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Knowledge creation and human capital for development: the role of graduate entrepreneurship

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Abstract

Purpose – Tackling structural and emergent problems in the labour market, valorising skilled human capital (HC) for opportunity creation, economic development and growth, are some of the key drivers for graduate entrepreneurship. This paper aims to examine developments in Africa, focusing on the significance of improving human capital through graduate entrepreneurship to meet the Millennium Development Goals (MDGs) in Nigeria.

Design/methodology/approach – Based on a unique Education Partnerships in Africa (EPA) project the paper adopts a conceptual and exploratory approach to understand the institutional, cultural and economic dimensions of change and the specific role of graduate entrepreneurship education and training in enabling productive outcomes, using an illustrative case study of the project to develop the arguments.

Findings – Knowledge creation lies at the heart of entrepreneurship development in developing economies such as Nigeria. Knowledge creation (KC) for entrepreneurship (E) is based on human capital (HC) development. In circumstances of uneven growth in developing economies HC development is the only constant. Harnessing HC for entrepreneurship can be based on three sets of propositions derived from an examination of the relationship between KC, HC and E, which locate graduate entrepreneurship's role within a holistic, institutional framework.

Originality/value – The paper's originality lies in the development of a model for promoting and evaluating a holistic approach to graduate entrepreneurship in developing countries based on the targeting of MDGs. It offers new insights into the role of graduate entrepreneurship in economic and social development.

Keywords Knowledge creation, Human capital, Millennium Development Goals, Entrepreneurship, Opportunity, Holistic and institutions, Graduates, Education, Human resource development, Africa, Entrepreneurialism

Paper type Conceptual paper

Education + Training
Vol. 53 No. 5, 2011
pp. 462-479

0040-0912
DOI 10.1108/00400911111147758

This paper is an outcome of the EPA project funded by the UK Department for Innovation, Universities and Skills (DIUS) for the benefit of the African Further and Higher Education Sector and the UK Higher Education Sector. The views expressed are not necessarily those of DIUS, nor the British Council.

Introduction

Received wisdom and many theories on the value of entrepreneurship have tended to focus on advanced economy contexts. In these contexts once entrepreneurs have demonstrated alertness to opportunities there are no other barriers to the realisation of those opportunities. In these situations there are little or no institutional constraints (Kirzner, 1973; von Mises, 1949). Institutions are fully developed and if there are any barriers such as information asymmetry, then the entrepreneurs show their real mettle by exploiting and overcoming them. In developing and especially poor economies the typical institutional structures that are necessary for opportunity creation and realisation, such as capital markets, are weak or even non-existent. Countries, therefore, go through various stages of development that create possibilities for new and robust institutions to be created and managed (Mitra, forthcoming).

From a developmental perspective Lewis (1965) argued that as the economy develops, higher levels of productivity and technological change are facilitated by capital accumulation. Gris and Naudé (2008) have called in to question the Lewis model by referring to the absence of the role of entrepreneurship in the literature in structural change and development. Acs and Szerb (2007) Acs and Virgill (2010) have built on Porter and Schwab's (2008) three-stage model of growth (factor-driven, efficiency driven and innovation driven) and have attempted to identify different forms of necessity (more in factor driven economies) and opportunity (more in innovation driven countries) entrepreneurship associated with these stages.

Stage model-based notions of economic growth and development suggest that different kinds of entrepreneurship prevail at each stage. But if growth is uneven in most countries (Ray, 2010) and if entrepreneurship contributes to economic growth (Schumpeter, 1947; Acs and Szerb, 2007; Thurik and Wennekers, 2004), we can assume that different types of entrepreneurship reflect the uneven patterns of growth within countries and between economies. Where growth does take place there is no guarantee of jobs. The role of human capital in uneven development tends to be facilitative and productive in that the tools of human capital development – education, training and research – nurture possibilities of growth. Graduate entrepreneurship has emerged as a new tool for development as the prospect of jobs for even the educated and skilled diminishes each day (OECD, 2009, 2010).

We explore the role of entrepreneurship in development and especially that of graduate entrepreneurship education in enhancing human capital for development.

Method

The paper is conceptual and exploratory in scope with an illustration in the form of a case study on entrepreneurship development. It explores the prospects of graduate entrepreneurship as a tool for development in a Nigerian context. This exploration is carried out through a critical consideration of one of the four components for knowledge creation and innovation – human capital development – as developed by the Knowledge Assessment Methodology (KAM) of the World Bank[1].

The exploration yields three propositions centred round the efficacy of knowledge creation and human capital development through graduate entrepreneurship in a developing economy. The propositions are used to inform a holistic model for graduate entrepreneurship development involving a range of stakeholders, their expectations and how graduate entrepreneurship could induce change. The model is used to provide a basis for policy development in the Nigerian context.

