university graduates.
4. Formation of spin-off companies that benefit university and researchers.
5. Upgrade of faculty infrastructure for enhancement of research.
6. Short to medium term employment for university staff to gain industry knowledge.

From the perspective of universities and faculty researchers, partnership with industry is determined by rewards. However, if tertiary education can progressively guarantee the relevance of its research to industry, it might open up opportunities to attract greater support and funding for advanced research from industry. Secondly, if university researchers are given adequate incentives to align their research to industry growth and development, it could maximise value for industry and therefore attract the appropriate benefits that universities seek from industry.

**Motivation for Industry**

The main objective upon which industry seeks collaboration with universities is the capacity to quickly turn outcome of research and the research relationship into commercially viable products and services at minimal cost using university expertise and facilities. Other motives are:

1. Reciprocity of partnership, that is, short term internship for bright students and faculty staff for in-house consultancy benefits (Perkmann, King, & Pavelin, 2011).
2. Right to intellectual property and patent right of products (Newberg & Dunn, 2002).
3. Access to multidisciplinary technology, research networks, solution to specific problems and business growth (Santoro, & Betts, 2002).
4. Enhancing corporate image (Siegel, Waldman, & Link, 2003)
5. Upgrading employees qualifications through training (Hong, & Su, 2013)
6. Enjoyment of tax rebates for collaboration (George, Zahra, & Wood, 2002).

With firms, partnering academia hinges on sales maximization and profitability. This usually goes with high secrecy in research and development programmes, patenting of programmes and swift commercialization of research outcomes. In that respect, industry expects academia to take on entrepreneurial roles of knowledge capitalization and
knowledge industrialization (Crespo and Dridi, 2007). This mindset of industry is often at variance with the culture of academia. A third party agency is probably needed to synchronize the goals, aspirations and expectations of the two institutions.

Success Criteria for University-Industry Partnership

Notwithstanding the variance in the strategic intent between industry and universities, the partnership can be driven by a couple of factors, which according to Kruss, Adeoti, and Nabudere (2012) comprise:

1. Open communication between universities and industry by which representatives of the two entities are placed on each other’s governing council to facilitate understanding and commitment to partnership goals, build trust and ensure equity in allotment of royalties.
2. Conducting research and training based on relevance and application to the needs of industry since industry is the ultimate consumer of the products of training and the outcome of research.
3. Development of institutional capacities of both universities and industry to initiate, lead and direct partnership programmes and policies to produce industry applicable results and spin-off programmes that satisfy the aspirations of both entities. A typical example is enhancing the capacity of university industry liaison offices to place students and researchers in appropriate industries for work based learning.
4. Government support for effective collaboration by way of accrediting research facilities, funding joint projects, giving tax incentives, linking local institutions to endowed foreign institutions, providing adequate infrastructure and proving a strong policy framework to facilitate collaboration.

For the partnership to work, Kruss et al (2012) sees cross fertilization of university and industry culture as a requirement. Since the two institutions have their respective culture and objectives, a successful partnership would hinge on harmonization of goals, priorities and structures towards a common research interest, and above all, tuning of governance systems of the two bodies to reflect accountable appropriation of resources for partnership projects. The opportunities for partnership and the consequential benefits cannot be underestimated. For the purpose of this study, attention shall be narrowed to employability of graduates.

II. THEORITICAL FRAMEWORK

This study is guided by theories of university-industry partnership and graduate employability. According to Barringer and Harrison (2000), University-Industry partnership has been studied from six different perspectives of interdependency theories. They are the Transaction Cost Economics (TCE), Resource Dependency Theory (RDT), Strategic Choice Theory (SCT), Stakeholder Theory (ST), Organisational Learning Theory (OLT) and Institutional Theory (IT). Though the ST, OL and IT provide a good framework for assessing the responsiveness of university-industry collaboration to the issue of employability, the dispositional approach to employability cited by Fugate (2004) in Beukes (2010) shall be adopted.

III. DISPOSITIONAL THEORY

This argues that individuals are better able to adapt to their employment and career environment if they possess a set of three dimensional characteristics of career identity, personal adaptability and human capital (Beukes, 2010). According to Beukes (2010), employability depends on identifying a career that matches with unique personality traits, willingness to change personal factors to meet the requirements of particular work situations and lastly, education and training that equips the individual with knowledge, skills and abilities needed for engagement on a job and enhancement of productivity, efficiency and performance. Against the acclaimed fact that most universities in Africa are unable to prepare graduates to meet the needs of employers, it suggests that African universities are yet to fully position themselves as human capital developers.