Development and entrepreneurship

Poverty haunts developing economies. Sub-Saharan Africa is probably one of the worst affected regions in the world. Although most African countries witnessed economic growth in the past few decades, real economic growth in the Sub-Saharan region remains below the levels found in other developing regions. One consequence of this situation is that not many countries in the region are likely to achieve the first Millennium Development Goal (MDG) of halving extreme poverty by 2015.

One line of thinking about poverty reduction has developed around the idea of entrepreneurial activities in the form of new venture formation, innovation and high-growth firms (World Economic Forum, 2009). Entrepreneurship is viewed today as a key driver of economic growth (Romer, 1992; Acs, 2002). This is because small rapidly growing firms started by entrepreneurially minded individuals, create wealth and a significant number of jobs in particular economies, thereby impacting greatly on social and economic development (Birch and Medoff, 1994; Acs and Szerb, 2007; Abubakar and Mitra, 2010). The relatively impressive progress made by countries such as Bangladesh, Bhutan, Cambodia, Laos PDR, the Maldives, Swaziland and Yemen, are good examples of success in developing economies stemming mostly from the creation of new ventures relying often on relatively low technologies (Beaugrand, 2004).

Development and growth require shifts from low to high productivity, the creation and adoption of new goods and services, new skills and new knowledge. These shifts are made possible by entrepreneurs who are the architects of "capacity creation' for productivity and growth. Mobilising the specific factors of capital, labour and technology which are generally imperfectly marketed, may not otherwise be allocated to activities supplied where productivity could be the greatest (Leff, 1979). The creation of successful new ventures locally also helps to generate indigenous growth and reduce the reliance on the mercurial character of foreign direct investment (FDI). Understanding, developing and valorising these factors through knowledge creation and graduate entrepreneurship has begun to catch the attention of policy makers, researchers and practitioners (Potter, 2008).

Knowledge for development and entrepreneurship

Harnessing knowledge for development has long been a key feature of development programmes, often accounting for the difference between poverty and wealth (Radwan and Pellegrini, 2010). Acs and Virgill (2010) contend that knowledge expansion results in productivity improvements within a firm, which creates it and other proximate firms, thus enabling economic growth. A source of economic problems in developing countries is the underproduction of knowledge and human capital, as low levels of both forms of capital accumulation can slow down technological change (Nijkamp and Poot, 1998). Knowledge is particularly important in the product and production discovery process (Hausmann and Rodrick, 2003). The creation of new firms, new products and improved production processes create "demonstration externalities" (Audretsch *et al.*, 2006) as entrepreneurs learn from examples and through better awareness and enhanced possibilities of market entry through new firm creation.

The Millennium Development Goals and forms of entrepreneurial knowledge creation

The creation of a knowledge-based economy is a function of relevant technologies and suitable business models. The recent spurt in usage of mobile telephony in Africa,

demonstrates how critical to the process of development is the adoption of relevant technologies and the creation of new business models based on their novel use and adaptation to local needs. Studies by Vodaphone Group (2009) and Waverman *et al.* (2005) suggest that every additional 10 mobile telephones per 100 people in a developing country helped to raise GDP by 0.6 per cent to 1.2 per cent.

At the other end of the spectrum, as Sachs (2005, 2010) observes, social entrepreneurship in the form of free access to and distribution of nearly 200 million insecticide-treated nets to reduce malaria transmission, together with community-based drug treatments, have led to a plummeting of malaria deaths in Africa. Community groups have worked closely to ensure scaling up the supply of, coverage and access to bed nets. The model for malaria control is being extended to smallholder farming in Malawi and other African countries. Technical experts review and approve national action plans prepared by countries, and a global fund disburses money for bed nets, malaria medication, high yield seeds, and fertilisers.

Entrepreneurship provides a basis for economic change through new knowledge creation and application but for this process to obtain value in a development context it needs a framework which can address a fairly complex set of human and social issues and enable value creation at the individual, social organizational and wider economic levels. The MDGs help to provide a basis for bringing together many of the most noteworthy commitments made by member states of the United Nations (UN) at the Millennium Summit in 2000, which acknowledge the interdependence between growth, poverty reduction and sustainable development (Ndedi, 2006). The member states of the UN agreed on eight goals, including, *inter alia*, the eradication of extreme poverty and hunger; achieving universal primary education; promoting gender empowerment; combating HIV/AIDS, malaria and other diseases and ensuring a sustainable environment, which should be achieved by the year 2015.