IV. CONCEPTUAL FRAMEWORK

This article conceptualises graduate employability as a function of a tripartite collaboration between universities, industry and government. The collaboration is envisaged to turn out graduates with conviction and fitness for the labour market owing to a high sense of self worth, industry awareness and job market readiness. Such are the envisaged outcomes of a system of higher education that revolves around learners’ development of self esteem, self confidence and self efficacy. Evidently, these three are the products of an educational system that places high premium on career development learning, industry work experience, in-depth knowledge of studied subject, subject-specific skills and attitude, acquisition of generic skills and development of emotional intelligence. This framework for employability is adopted from the Triple Helix model of Hakansson and Snehota (1995), as cited in Etzkowitz, (2002) and the CareerEDGE model developed by Pool and Sewell (2007).
The tripartite model argues that the knowledge needed in any society to provide innovative solutions to national problems can be gained through the sharing of resources and joint participation in socioeconomically relevant activities by three major actors; namely government, industry, and universities. It states that for industry and academia to come up with innovative solutions to address the social and economic challenges of a nation, government must support both institutions to engage each other in mutually beneficial research and development activities that are relevant to national needs through sharing and exchange of resources. The tripartite partnership is no doubt a propeller for the Career EDGE concept. According to the concept, employability of higher education graduates is directly linked with opportunities to learn about career development pathways; industry work experience; subject knowledge, skills and attitude; possession of generic skills and lastly, emotional intelligence. The proponents of the concept further connect the five variables to opportunities gained by students to reflect and evaluate their learning outcomes with respect to job market readiness. The learning outcomes are measured in terms of self-efficacy, self-confidence, and self-esteem.

V. COMPONENTS OF THE MODEL

In the model, employability is conceptualised as the possession of relevant knowledge, skills and other attributes that facilitate the gaining and maintaining of employment (Knight and Yorke, 2003). It is the capability to apply competencies to gain a particular job, navigate through career pathways and engage in continuous competency development for job security and employment sustainability. According to Hakansson and Snehota (1995), as cited in Etzkowitz (2002) and Pool and Sewell (2007), each component of the tripartite model can assure employability as follows:


The duty of government is to set broad goals for research and development partnership, provide the necessary financial, infrastructural, and material resources to academia, give enticing performance based research incentives to faculties and researchers, and above all, provide incentives that encourage industry to engage faculty researchers and students in collaborative projects. Beyond that, government is to regulate, monitor, and evaluate partnership projects with respect to fulfilling the needs of society, industry, academia and students. By not acting as an effective regulator, the partnership between industry and universities has not facilitated employability of graduate.
2. **Industry**

The role of industry is to engage universities in curriculum planning, implementation and development. This requires industry to create opportunities for academic researchers and students to work with firms to understand their unique needs through student internship and teacher sabbatical programmes. Such engagements could guarantee employability by equipping students and faculty members with industry relevant knowledge, skills and other attributes.

3. **Universities**

Universities are to create opportunities for industry representatives at both faculty and governance levels to promote cross fertilization of ideas. At faculty levels, experienced industry experts are to be given short to medium term appointments to assist with curricular planning, implementation and development, based on appropriate match between faculty and industry needs. At governance levels, universities are to include astute industry leaders in their corporate structure to assist in developing policies, programmes and projects that will help universities to become more entrepreneurial with human capital development and graduate employability as the hallmark of their culture.

4. **Career Development Learning**

Beside teaching students to acquire subject knowledge, universities are to support students with occupational intervention programmes that broaden students understanding of the world of careers, their unique interest, job market needs and how they can brand themselves for the job market as entrepreneurs or employees. According to Foster (2006) some jurisdictions have certain hours of learning devoted to career exploration and preparation for job market as part of their higher education employability strategy.

5. **Work-Life Experience**

Since virtually every job requires work-life experience, university students must be programmed to acquire relevant work-life experience in industry settings as part of their education. Though a lot of universities have industry liaison offices for such programmes, their effectiveness in placing students in the appropriate firms for relevant industry work-life experience falls short of assuring employability in many African countries (Matamande et al, 2013). Biney (2014) affirms this challenge as a major cause of graduate unemployment in Ghana. Among the specific factors he mentioned are lack of practical, technical and entrepreneurial skills and above all, the prevalence of theory based learning with little relevance to industry and business needs.

6. **Degree Subject Knowledge, Skills and Attitude**

Employability depends strongly on students’ qualification as indicated by the class of degree.

Since qualification often depicts knowledge of subject, job offer is often linked to qualification. However, knowledge of subject without skills and attitude in a particular discipline may not guarantee employability. Aside knowledge of subject, Jones (2006) lays emphasis on skills and attitude as employability tools that universities should be providing graduates in collaboration with partner industries.

7. **Generic Skills**

According to The Pedagogy for Employability Group (2004), as cited in Pool and Sewell (2007), employability is enhanced when graduates possess a set of generic skills which characterize an entrepreneurial disposition that can be transferable from academia to industry and across industries. The group lists 15 of such skills as:

- Creative thinking and imagination
- Adaptability and flexibility
- Willingness to learn
- Independent working
- Working in a team
- Ability to manage others
- Ability to work under pressure
- Good oral communication
- Communication in writing
- Numeracy
- Attention to detail
- Time management
- Assumption of responsibility
- Planning, coordination and organising ability
- Ability to use new technology

8. **Emotional Intelligence**

Mayer, Salovey and Caruso (2004) considers employability as a function of emotional intelligence. They define it as the capacity to recognise, perceive, access, generate and regulate emotions to assist thought in building positive relationships. Mayer et al. stresses the dependence of employability on emotional intelligence against the backdrop that industry seeks employees that have astute client and inter-employee relationship management skills. Since emotional intelligence can be learnt through activities, Pool and Sewell (2007) advocates emotional intelligence training for university students as part of their employability strategy.

9. **Self Esteem, Self Confidence and Self Efficacy**

Pool and Sewell (2007) links employability to self-esteem, self-confidence and self efficacy. The three are known to depend on knowledge, understanding, skills and personal attributes. They define self-esteem as a self-conceptualised feeling of worthiness and value. It provides the bedrock for building self-confidence, which is a belief in one’s capability to navigate effectively through particular anticipated situations on grounds of having adequate knowledge, skills, attitude and values required to exercise control over the situation. When self-esteem and self-confidence is high, it leads to high self efficacy, which is a belief in one’s capacity to efficiently organise and execute a course of action required to manage a prospective situation.
believe that the three attributes can be acquired by mastery experience through access to opportunities to practice; vicarious experience through mentorship and modeling; and social persuasion through encouragement from social networks that prompt an individual to develop an inherent talent.

It is worth noting that industry, universities and governments in developing countries are not well positioned in the performance of their respective roles to ensure graduate employability. In some African countries for example, there are no effective national regulations on internships, hence a lot of students are unable to access industrial learning relevant to their career interest (Matamande et al, 2013). Neither universities nor industries are accountable to government, students or the broader society for failing to provide industry experience to students. The prevalence of such situations in Africa is an indication of either a weakness or aloofness of government to adopt a head-on approach to graduate employability using university industry collaboration as a vehicle.

VI. CONCLUSION
University Industry partnership in Africa is inundated with the inability of government to strategically harness the joint expertise of the two institutions for the development and implementation of industry-driven programmes that predispose graduates to gainful employment. Rather than delve into equipping students with employable skills through trainings founded on principles and strategies of human capital development, universities overwhelm students with theories on grounds of lack of adequate resources to meet the employability needs of the massively enrolled students, poor government support and the unfriendly attitude of the corporate world towards research and development (Kruss et al, 2012). While industry keeps bemoaning the skills deficit of graduates, governments complain about the inability of academia to provide employable skills and the failure of industry to provide work based learning for students. These are indications that governments of African countries have not adequately aligned their human capital development priorities to guarantee graduate employability. Besides, the gap in university industry partnership is largely due to governments’ failure to provide adequate inducements and implement the needed regulatory framework to enable universities and industry to synchronise their work to enhance graduate employability. The shortfalls of the three are as follows:

UNIVERSITIES
Teaching, learning and research in many universities in Africa has not deviated much from the age-old tradition of transfer of theoretical knowledge and engagement in pure academic research with little or no viability for commercialization of research results (Yusuf, Saint & Nabeshima, 2009). That culture is incongruent with the entrepreneurial orientation of industry which seeks business solutions that can lead to profitability (Santoro and Betts, 2002). This situation underlies the sluggish cooperation between universities and industry. Notwithstanding the fact that university teachers and researchers are supposed to have appreciable experience of industry work and plough back their experience into teaching and research, those with industry work experience in Africa are scanty (Kruss, et al, 2012). This certainly accounts for the inability of many African universities to implement industry-relevant curricula that adequately predispose graduates to the world of employment (Ofori-Sarpong, 2012). Besides, a lot of firms are reluctant to provide access to students, university teachers and researchers to use their work environment to gain industry experience (Vilanova, 2007; Matamande et al, 2013). This is due to their focus on proprietary of knowledge, immediate returns and their culture of quick fix solutions to business problems. Moreover in Africa, there is no guarantee that partnership with academia would lead to tax rebates (George, Zahra, & Wood, 2002); access to advanced technology (Santoro and Betts, 2002); patent rights (Newberg and Dunn, 2002) or enhancement of corporate image (Siegel et al, 2003). It is obvious that industry is unenthusiastic about partnership with academia to promote graduate employability due to lack of adequate inducements from universities and government.