Inherent in both the mobile telephony and malaria eradication examples referred to above is the case for accommodating varied knowledge creation to meet the MDG targets. This can be achieved through the coalescence of four key components of development based on the generation, codification, use, dissemination and re-organization of knowledge, including the creation of a facilitative business environment as a basis for a system of harnessing and using knowledge for value creation, the establishment of an information and communication infrastructure, an innovation infrastructure (or a system of linking institutions, resources, people and capital), and skills and education (or the development of human capital through education and training). These four components make up the four pillars of KAM developed by the World Bank (Radwan and Pellegrini, 2010). We focus on the human capital factor because of the now well-established relationship between such capital for knowledge creation and entrepreneurship, and also because of its mediating role in developing the three other components as in improving the local business environment, attracting new talent, and improving institutional resources (Florida, 2010). This discussion leads us to our first proposition:

P1. The generation, use and dissemination of new knowledge (including adoption, adaptation and application) in particular environments is critical to poverty reduction (MDG Goal 1), and the development and growth of entrepreneurship in developing economies.

Human capital and entrepreneurship

Knowledge creation is a function of human capital development and opportunity recognition. Human capital is defined as an individual's stock of education, experience, skills and intelligence. Becker's (1964, 1993) human capital theory, suggests that education and experience develop skills that enable workers to be productive. Human capital is enhanced through such learning and this manifests itself in varieties of high value opportunity recognition, skills enhancement and resource acquisition and use (UNDP, 2009).

The language, technical and social skills of new venture creation can be learned through entrepreneurship education and training. Ahmad and Hoffman (2007) argue that a country's entrepreneurial performance depends on numerous underlying factors coupled with the personal attributes of entrepreneurs. They explain that entrepreneurs and entrepreneurship are created by a combination of three factors**:** opportunities, skilled people (technical and entrepreneurial capabilities and competencies) and resources (finance, technology, research and development (R&D)). These three factors are all affected by two important conditions: the surrounding regulatory framework and culture which includes the business environment and people's attitudes and aspirations for entrepreneurship.

Resources and skills help to identify opportunities created by the market conditions in the country. These market conditions include public involvement in markets, competition in the markets, access to foreign markets, and procurement regulation (Ahmad and Hoffman, 2007). Entrepreneurship occurs when there are incentives within a regulatory framework. In a development context, the regulatory context and the market conditions can be distorted by excessive state intervention and subsidies for inefficient enterprises or enabled by limited protectionism for locally made goods and services.

Culture, as Nijkamp (2003) suggests is one of the three related factors for entrepreneurship, the other two being personal motivation and the social environment. Culture influences an entrepreneur's behaviour, attitudes, and overall effectiveness and, moreover, is often unnoticed by the entrepreneur. The role of human capital in fostering entrepreneurship for development through effective resources and skills management is, therefore dependent on its ability to open up new opportunities through the use of a specific set of skills and resources in a particular cultural context.

The cultural context for developing economies is inevitably different from those of their developed counterparts, and it could be argued that the same set of principles as proposed by the Washington Consensus and others may not be appropriate for such economies. Some studies have found that culture can be a dynamic factor in the economic reformation (Zapalska and Edwards, 2001 in China), or that a combination of social structure and cultural values can constrain entrepreneurship (Dana (2000) in India) and that certain characteristics of local culture can be unfavourable to economic development (Cochran, 1960).

Human capital development through education in this context is of value when it helps to create new knowledge to meet both economic and social goals. Consideration of this connection between human capital, the nature and trajectory of development in particular contexts influenced by local culture and values, leads to our second proposition:

P2. The development of human capital is positively associated with new knowledge generation and skills relating to the identification of new opportunities reflecting specific needs in particular economic, regulatory and cultural contexts.

Human capital development, graduate entrepreneurship and the MDGs

One approach to promoting entrepreneurship development through knowledge creation and human capital development is by way of graduate entrepreneurship activities. Graduate entrepreneurship refers to the interaction between the graduate – as the product of university education – and entrepreneurship in terms of an individual's career-orientation and mindset towards entrepreneurial activities (Nabi and Holden, 2008). The growing value of entrepreneurship as a subject of study is based on key factors, such as the growing importance of SMEs in job creation and innovation, the challenge to higher education institutions (HEIs) to meet the demands of economic and social change through the development of skills of employability and business creation (Porter and McKibbin, 1988).

Graduate entrepreneurship has been receiving increased attention in recent times especially because of the ongoing recession in the global economy which is pushing more graduates towards entrepreneurship (Baldry, 2009; World Economic Forum, 2009; NGCE, 2006, 2004). Another reason driving the need for graduate entrepreneurship is that employers often find that graduates do not have the required skills and relevant experience of the workplace that can make them employable, and universities have to think more creatively about how to prepare them for the world of work (*Times Higher Education*, 2010).

Graduate entrepreneurship marries issues of employability with self-sufficiency. It goes beyond the sole focus on new venture creation to encompass other aspects of entrepreneurship such as innovation in small, large and social organizations. Their aggregate impact on economies and societies lead to social and economic change

Graduate entrepreneurship education is a form of education aimed at developing the individual's attitude and capacity to engage in any or all of the following entrepreneurial activities from new venture creation (start-ups – business, community and social ventures, spin-offs from large firms; reorganization round new projects) to the innovative growth of small business and creative developments in larger firms (new ways of managing change), and social change; changes in the direction of the market and the economy (entrepreneurial economic and social development).

Graduate entrepreneurship education provision is one way of addressing poverty reduction, as there is strong empirical evidence suggesting that economic growth over time is necessary for poverty reduction. Entrepreneurship boosts economic growth (Acs, 2002), enhances educational attainment and increases the rate of economic growth (Lucas, 1993). The World Economic Forum (2009) argues that the three relationships above are suggestive of productive outcomes emanating from education provision. For example, in eradicating extreme hunger and poverty (Goal 1) even if developing countries focus on innovation, creativity, talent and resources to overcome poverty, they lack the infrastructure and the expertise to support such an objective. These deficiencies could be overcome through capacity building through entrepreneurship education to transform these assets into products and services, thereby creating more jobs, enhancing their global trade opportunities and reducing the incidence of poverty.

Graduate entrepreneurship and developing economies

The current literature is characterised by at least three weaknesses that obscure our understanding of the value of entrepreneurship education in developing economies. First, there are few empirical studies on entrepreneurship education in developing

economies that actually examine or conceptualise the way in which graduate entrepreneurship is promoted in developing economies. Second, we still have very little knowledge of approaches taken by developing economies in promoting entrepreneurship education which differ from those adopted in Western economies. Third, the scope of entrepreneurship education and graduate entrepreneurship, in particular, does not take into consideration how the wider goals of society can be addressed through entrepreneurship, including institution building, marrying social and economic goals, and organizing knowledge creation through human capital development.

The development of a holistic approach based on issues referred to above prompted us to develop a project which could address those issues and generate greater awareness of the role of entrepreneurship in development through wider stakeholder involvement. This approach is encapsulated in the following proposition:

P3. Graduate entrepreneurship provides a necessary tool for entrepreneurship in developing economies where it accommodates different forms of value creation, and institution building through new knowledge creation and human capital development.

The Nigerian challenge

Africa is the second largest continent with vast resources and 12 percent of the world's population. Nigeria is the most populous country in Africa with about 130 million people and contains over half of West Africa's population. Its successes or failures resonate far beyond its immediate neighbours in West Africa because of its great economic power as it represents 55 percent of West Africa's gross domestic product (GDP) (www.africaaction.org). The country is a member of the Organisation of Petroleum Exporting Countries (OPEC). Since 1974, over 90 percent of Nigeria's foreign earnings have come mainly from oil (Joy, 2000). The country is a leading producer of palm oil, cocoa, and rubber. It is blessed with a variety of natural resources. Ironically however, poverty continues to devastate the potentially wealthy country. Figures suggest that 66 to 70 per cent of Nigerians are poor, and the rate of unemployment is about 15 per cent (UNDP, 2009). It ranks 41st in terms of gross domestic product (GDP) and 161st in terms of GDP per capita.

The major challenge confronting Nigeria is that of reconstructing its economy in ways that promote new opportunities for social and economic change to help with poverty reduction and wean her away from an over-dependence on its oil reserves. This challenge is symptomatic of the paradoxes that abound in developing nations such as Nigeria, where riches and resources are not balanced by skills levels and technologies with which to create new knowledge and recognise new opportunities.

Entrepreneurship in Nigeria

Entrepreneurship is now one of the ways in which Nigeria is trying to reduce unemployment and tackle poverty. Early industrial policy in the 1960s focused on the creation of big industries with almost a total neglect of new firm creation or small business development (Aladekomo, 2004). Nigerian government policy was driven by the same approaches as those adopted in the west in the 1940s and 1950s. Large firms with their economies of scale were considered to be the bastions of innovation as even Schumpeter (1942) and Galbraith (1956) have noted.

Today, small and medium sized enterprises (SMEs) represent about 90 per cent of all firms in the Nigerian industrial sector. In the last three decades and in common with a large number of developing countries, Nigeria has realised the importance of developing SMEs as a way of achieving several goals. These goals have included providing work opportunities, poverty alleviation, adding to the GDP, employment generation, creating a much needed feeder industry for the larger enterprises and contributing to the export sector.

Several non-governmental organizations (NGOs) such as the Fate Foundation, Support and Training Entrepreneurship Programme (STEP), the Nigerian Investment Promotion Commission (NIPC), the Association of Nigerian Development Finance Institutions (ANDFI), as well as individual Development Finance Institutions (DFIs) have been promoting the growth of SMEs in Nigeria through advocacy and capacity-building initiatives, and have continued to canvass for better support structures for operators in the SME subsector.