GOVERNMENT
Government as the bridge between industry and academia is yet to fulfill its role of aligning the goals and priorities of the two institutions towards ensuring graduate employability in Africa. The gap in collaboration between universities and
industry is widened by governments failure to adequately support the two institutions to engage each other in strategic ventures that address national socioeconomic needs (Pool and Sewell, 2007) and equip university students with skills that predispose them to employment (Biney, 2014). It is unfortunate to state that African governments have not excelled in engendering collaboration between academia and industry by bonding the two entities to engage students in practical learning and acquisition of employable skills for industries (Matamande et al, 2013). Pool and Sewell (2007) notes that governments’ failure to provide adequate funding and a regulatory framework for effective collaborations has hampered the propensity of universities and industry to develop projects, programmes and activities that ensure profitability for industry, enrich the experiences of academia and facilitate the inculcation of industry-relevant skills into students.

VII. RECOMMENDATIONS

Considering the fact that the partnership between industry and academia in Africa has not been able to guarantee employability for African graduates, the following recommendations are made

1. Universities must continue to look for opportunities to attract corporate entities for collaborative research that assures economic viability. Though this might incur initial cost, the long term benefit of building credibility, industry goodwill and proprietary for developed products has the capacity to create further opportunities and attract more resources from industry for teaching and research. This will give universities industry experience to enrich graduate preparation for the world of work

2. For corporate entities to engage university teachers and students through internship for work based learning there must be evidence of mutual benefit from the relationship. If universities can justify the creation of new knowledge with competitive advantage for a firm, the firm will be willing to engage teachers and students of the university for collaboration. Therefore university faculty teachers, researchers and students should identify specific problems of firms and propose research collaborations that can yield economic gains through work based exposure for faculty members.

3. Since graduate employability depend not only on subject knowledge, but also on generic skills, emotional intelligence, career awareness, self-esteem, self-confidence and self-efficacy, universities must develop courses that enhance students’ literacy in those areas. Beside the use of classroom teaching and learning strategies to transmit knowledge and skills in these subjects, activity based exploratory learning projects replica of industry situations should be developed for students to immerse themselves in activities that can enhance their smooth transition from college to work, either as employees or entrepreneurs. Such activities should aim at building graduates’ capacity to brand themselves for chosen occupations, prepare for, and handle interviews successfully, navigate through and across industries appropriately and chose appropriate career development paths for sustenance of employment.

4. Corporate entities should advertise positions at relevant university faculty offices, stating their human capital needs for short to medium term work based collaborative learning opportunities. Such advertisements should contain a detailed description of the nature of collaboration sought and the task to be accomplished by prospective teacher, researcher or student interns. Beyond that, industry should be specific on rewards for universities, staff and students and likely employment prospects for distinguished graduates of partner universities.

5. Government being the strongest determinant of the success of collaboration between universities and industry must create and maintain an enabling environment for the two entities to align their expertise towards empowering graduates in Africa with employable skills relevant to African industries. Funding of universities on the basis of teaching and learning and conducting research is never sufficient to guarantee graduate employability. Government must provide a regulatory framework that ties certain aspects of university funding to the outcome of collaboration with industry. The mission of universities must be redefined by government to include collaborations with industry that guarantee students’ exposure to industry work, acquisition of employable skills and economic application of research results. For the regulations to assure expected outcomes, government must assess universities strongly on dimensions of industry collaboration and graduate employability through the lens of students and employers.

6. If universities are adequately resourced by government and industries are given adequate incentives to enhance their growth, collaboration between the two could be effective. Therefore government must create incentives for industries to reduce the cost of business operations. In that regard, corporate entities would have little excuse for not engaging students on work based learning. Similarly, if universities are adequately resourced, faculties will have little excuse for their failure to implement programmes that enhance graduate employability.

7. To enhance the development and implementation of industry relevant programmes, universities should develop their programmes and curricula with adequate inputs from industry experts. Government through its appropriate agencies should coopt
industry experts into the governance system of universities in such a manner that each university faculty has an industry representative as a non-executive chairperson. This will build trust between universities and industry as well as facilitate the functions of industry liaison offices of universities in placing students on appropriate work based learning programmes.

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