Nigeria has now eliminated its debt and has developed a bold vision of becoming one of the top 20 economies in the world by 2020. The "Nigeria Vision 2020 Strategy" seeks to build on the fact that it is a powerhouse of the African continent by seeking enhanced value from its population which is the eighth largest in the world. The transition to a new Nigerian economy based on knowledge, productivity and innovation (KPI) is expected to be realised through the key vehicle for achieving KPI – entrepreneurship. To this end the President's Seven Point Agenda, adopted in 2007 reflects the significance of adopting the MDGs in the Nigerian context as well as the four components of World Bank's KAM. They also underline the importance of economic and social reforms for economic and human development.

Entrepreneurship education and knowledge creation in Nigeria

In Nigeria there is an increasing effort towards the introduction of entrepreneurship education in universities, as one way of creating entrepreneurially minded people who are able to create new, innovative high-growth ventures (Ndedi, 2006; Akpomi, 2009; World Economic Forum, 2009). Universities play a crucial role in the production of knowledge and human capital needed for entrepreneurship (Jaffe, 1989; Audretsch, 1998; Stuart and Sorenson, 2003, Acs and Szerb, 2007; Abubakar and Mitra, 2010).

Early initiatives in education (e.g. Ashby Commission of the 1950s following Nigeria's independence) were centred on the production of manpower for independence as there were concerns on the availability of skilled people to take over the government jobs that were vacated by the colonialists (Aladekomo, 2004). The development of entrepreneurial minds of undergraduates or the encouragement of graduates to explore various kinds of entrepreneurial activities as part of their career development plans did not, however, form part of this equation.

With the growing attention on small businesses in the country (Akpomi, 2009), capacity building and human capital development have begun to take shape. Thirteen industrial centres (IDC) were set-up in the 1970s as part of the National Development Plan to provide services to small businesses. Programmes such as "Work-for-Your-Self Programmes" were introduced across Nigeria from 1987 to1991; the "Start-and-Improve-Your-Business" initiative was implemented in 1994; and the "Work-Improvement-for-Small Enterprises" (WISE) programme in 1997 (Alarape, 2008)1.

Entrepreneurship education and training are seen to be instrumental in shaping the attitudes, skills and cultural orientation needed to achieve the MDGs (Ndedi, 2006; Luthje and Franke, 2003; Wang and Wong, 2004; Akpomi, 2009; World Economic Forum, 2009; Radwan and Pellegrini, 2010).

Nigeria still suffers from low levels of human development (UNDP, 2010) and is ranked 142nd of 177 countries in the 2010 Human Development Index (HDI), (UNDP, 2010). This suggests the need for a massive effort in boosting Nigeria's human capital, part of which could be achieved through entrepreneurship education (Akpomi, 2009). A number of researchers argue that entrepreneurship education could help Nigeria move towards achieving the MDGs (Ndedi, 2006; Akpomi, 2009; Radwan and Pellegrini, 2010). Okafaor (2010) examined the effect of entrepreneurship education on students' entrepreneurial actions using samples from two universities in Nigeria. They found a positive relationship between entrepreneurship education and entrepreneurial action corroborating evidence of the relationship between entrepreneurship education and entrepreneurial intension or propensity.

Graduate entrepreneurship in Nigeria

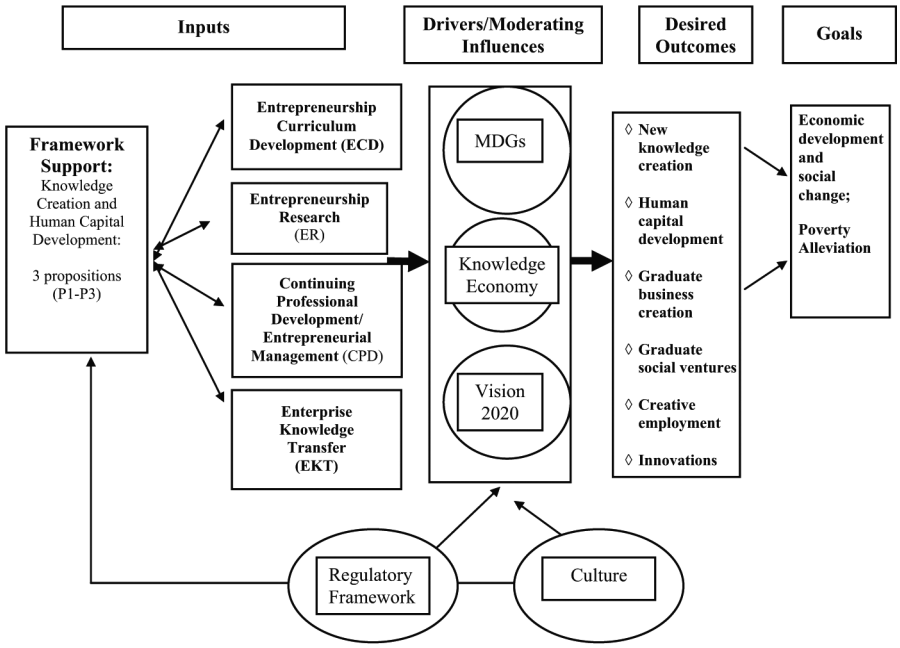
Only about 16 per cent of young Nigerians have any job outside of subsistence agricultural economy, suggesting a waste of young talent and potential unrest (Radwan and Pellegrini, 2010). To offset these deficiencies key measures taken in Nigeria include the establishment of the first African Institute of Science and Technology (AIST) in Abuja, the Digital Bridge Institute, the strengthening of accreditation standards and the mandatory scheme for entrepreneurship education across state universities by the National Universities Commission (NUC). These "high-end" initiatives supplement the numerous training programmes referred to above suggesting the importance of multiple forms of entrepreneurial support activity necessary for an aspiring and developing economy.

Building ecosystems of knowledge creation and entrepreneurship

Unlike situations in developed economies where specific deficits can be accounted for to address anomalies in particular environments, multiple approaches need to be made in developing countries to help develop institutions, skills, address governance issues, and target a range of MDGs, through opportunity and new venture creation. Opportunity creation at one level, for example through technological innovations alone, can be scuppered by the absence of suitable physical and skills infrastructure. This requires a holistic approach based on the idea of an ecosystem connecting networks, infrastructures, markets and ideas.

Developing the conceptual model

This overview of the Nigerian economy and the discussion on the value of knowledge creation and human capital development helps us to create a model for explaining and evaluating the project on entrepreneurship development in Nigeria. As Figure 1 shows, the model was developed to apply concepts that were informed by economic and social objectives that underpin the MDGs and the particular role that entrepreneurship development provision can play in addressing economic change. We consider knowledge creation and human capital development through graduate entrepreneurship as key inputs to entrepreneurship development. In view of the need to accommodate multiple goals of development, institution building and



Source: Authors (based on EPA data and analysis, 2010)

Figure 1.
Education partnerships in Africa (EPA) model of entrepreneurship education

knowledge creation, appropriate for a developing economy, it was necessary to consider different types of provision suitable for different education client groups. These are moderated by the vision and the MDGs and influenced by the regulatory framework and local culture.

Several components were identified, including entrepreneurship curriculum development (ECD), entrepreneurship research (ER), entrepreneurial continuing professional development (ECPD) and enterprise knowledge transfer (EKT). The components represent the various mechanisms and instruments for graduate entrepreneurship activity. Their inclusion in any model also helps to address the different levels, targets and methods of entrepreneurship provision and the need for a holistic approach to such provision. The third set of variables include the drivers for change or the moderating influences which impact on the use of appropriate inputs to achieve desired outcomes, which in turn contribute to the meeting of key goals.

The Education Partnerships in Africa project

Aim and purpose

The main aim of the Education Partnerships in Africa project (2009-2010)[2] was the building of a sustainable academic infrastructure for the study and investigation of entrepreneurship (as in new business and social venture creation), and employability (as in both creative employment in existing organizations), through curriculum development and a framework for research in Nigerian higher education institutions. The project began its life early 2009 as an international exercise that involved collaborations between the University of Essex in UK and several other key partners in

the Northern (Bayero University or BUK), Central (NUC), University of Abuja) and Southern Nigeria (Covenant University), each leading on specific aspects of the project.

The project was developed on the basis of a clearly articulated need for capacity building for entrepreneurship studies in Nigerian universities following the steps taken by the NUC to introduce mandatory entrepreneurship education and training programmes in all Nigerian federal universities. BUK which took the lead institutional role in this project in Nigeria had started initial activities to promote entrepreneurship within the curriculum, as in MBA modules, but had not as yet embarked on any work on augmenting academic expertise in this area or drawn up any defined plans for entrepreneurship research, professional development programmes, teaching and learning strategies for entrepreneurship and curriculum management.

Structure

The project had four key components or inputs for the development of a framework for knowledge creation and human capital development through entrepreneurship: Each component was led by one participating Nigerian university, working in collaboration with CER to develop an appropriate framework. BUK led the initiative on entrepreneurship research, NUC covered curriculum development; the University of Abuja headed the CPD component and the knowledge transfer aspect was led by Covenant University. NUC was actively involved at every stage throughout the project as the main co-ordinating body for all Nigerian institutions.

A range of other Nigerian universities also participated directly in the project. All the universities deputed senior academics and administrators to attend the training and development sessions and specific members were identified to lead the implementation of the various initiatives. BUK was able to engage with a large number of other public and private non-academic organizations in the country, such as Small and Medium Development Agency of Nigeria (SMEDAN), Manufacturers Association of Nigeria (MAN), Chambers of Commerce, and Sahawa Youth Organisation. The engagement with these institutions added specific stakeholder value to the project deliberations, ensuring such close collaboration and engagement with a wide spectrum of interests.

Findings

From 2009 to 2010, CER staff engaged with a number of Nigerian institutions to exchange and share knowledge for the development of the framework referred to above. A networking approach based on the four framework components led first to the development of each category of entrepreneurial activity By identifying key institutional leads and distinctive objectives (or purpose) each of the networks generated specific outputs and outcomes as shown in Table I.

The project's success is evinced in the wide scale and depth of participation by different stakeholders. Their involvement and purchase of the concept ensured the overlap of different levels of expertise and resources. The participation of delegates representing different levels of responsibility, from managers to educators, technicians and administrators, also allowed for insights into each other's understanding of and their roles in graduate entrepreneurship development. In terms of specific outcomes and outputs Table II identifies the wide range of knowledge flows and outputs that resulted from the project.

Links	Purpose	Outputs
University of Essex – NUC, Nigeria	This was developed during the EPA project with the purpose of developing entrepreneurship curriculum across all Nigerian universities	*Entrepreneurship curriculum development* Development of entrepreneurship curriculum and courses to be studied by undergraduates across all federal universities in Nigeria Two key courses on Business Growth and Entrepreneurship and Innovation Mostly delivered at undergraduate level (but some possibility of delivering them at postgraduate level)
University of Essex – University of Abuja, Nigeria	This was developed with the purpose of developing CPD programmes on entrepreneurship	*CPD programme – Global Project and Innovation Management* Delivered at University of Abuja in collaboration with University of Abuja The programme will focus continuing professional development for different industries in Nigeria
University of Essex – Bayero University Kano (BUK), Nigeria	This was developed during the EPA project with the purpose of developing Centre for African Entrepreneurship Research	*African Centre for Entrepreneurship Research – located at Bayero University Kano* The Centre will focus on conducting research on various aspects of entrepreneurship PhD programmes are part of the activities of the centre
University of Essex – Covenant University, Nigeria	This was developed during the EPA project with the purpose of facilitating knowledge exchange between Nigerian universities and industries	*Knowledge exchange between Nigerian universities and industries* Covenant university in collaboration with University of Essex will take the lead in encouraging knowledge exchange between Nigerian universities and industry

Source: EPA (2010)

Table I.
EPA networks of entrepreneurship development

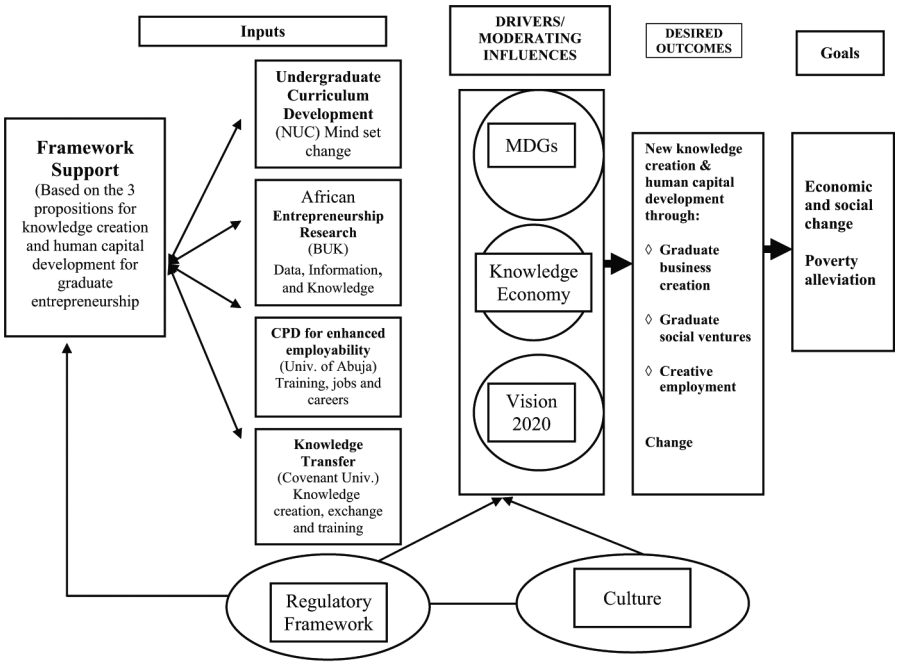
What characterised the activities and what enabled the outputs and outcomes to be achieved were the continuous interaction of participants. This interaction was facilitated by regular visits to each country and to a variety of workshops, seminars, interviews and group based activities. The development of a capacity for research across Africa through the establishment of an African Entrepreneurship Research and Development Centre at BUK and supported by CER was a unique development in the Nigerian context.

These achievements were directed to the realisation of new knowledge creation and human capital development for entrepreneurship. Entrepreneurship was given premium value in terms of graduates' ability to start new ventures as well as secure employability. In incorporating specific social and economic objectives, particular attention was given to target the MDGs and the goals of Vision 2020, which in turn allowed for the articulation and implementation of the conceptual model for the project, as shown in Figure 2.

Activities	Participants	Knowledge flows and outputs
1) Awareness raising at senior level in Nigeria	34 senior managers from Africa, including universities, NUC and Ministry of Education	1) Trained senior managers from Africa, through awareness raising to develop entrepreneurship and employability frameworks; Bayero University, Kano, delivery of notes on training sessions and learning materials
2) Short courses for all senior managers	From Nigeria: nine attendees (policy maker, academics, university management representatives and administration staff) From UK: 19 attendees (including seven students)	Training senior managers from Africa on "The scope, purpose and prospects of entrepreneurship teaching, research, entrepreneurship and employment, and the development of an entrepreneurial framework", delivered at University of Essex, delivery of notes on training sessions and learning materials
3) Awareness-raising training on Entrepreneurship teaching and Research	Total no. of attendees: over 45 members of the BUK Senate	The training programme conducted by the University of Essex for the entire senate of Bayero University, Kano
4) Extended trainer training – introduction on "Entrepreneurship Programme incl. CPD" – pilot programme for academics	From Nigeria: 16 From UK: 3	2) Academic know-how and course content development expertise training for academics and associates from Africa delivered in Nigeria; delivery of notes on training sessions and learning materials
5) Academic management training (CPD included) on the organization of entrepreneurship programme	From Nigeria: 9 From UK: 19	3) Organization, management and administration of employability and entrepreneurship programmes for academics and academic administrators from Africa; UK; delivery of notes on training sessions and learning materials
6) Developing a capacity for Entrepreneurship research (incl. PhD) – initial pilot	From Nigeria: 6 From UK: 3	4) Capacity building for research and knowledge transfer training for researchers and research support staff from Africa; delivered in the UK in March 2010
	From Nigeria: 21 From UK: 3	6) International research collaboration training; UK, June/July 2010 visit
7) Initial validation of teaching and learning involving academics and administrators	22 academics from both partner institutions were involved in the internal visits (July 2009 and November 2009), with two administrators from Nigeria visiting UK in November 2009 and one UK administrator visiting Nigeria in February 2010	5) Course validation, including course content, learning and teaching strategies, assessment methods; reading material; delivery of notes on training sessions and learning materials
	The training programme was built into the September 2010 conference in Abuja involving 200 delegates including both academics and administrators	7) International networking skills training: four academics and two administrators; delivery of notes on training sessions and learning materials

Table II.
Flows of knowledge and outputs from EPA project

Source: EPA (2010)



Source: Authors (based on EPA data and analysis, 2010)

Figure 2.
The active EPA model of graduate entrepreneurship

Concluding observations, policy considerations and future research

The EPA project represents a starting point for a focused initiative on graduate entrepreneurship development in Nigeria. It demonstrates how a holistic approach to achieving economic and social goals necessary to drive change in a development context can be formulated through entrepreneurship education and related activities. Its eventual realisation and results can only be evaluated over time. However, the outcomes of the project provide for opportunities for policy development which takes new knowledge creation and human capital development as the basis of driving economic change in a developing country. Some broad-based suggestions for policy development flow from the three propositions made in this paper and these can be stated as follows:

- The need to establish a framework for and a network of proponents of entrepreneurial change through knowledge creation so as to address issues of poverty reduction and technological development (addressing *P1*).
- The active involvement of graduates and stakeholders from a variety of organizations in human capital enhancement through graduate entrepreneurial education building to focus on both employability and new venture creation (addressing *P2*).
- The need to incorporate different forms of graduate entrepreneurship activity within and without the domain of higher education (embracing research, training, continuing professional development programmes and knowledge transfer activities (addressing *P3*).

It would be myopic to think that knowledge creation and human capital development for entrepreneurship can work without consideration of the three other components identified by KAM. The creation of a facilitative business environment, an information and communications infrastructure and an innovation system can only augment the benefits of human capital development and new knowledge creation. They are crucial elements of a genuine knowledge-based system for Nigeria.

Future research could build on the models above and test their viability through empirical work using data on new venture creation by graduates and measuring their impact on economic and social change as identified through the MDGs. Case study analysis should also provide for new insights on different forms of graduate entrepreneurship which address the MDGs. Crucially, the role of holistic entrepreneurship driving institutional and societal change could also be regarded as a new area of research.

Notes

1. Reference is made to the Knowledge for Development (K4D) web page on the World Bank web site. KAM Innovation Index at http://info.worldbank.org/etools/kam2/
2. The EPA project for Nigeria was funded by the Department of Innovation, Universities and Skills and managed by the British Council. The project was led by the Centre for Entrepreneurship Research and was entitled "Building a Capacity for Entrepreneurship Education and Research in Nigerian Universities".

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